

CHALLENGE 45

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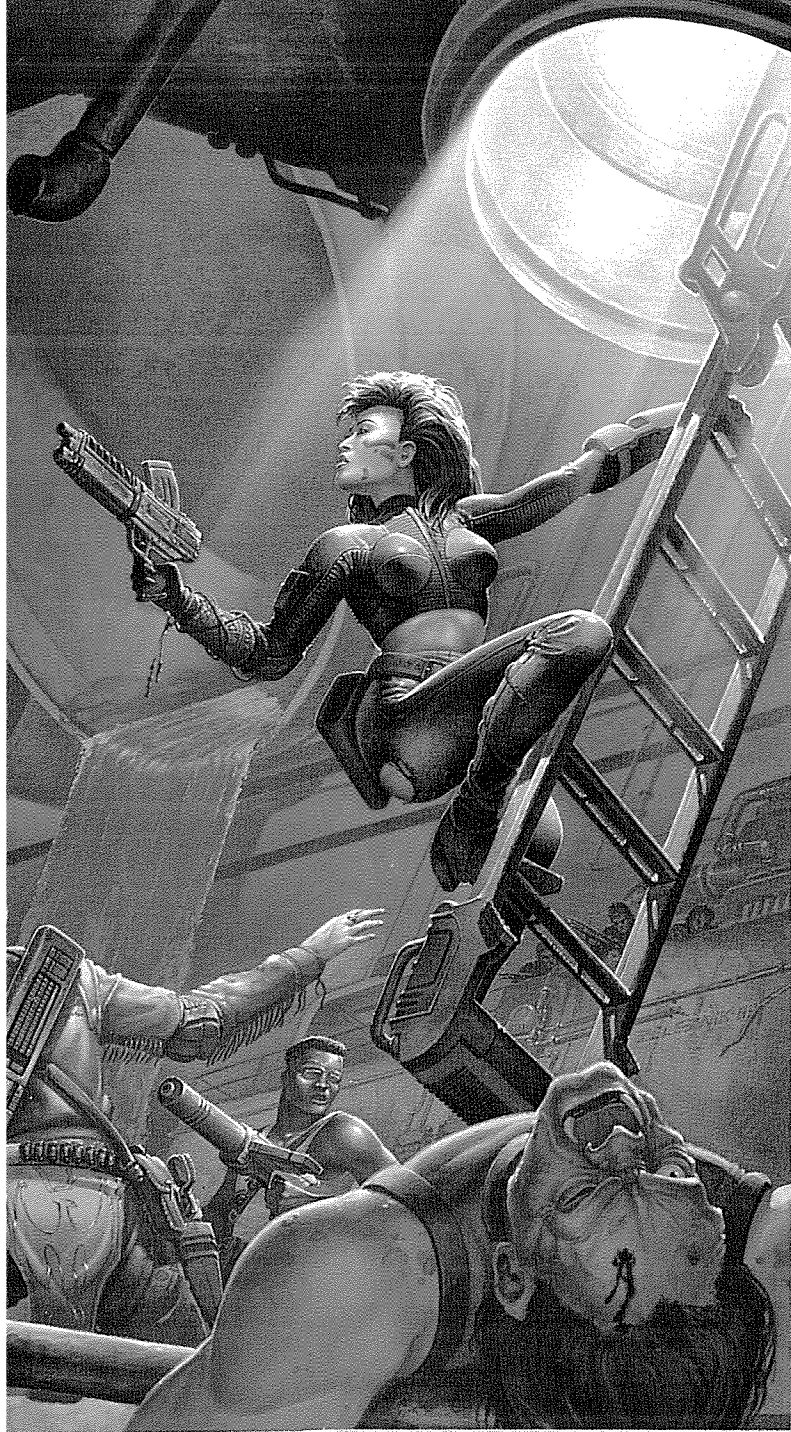
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Managing Editor
Michelle Sturgeon

Associate Editors
Loren K. Wiseman
Julia Martin

Graphic Design and Production
Steve Bryant

Interior Artists
Janet Aulizio
Tim Bradstreet
Paul Daily
Liz Danforth
Rick Harris
Phil Morrissey
Allen Nunis
Kirk Wescom

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City of the Future,
by Paul Alexander,
captures the spirit of the
MegaTraveller universe.

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CHALLENGE

The Magazine of Science-Fiction Gaming

Twilight: 2000

6 **Twilight II: The Adventure Continues**

You've been waiting for it—now here it is! The **Twilight: 2000** revision.
Loren K. Wiseman

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Use this system to determine material, coverage, rigidity, armor class, weight, and price when inventing your own body armor.
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46 **Catch & Carry Team**

catch \'kach, \'kech\ *n*: a small, armed, highly maneuverable vessel used to run down prospective prey.

car-ry \\'kar-e\ *n*: a modified medium freighter with good speed used to move in quickly and spirit away cargo.

catch and car-ry team: the most common method of space hijacking today. *Erick Melton*

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The PCs are in for more than they expect when they pick up something special from the black market in this cyberpunk scenario.

Matthew S. Prager

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A routine police investigation turns into a panicked firefight when a donut shop is suspected of fronting a black market operation. Unfortunately, the PCs are caught in the middle.

Lester W. Smith

72 New on the Street

You slip into the dark alley, and all is silent. At last, you've made good your escape. You lean back against the wall, panting heavily, and wipe the sweat from your brow. But when you look up, you see that you're not alone. In front of you stands the ugliest street samurai you've ever seen, and in his hand is an even uglier Barchetta Model 279. How do you react to equipment you've never even seen?

Lester W. Smith and Brett A. Foland

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It's not what you've got that counts. It's how you use it. And just knowing how to operate modern space weapon and defense systems might not be as important as understanding the finer points of combat.

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80 O.U.C.H.

O.U.C.H. is where you get rotten teeth yanked from receding gums with a minimum of anesthetic in the shortest possible amount of time. After a few good whiffs of laughing gas, you'll barely notice when your rotten bicuspid is twisted from their roots by a feebly trained pliers operator. And with a few stitches and a handful of painkiller, the laughing patient can be sent back to work as quickly as possible.

Merle M. Rasmussen

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86 Beefing Up the PBI

Why do so many wargames worship vehicular firepower and treat the infantry with contempt? These variant rules for FASA's *Renegade Legion: Centurion* will give the PBI a better chance to earn a little respect. *Rich Ostorero*



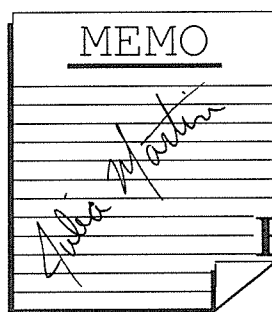
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From the Management

Life, the universe, and everything—this is the topic my managing editor asked me to address this month in the editorial. Well, not really—actually she just wanted an editorial which was insightful, persuasive, provocative (but not overly controversial), meaty (but short), and would change the life of anyone who read it—same thing.

In any case, I thought I would briefly consider a question which has been on my mind as a gamer and referee of late.

What does a referee do about romance as a motivation in roleplaying games? (I'm talking between *characters* here, not players.)

Romance is a big motivator in literature, but it always becomes a stumbling block in the gaming session—whether it's PC to PC or PC to NPC.

All the solutions I've tried or experienced either resulted in very awkward and stilted situations or degenerated into crudities. The result is that most of the people I know (including me) just don't address the romantic motivation much at all any more in gaming sessions.

People I know have speculated that the reason romance is so hard to deal with in RPGs is that it's hard to deal with in real life—and I believe this. But greed, hatred, survival, and revenge begin to pale very swiftly for me as character motivators; being a glory hound becomes shallow after a certain point; and no one can be altruistically heroic all the time.

Has anyone ever figured out a good way to utilize romance in an RPG without descending into the horribly sappy or the equally horribly clinical (or, heaven forbid, the tawdry)? If so, please write and explain it—I'm open to new ideas.

CHALLENGE

MEGACORPORATIONS

I write with regard to the current Shattered Imperium status (in **Mega-Traveller**). The political situation that has developed subsequent to the assassination of Strephon seems all well and good. But little regard seems to have been given to the economic situation—in particular, that of the megacorporations.

The financial and material assets of these vast commercial enterprises are such to rival that of the empire. The corporations' control of assets and resources with which to wage war would indicate that corporation motive and position need be a serious consideration of each faction.

The reconstruction of the Vilani Empire in Vland by the Vilani megacorp is fine—but what about the others? I do not see each corporation having its interests seconded to the political aspirations of its noble directors. Surely the need for profit and survival of the corporate entity would dictate otherwise.

It must not be forgotten that to wage a war, you need an economy to resource that effort. The breakdown of the old political order does not mean the end of the commercial order. Perhaps some consideration is required here.

As an aside, why would the Vargr choose a human skull as an emblem? Why not a wolf skull or wolf head?

Mark Ryan
New Zealand

The other megacorporations are very busy in the Rebellion. Tukera actively supports Margaret. Many are neutral (but supply all sides). Some, however, are fragmenting as their scattered departments supply the factions. By the way, the Vargr chose the human skull because it is frightening.

1889 IS A GEM

I would like to take advantage of this forum to voice my enthusiasm for the **Space: 1889** game system and my distress at rumors that it is dying (or being killed) because it does not sell as well as more mayhem or bizarre game

systems. This trend became evident to me when visiting my favorite game store and being informed that they were discontinuing stocking **Space: 1889** items because "there is no interest in the game." I must disagree.

Last year I had the chance to meet Frank Chadwick and Loren Wiseman at the Chicago Hobby Show and take part in an aerial battle between British and Russian sky ships and a squad of German combat tripods.

After a most enjoyable session, Mr. Chadwick informed me that GDW planned to release castings of the tripods, Martian civilians, and more vehicle types in the blister packs. There was even talk of an *Aphid*-class flyer model for use with the figures! Now I learn that *Canal Priests of Mars* is the latest, and possibly the *last thing* we'll see for this wonderful game that offers honest adventure without the need to murder someone every five minutes.

I urge my fellow **Space: 1889** fans to come forward and be counted along with me. This is the game that shows that not all roleplaying gamers are closet psychos or demon worshippers as the media and religious fanatics would have the world believe. Submit articles to this magazine and others outlining new adventures and equipment. If you live in the DuPage County, IL area, I welcome you to come to the College of DuPage, building K, where every Sunday I run an **1889** campaign.

But whatever you do, don't just sit back and let this bright gem in the RPG muck fade and be lost forever.

Donald E. Brynelsen
Itasca, IL

*At GDW we continue to be excited about **Space: 1889**. We just released a title which seems right down your alley—**Ironclads and Ether Flyers** miniatures rules for just the sort of battles you saw last year. And look for the computer game this fall!*

MARTIAN CALENDAR & MONETARY SYSTEM

The Martians (in **Space: 1889**) use many different systems for dating and

Letters from our Readers

chronology. The European colonial powers decided to introduce a uniform calendar to be used among themselves to avoid confusion. The Greenwich observatory was commissioned to develop it.

A Martian year consists of 666 Mars days. It is divided into 19 months of 35 days (five weeks), plus New Years Day. Thus, the monthly calendar looks like this: Apollo, Ares, Artemis, Athena, Chronos, Demeter, Eos, Hades, Helios, Hephaistos, Hera, Herakles, Hermes, Kastor, Ouranos, Persephone, Polydeukes, Poseidon, Zeus.

The developers chose to retain the Earthly name for the weekdays. The first day in a month is always Sunday. New Years Day is not a weekday but is counted separately.

Year 1 is counted from 1 January 1870—the year when man for the first time set his foot on Mars. Martian years are denoted AM (anno Martialis). Years before AM 1 are denoted AAP (ante anno primo). 1 January 1889 AM corresponds to 15 Ares AM 11. Edison and Armstrong reached Mars 32 Ares AM 1.

On the topic of Seldon's monetary reform, the Martian coinage before Seldon was a hodgepodge of currencies, but when Seldon built his empire he decided to create a uniform coinage to encourage trade within the realm. The innovation proved to be successful, and today it is used over almost the whole planet. To the memory of Seldon's decision, the backside of most coins carry his emblem, regardless of their origins.

The coinage is silver-based, and the value of a coin corresponds to its metal content. The most common coin is called *cri*—it contains 90% silver and weighs 4.7 grams.

The copper coin *craf* weighs 7.0 grams. There are eight crafts to the cri.

Half-craf coins are also made—the copper alloy contains 85% copper.

The gold coin *eclo* is worth 32 cri, contains 92% gold, and weighs 9.4 grams. It is uncommon and is mainly used by traders and authorities for large transactions.

Every city-state makes its own coins

and marks them with its emblem. Since coins are circulating freely, the rulers are deterred from debasing them. If someone did so, merchants would refuse to accept the debased coins for payment.

Anders Blixt
Sweden

Referees should feel free to adopt the above systems in their campaigns. However, a few cautions are in order. Although Seldon instituted many reforms, the use of a unified currency is dubious, and few city-states—other than his birthplace or the former capital of his empire—would probably continue to feature his image. The use of precious metal as a form of currency is also uncommon on Mars because of the rarity of any metal there. Finally, debased currency is usually refused by merchants only if they know it's debased. The many petty and corrupt princes of Mars have undoubtedly redefined "pure" currency in their treasuries' favor dozens of times throughout Martian history.

TRAVELLER COVERAGE

I have watched the **Journal/Challenge** go from **Traveller** to GDW products to sci-fi gaming in general—and not happily. I play **Traveller** and **Twilight: 2000**, and can usually change the other material to scenarios for them. But the fact is that I would rather not have to do so *much* changing.

I realize you need a lot of subscribers to make the magazine work. However, as a long-time **Traveller** player (since 1978), I prefer **Traveller** material over *Battletech*, *Star Trek*, or *Warhammer 40,000*. I should think at least one-third of the magazine could be **Traveller**—with occasional articles on the other non-GDW games—and still have a wide subscriber range.

I hate to see **Challenge** go the way of the *Grenadier* (i.e., away from primarily GDW materials to anything and everything).

Anyway, the magazine is still good and gives me ideas for scenarios.

Richard D. Stoy
A Co. 532 MI BN, CA

FEEDBACK

I find the new look in **Challenge** issue 43 very refreshing. The Letters from our Readers was a great idea! I finally realized how much conflict there is between the readers' demand.

The **MegaTraveller** Amber Zone, "Trouble in Paradise," was very well done. However, it would have been better if the stats for the NPCs were provided. I also like the fact that I finally got to see the faces behind the magazine. I must say, Loren doesn't look like how I pictured him from the few times I've talked to him (grin).

I'm looking forward to the next **Traveller** cartoon and the next issue of **Challenge**. Keep up the good work.

Wilson "Mac" Liaw
Worthington, OH

Your magazine is of the highest quality and one of the best on the market. I hope to see it go monthly very soon. Continue the good work.

Martin D. Goodman
Paulding, OH

Thank you for the fine magazine that your company produces and all the fine GDW products.

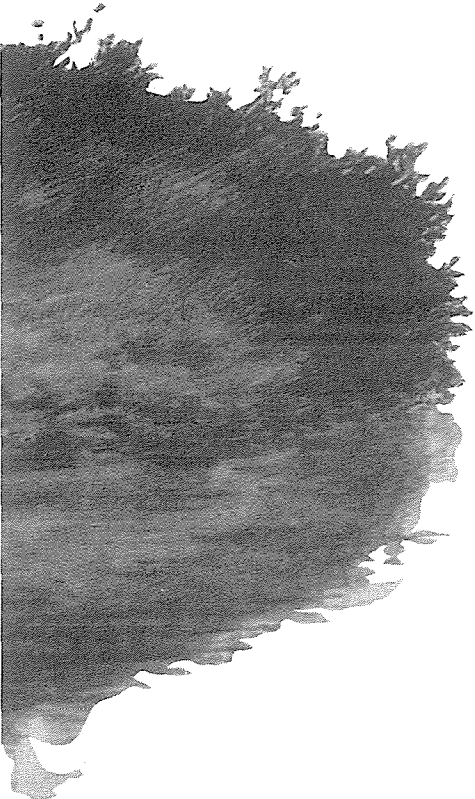
Tammie Davis
Quincy, IL

I just purchased **Challenge 43** and read through all of it. Bravo!! I like the new format. I am *highly impressed* with GDW. Please keep producing your games and magazines. And don't forget **Twilight: 2000** 2nd edition—many people in Colorado Springs are eagerly awaiting its arrival.

Thomas C. Jarvis
Colorado Springs, CO

*Have any comments on this issue? How about gaming in general? Letters from our Readers provides gamers an opportunity to air their views. The opinions presented do not necessarily reflect those of the magazine. **Challenge** reserves the right to edit letters. Write to **Challenge** Letters, PO Box 1646, Bloomington, IL 61702-1646 USA.*





“What fools we were to allow ourselves to be lulled into a warm sense of security by the events of the late '80s and early '90s. How childlike we were in our trumpeting of the new age of peace, prosperity, and good will. Democracy had come to Europe, and that meant that peace had come to Europe, for democracies never made war on other democracies.

“What utter rot!

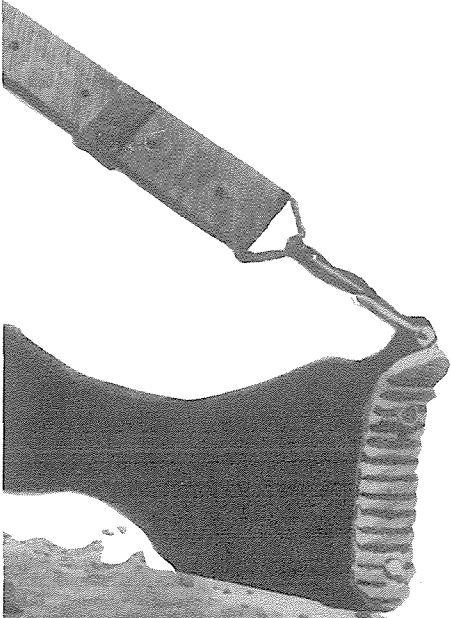
“How could we have believed such naive rubbish with the lesson of history so plainly before us? Democracies have *always* made war on other democracies; it has been a fact of life since the earliest democracies flourished in Greece and warred continuously upon each other.

“How could we have forgotten that in the War of 1812 the two great western democracies made enthusiastic, aggressive war on each other?

“How could we have forgotten that democracies represent the will of the people, and that the will of the people is often bellicose?

“How could we have forgotten that Hitler was elected?”

Janosz Skrivkin
Chancellor of Croatia
1999



'TWILIGHT' II: THE ADVENTURE CONTINUES

Loren K. Wiseman



Twilight: 2000 is being revised. By the time you read this article, the game should be through the printing process and shipping to the stores. What's different about the second edition? Here are the highlights.

When we first published **Twilight: 2000** in 1984, we suggested that a general European war (with global effects) might come not from a Soviet invasion

of Europe, but rather from Soviet pre-occupation elsewhere coupled with sudden German reunification. While the prospect of German reunification appeared to be a fantasy at the time, events both in Germany and Moscow have made that scenario look considerably less far-fetched today.

As a result, the chronological background to the war has required surprisingly little alteration to make it compatible with the current world situation, and the game scenario has, if anything, become even more reasonable than before.

TIMELINE

The following timeline summarizes the main events in **Twilight: 2000** from 1989-1996.

1989

The year the Cold War ended. All across Europe, communist governments topple in response to pro-democracy demonstrations. The Soviet Union's new policy of encouraging political pluralism in Europe makes the end of bureaucratic Communism a certainty. The Berlin wall is torn down in spots, and German reunification is now spoken of openly—the question is no longer “if” but rather “when.”

Riots in the Soviet republic of Azerbaijan (over alleged repression of Armenians) require intervention by Soviet troops, and the republic of Panama is invaded by the United States.

1990

The long-awaited (and long-feared, in some circles) reunification of Germany occurs as a result of de facto plebiscite elections. The newly united Germany renounces any territorial claims outside of its post-WWII boundaries but asserts continued interest in the welfare of ethnic Germans living outside of Germany.

Soviet troops begin to withdraw from Czechoslovakia, but the governments of Poland and Hungary (concerned over the specter of a reunified Germany) request continued Soviet troop presence and reaffirm their commitment to the Warsaw Pact.

1991

Ethnic and religious violence in the Central Asian republics of the Soviet

Union escalates, and the Soviet Union increases its troop withdrawal schedule in order to use the forces inside its own borders.

Germany opts for continued membership in NATO, but at a greatly reduced level of commitment, and turns its attentions to bringing the eastern portion of the country up to the standard of living of the west.

1992

In March, NATO, the Warsaw Pact, and German foreign ministers agree to the Rhineland Compromise, providing for token NATO forces to remain in the Rhineland for a period of five years. Civil war in Albania results in the fall of the Communist government.

1993

In China, underground pro-democracy organizations begin demonstrating in many of China's larger cities. While these remain relatively peaceful for a while, they soon erupt into violence, forcing military intervention. Within a year, many regions are effectively ruled by military commanders, modern versions of China's traditional warlords.

1994

In China, the central government is increasingly dominated by hard-line nationalists, who are supported by north Chinese warlords. New demands for border adjustments are made against the Soviet Union, and it is felt that given the Soviet internal problems, this might be the time to press for them internationally.

As Europe shows signs of increasing instability, Germany begins quietly increasing its force structure.

1995

After a period of increasing tension and escalating border incidents, full-scale war erupts between the Soviet Union and the People's Republic of China. The Red Army enjoys rapid initial success, and tank columns roar deep into the northern Chinese industrial heartland.

However, the Chinese surpass the expectations of most military analysts. While the Soviets continue to make impressive gains, their losses mount, and the tempo of advance slows, then grinds to a halt.

Elsewhere in the world, tensions mount.

1996

Soviet forces launch a spring offensive against the Chinese. But despite good initial gains, the drive soon stalls, with further horrendous casualties.

Poland sends an additional division to the Far East, but a wave of demonstrations in western Poland by ethnic Germans is violently suppressed by riot police, resulting in several deaths and numerous injuries. Germany protests and moves several divisions closer to the border.

In June, a small group of senior officers of the German Army, as well as at least one German cabinet minister, open secret talks with the leadership of several German ethnic organizations in eastern Poland. These talks are accompanied by increasingly violent antigovernment demonstrations in Poland by ethnic Germans.

In mid-July there are frequent exchanges of fire and several border incidents between units of the Polish and German armies. On July 27 elements of the German III Corps cross the frontier in retaliation for what they described as a full-scale attack by the Poles.

Claiming that its actions were justified by the military provocations of Poland and that it faces dismemberment as a state, Germany turns to its NATO partners for assistance. Some (like the United States, Canada, and the United Kingdom) join in, while others (like France, Greece, and Italy) refuse.

A minor border incident between Hungary and Romania erupts into war, and Hungary invades Romania accompanied by its allies—Bulgaria and the USSR.

Jugoslavia rallies to the aid of Romania, followed by Turkey. NATO responds shortly thereafter.

The years 1997-2000 proceed much the same as before.

CHARACTER GENERATION

The new character generation rules in the **Twilight: 2000** second edition incorporate fewer random elements and a greater level of player choice. Characters can enter any career they wish to, provided that they have the required attribute level or other prerequisites (such as Education). Skills and attri-

butes are now 1-10 instead of 1-100, and the six attributes have been reshuffled. Fitness has been eliminated, Charisma added, and Stature replaced with Constitution.

Also, a much wider range of characters is now possible, although the new system is easier to work with than the original. We have expanded the military career paths to include navy, air force, and marines, and the possible armies now include every major power in Europe (and quite a few minor ones).

In keeping with a more detailed coverage of other armies in character generation, we have also expanded the equipment listing so that at least a fair sampling of vehicles and weapons is available for every army covered. Whether you intend to actually run a Yugoslavian soldier as a player character or not, it's handy knowing what weapons and vehicles he is likely to have at his disposal in case you want to run a campaign there instead of in Poland.

Not all vehicles or weapons are covered, even for the major powers, but the selection is considerably expanded over the original game, and we have taken the opportunity to upgrade the ratings based on new information that wasn't available six years ago.

THE REFEREE

The referee is the largely unsung hero of roleplaying games, and much of the additional material in this edition of the rules is intended to make his job easier. What we've tried to do with the second edition is expand the rules framework and the environmental framework for referees without miring them in a morass of trivia. We have tried to strike the best balance between well presented general system rules and referee freedom in tailoring the specific encounters and campaigns to the tastes of his players.

With convenience and utility in mind, we decided upon a system of vehicle and weapon cards for the second edition.

These cards are printed (two to a page) in the basic rules, and are designed to be photocopied, clipped out, and arranged to create custom weapon and vehicle displays. Referees will have all the information they need at their fingertips.



COMBAT

Three major changes have been made in the revised combat system. Two (recoil and the new automatic fire rules) deal with fire combat, while the other is the new initiative and turn sequence rules.

Fire Combat

The new fire combat rules introduce two radical changes from the first edition **Twilight** combat rules: the resolution of each bullet fired and the concept of recoil.

Shots vs. Rounds: Having each game "shot" represent the effects of three bullets fired in the original game caused more confusion than any other single feature of the rules. Our original motive in lumping everything together was to simultaneously minimize die rolling, especially for automatic fire, and keep bookkeeping of ammunition under control. Both of these are laudable goals, but the result was a nonstandard gaming approach, and many people became confused (especially since we only defined a shot once, in a parenthetical phrase in the middle of a rule).

Recoil: The other major change is the inclusion of recoil as the principal limitation on rate of fire. A character's ability to control a particular weapon depends on his Strength and the weapon's recoil rating. Stronger characters can fire more rounds in a given turn without affecting their accuracy.

In the revised combat system, recoil is a function not only of the power of the cartridge fired, but also of the weight of the weapon, which makes heavy-framed weapons easier to control than light-framed weapons firing a comparable bullet. Because of this, you have results such as the Beretta 9mm Parabellum, with a loaded weight of about 1.2 kilograms, being more controllable than the Makarov, with a loaded weight of .8 kilograms, even though it fires a more powerful cartridge. The adoption of a three-round burst governor on the M16A2 is also handy in giving the firer a little more control over his rifle.

One final dividend of recoil was that it enabled us to dispense with the rather arbitrary categories of weapons as a means of limiting fire during movement. This is now solely a function of recoil and

the character's ability to control his weapon.

The chance of hitting a target with individual shots is dependant primarily on three things: marksmanship, range, and recoil. Which skill is used as the marksmanship rating depends on the weapon being fired. The appropriate skill level is the D10 chance of hitting a target with an aimed shot at medium range. This number is known as the base hit number.

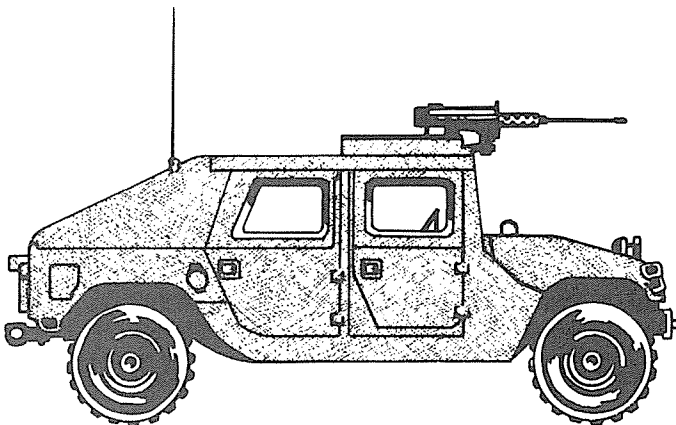
If more than one shot is fired in a phase, only the first shot counts as aimed; all subsequent shots are considered quick shots. All quick shots are conducted with the base hit number halved.

The base hit number at close range is twice the appropriate marksmanship skill. At medium range it is the unmodified marksmanship skill; at long range it is half the marksmanship skill; and at extreme range it is one-quarter of the marksmanship skill. Recoil modifies this die roll depending on how many rounds are being fired and how well the character can control the weapon in question.

Automatic Fire: The new rules on

HMMWV (Hum-Vee)

The above letters stand for high-mobility, multipurpose wheeled vehicle. The HMMWV is a four-wheel-drive, off-road vehicle designed as a light scout, utility, and cargo vehicle. It has replaced the jeep in U.S. service. It has a weapons mount (C) above the commander's seat; however, no weapon is provided.



Tr Mov: 200/60
Com Mov: 50/15
Fuel Cap: 90
Fuel Cons: 30

Combat Statistics

Config: Stnd **HF:** 1
Susp: W(2) **HS:** 1
 HR: 1

Price: \$20,000 (C/S)
Fuel Type: D, G, A
Load: 1.25 tons
Veh Wt: 2 tons
Crew: 2+4
Mnt: 2
Night Vision: Headlights

automatic fire are a result of a realization that single shots are to auto fire as man-to-man defense is to zone defense. That is, automatic fire isn't just more of the same—it is fundamentally different. A rifleman attempting to hit a target with single shots does so by trying to hit the target with each of one or more aimed shots. On the other hand, a submachinegunner, or rifleman with an assault rifle on full automatic, tries to hit a target by saturating its general area with bullets, under the assumption that something is bound to hit. Marksman-ship doesn't much enter into it.

Whenever a character fires a weapon on its automatic fire setting, he fires one or more bursts of rounds (depending on the individual weapon). Each time a burst is fired, roll a number of D6 equal to the number of rounds in the burst. Each 6 rolled is a hit. The actual number of dice rolled per burst, however, may be reduced by either range and/or recoil, as well as movement (target or firer) and other factors.

Automatic fire weapons have a danger zone, so that more than one target can be hit during a given phase (sometimes unintentionally) by spraying bullets into a general area.

Sequence and Initiative

Coolness under fire has been replaced by initiative ratings and a new phase sequencing system. Each 30-second turn retains the old division into five-second phases, but they are now numbered, and characters take actions according to their initiative. Characters with high initiatives can take actions in many phases; those with low initiatives can act only in a limited number of phases. Since things are no longer simultaneous, an opportunity fire rule was necessary. Otherwise, low-initiative characters would be unable to fire at a high-initiative character ducking from cover to cover.

Melee Combat: Body combat has become unarmed melee combat. Melee combat has become armed melee combat. Other than this and adaptation to the new attribute/skill system, melee combat has not changed radically.

EXPLOSIONS

The principal difference in explosions is that concussion has been substituted for knock-down radius. It is still possible

to be knocked down, but it is also now possible to be blown apart by a large explosion.

Fragmentation has been changed a bit, mostly to bring it in line with the new small arms damage and penetration procedures.

PERSONNEL DAMAGE

In the original system, the damage caused by a weapon declined drastically with range. Since armor penetration was proportional to damage, this was necessary to model the decrease in penetration over range. This is no longer necessary since penetration has been decoupled from damage, at least for most heavy weapons.

The wound effects rule has changed very little aside from a simplified wound system for NPCs. In retrospect, it was a mistake to require the referee to roll up the number of hits an NPC can take when the NPCs come in groups of 10 or more. A person is a person, after all, and a great deal of detail lavished on spear-carrier NPCs just slows up the game for the players.

VEHICLE DAMAGE

The vehicle damage system has been streamlined in keeping with the new fire combat rules.

The new system still has a detailed tally of interior components damaged, but now there are fewer die rolls and fewer charts to page through. The aim here was to keep the detailed flavor of the original system while making the mechanics far more streamlined and accessible. One important statistical change has been the armor ratings. In the original edition each armor point was the equivalent of 1mm of steel, while now

TWILIGHT: 2000

each point is equivalent to 5mm of steel. This accounts for some of the changes in armor values of the vehicles, while others are from new data which has been released in the six years since the original publication of the game.

As mentioned earlier, all game data relevant to a vehicle is now contained on a single vehicle card.

This article has only scratched the surface of the revisions to the game. We'll be illustrating the game to a greater degree than previously, including both color and black & white illustrations. Everything will be organized for ease of use, with major charts printed near the relevant rule in the text as well as in a master chart section. New character generation worksheets, record forms, and other referee aids will be included (for photocopying).

All in all, we think you'll like what we've done to the game. We're quite proud of it. Ω

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BAGS

Body Armor Generation System

Jason English

One of the most striking aspects of **Twilight: 2000** (or any other postholocaust roleplaying game) is the collapse of industry as we know it. As local supplies of construction and manufacturing materials diminish, other sources must be tapped. Ready sources of material exist in the ruins of dead and destroyed cities, as rubble and assorted junk may be pressed into use as building materials.

One result of this shift in industrial materials would be seen in the equipment used by communities to outfit its local defense forces, particularly in the field of body armor. Although steel helmets and Kevlar vests are rather common with armed troops, groups with little in the way of money or resources may not be able to get ahold of them. But an optional system will allow referees to create different types of make-shift armor. The ratings included here are for use with the original **Twilight: 2000** combat system armor ratings, not those of the upcoming revision.

THE BAGS SYSTEM

The BAGS system requires six steps to create body armor.

- 1: Roll 1D6 for material used.
- 2: Roll 1D6 for coverage.
- 3: Roll 1D6 for rigidity.
- 4: Determine armor class.
- 5: Determine weight.
- 6: Determine price.

MATERIAL

Die roll results are as follows.

1-2: Natural Materials. This includes hides, leathers, and even pieces of wood fashioned into some sort of protective garment.

3-4: Metals. These are the most common materials used in body armor, ranging from bronze to high-grade steel.

5-6: Plastics/Ceramics. These are the most sophisticated (and most rare) materials available. Plastics and ceramics are not only used as armor, but are also used as construction materials and (with certain high-grade plastics) weapons parts.

COVERAGE

Die roll results are as follows.

1-2: Head (Helmet). This may offer coverage as a regular helmet (as explained on page 23 of the first edition **Twilight: 2000 Player's Manual**) or give complete protection to all parts of the head (like a medieval enclosed helm).

3-4: Chest/Abdomen (Vest). A standard armor vest offers protection of these areas of the body.

5-6: Full Body. This type of coverage protects all parts of the body, except the head (a helmet is often worn with a full-body armor suit). This type includes medieval suits of armor, as well as high-tech suits made from ceramics.

RIGIDITY

Die roll results are as follows.

1-2: Flexible. This refers to armor that is woven (such as some forms of Kevlar) or is naturally flexible (like soft leather).

3-4: Rigid. Rigid armor is formed in hard plates, such as medieval suits of armor or the steel plates used in flak jackets.

5-6: Semirigid. This type of armor is a cross between flexible and rigid armor, which combines the ease of movement found in flexible armor with the natural strength of rigid armor.

ARMOR CLASS

The armor class of a particular piece of body armor depends on the materials used in it. Armor made from natural materials ranges from 1-3 (1D6+2). Armor made from metal ranges from 1-6 (1D6). Armor made from plastics/ceramics ranges from 2-12 (2D6).

WEIGHT

Like armor class, weight depends on the materials used in the construction of a piece of body armor. Weight also depends on the coverage of the piece of armor and its particular armor class (AC).

Natural Materials: Helmets weigh .2xAC kilograms where AC is their armor class (as determined above). Vests weigh .7xAC kilograms. Full-body armor weighs 2xAC kilograms.

Metals: Helmets weigh .8xAC kilograms. Vests weigh 2xAC kilograms. Full-body armor weighs 6xAC kilograms.

Plastic/Ceramic Materials: Helmets weigh .1xAC kilograms. Vests weigh 1xAC kilograms. Full-body armor weighs 3xAC kilograms.

PRICE

Price is only really important when the players are trying to buy or sell a piece of armor created from this system. Price is dependent on the same factors as weight.

Natural Materials: Helmets are priced at \$(ACx5). Vests are priced at \$(ACx15). Full-body armor is priced at \$(ACx25).

Metals: Helmets are priced at \$(ACx10). Vests are priced at \$(ACx50). Full-body armor is priced at \$(ACx100).

Plastic/Ceramic Materials: Helmets are priced at \$(ACx20). Vests are priced at \$(ACx100). Full-body armor is priced at \$(ACx250).

NOMENCLATURE

If you want to name the armor types you create with this system, the new name should reflect what the armor is made of. For instance, appropriate names for natural armors are boiled leather or quilted deerskin. Similarly, metal armors could be named bronze, iron, steel plate, cupronickel, titanium alloy, etc.

Plastics and ceramics are a little different. Since different plastics are inherently composed of different materials, the referee (or anyone else using the system) can have a ball making up names for these materials.

Here are some suggestions: carbon-composite armor (CCA) armorplast, ceramisteel, and polymer monofilament system (or PMS). Ω

CHALLENGE

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Conventions

QUIN CON V, July 13-15 at the Roadway Inn in Quincy, IL. Events will include roleplaying, miniatures (fantasy and historical), board and card games, and RPGA events, including a memorial tournament for the hemophilia fund. Guest of honor will be game designer Lester Smith. Send a SASE to Quin Con V, 3632 Maine St., Quincy, IL 62301.

SAN DIEGO COMIC-CON, August 2-5 at the Convention and Performing Arts Center in downtown San Diego. Preceding the Comic-Con will be the two-day Comic Book Expo, a trade show for the industry held July 31 and Aug. 1 at the convention center. This year's Comic-Con will be the 21st annual event. On the schedule are an art show, art auction, and exhibits. A major theme will be horror and the supernatural as portrayed in comics, novels, short stories, films, and television. Guests will include top artists, writers, and editors from the comics industry, major science fiction and fantasy authors, giants from the animation industry, and a movie star or two. Contact the San Diego Comic-Con, PO Box 17488, San Diego, CA 92117.

GENCON '90, August 9-12 at the MECCA Convention Center in Milwaukee, WI. Play in hundreds of adventure games, role-playing games, and the world's largest role-playing tournament—the AD&D Open. More than 40 national games tournaments and tons of events will be sponsored by the RPGA Network and major manufacturers. Enjoy a huge strategy and historical miniatures gaming area. Match your wits and pit your strategies against your foes. Don't miss your chance to play against the fierce competition found in the highly acclaimed world boardgaming championships. Plus a fantasy art show, 150 exhibit areas, games and art auctions, a computer gaming area, world-class games seminars, demonstrations and workshops. Contact GenCon Game Fair Headquarters, PO Box 756, Lake Geneva, WI 53147.

GATEWAY 10, August 31-September 3 at the Los Angeles Airport Hyatt Hotel. The convention will feature family,

strategy, and adventure boardgames, role-playing games, miniatures, and computer games. Plus flea markets, auctions, an exhibitor area, seminars, demonstrations, and special guests. Contact Strategicon, PO Box 8399, Long Beach, CA 90808.

TACTICON '90, Sept. 14-16 at the Sheraton Hotel of Lakewood, CO, sponsored by the Denver Gamers Association. Also participating will be the Colorado Springs Gaming Society and S.A.I.G.E., the local RPGA club. Gaming will include boardgames, computer games, miniatures, roleplaying games, and official RPGA tournaments. Other activities are auctions, a figure-painting contest, and the Puffing Billy tournament for railroad gamers. Contact the Denver Gamers Association, PO Box 440058, Aurora, CO 80044.

COLONIAL CITY GAMEFEST '90, Sept. 15-16 at the Knox County Memorial Building on East High Street in Mount Vernon, OH. Tournaments and contests will include AD&D, *Gladiators*, and miniatures painting. Also scheduled are 25mm *Fantasy Battles*, *Warhammer* and *Warhammer 40,000*, 25mm *Medieval*, WWII Armor (both microscale and HO), ACW, micronaval, boardgames, and other RPGs. Write to the Colonial City Gamefest, c/o Mount Vernon Gamers Association, PO Box 1184, Mount Vernon, OH 43050.

CALGARY GAMING CONVENTION, Sept. 21-23 in Calgary, Alberta, Canada, sponsored by the Canadian Wargamers Group. This third annual convention includes events to both introduce the novice and challenge the expert gamer. Enjoy the open gaming area, as well as the annual game auction with over 300 games. For more information, contact the Canadian Wargamers Group, Convention '90, 207 Bernard Drive NW, Calgary, Alberta, T3K 26B CANADA.

QUAD CON '90, October 12-14 at Palmer Auditorium, 1000 Brady St., Davenport, IA, sponsored by The Riverbend Gamers Club and The Game

Emporium. This year's convention will be the fifth annual event. Scheduled are a variety of roleplaying games, including AD&D, *BattleTech*, *Call of Cthulhu*, *Champions*, *Marvel Heroes*, *Shadowrun*, and others. Plus historical and computer games, a silent auction, dealers' room, and miniatures painting competition. Send a SASE to Quad Con, The Game Emporium, 3213 23rd Ave., Moline, IL, 61265.

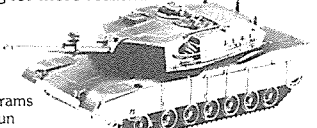
STAR CON '90, October 26-28 in the Americano's Center in Menasha, WI, sponsored by Star Base Alpha. For more information, contact Star Con '90, 1112 N. Lake St., Neenah, WI 54956.

Announcements should be sent in at least four months before a convention takes place. Challenge is not responsible for errors in convention announcements. Write to Challenge Conventions, PO Box 1646, Bloomington, IL 61702-1646 USA.

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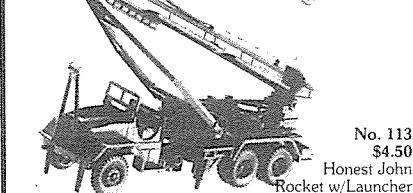
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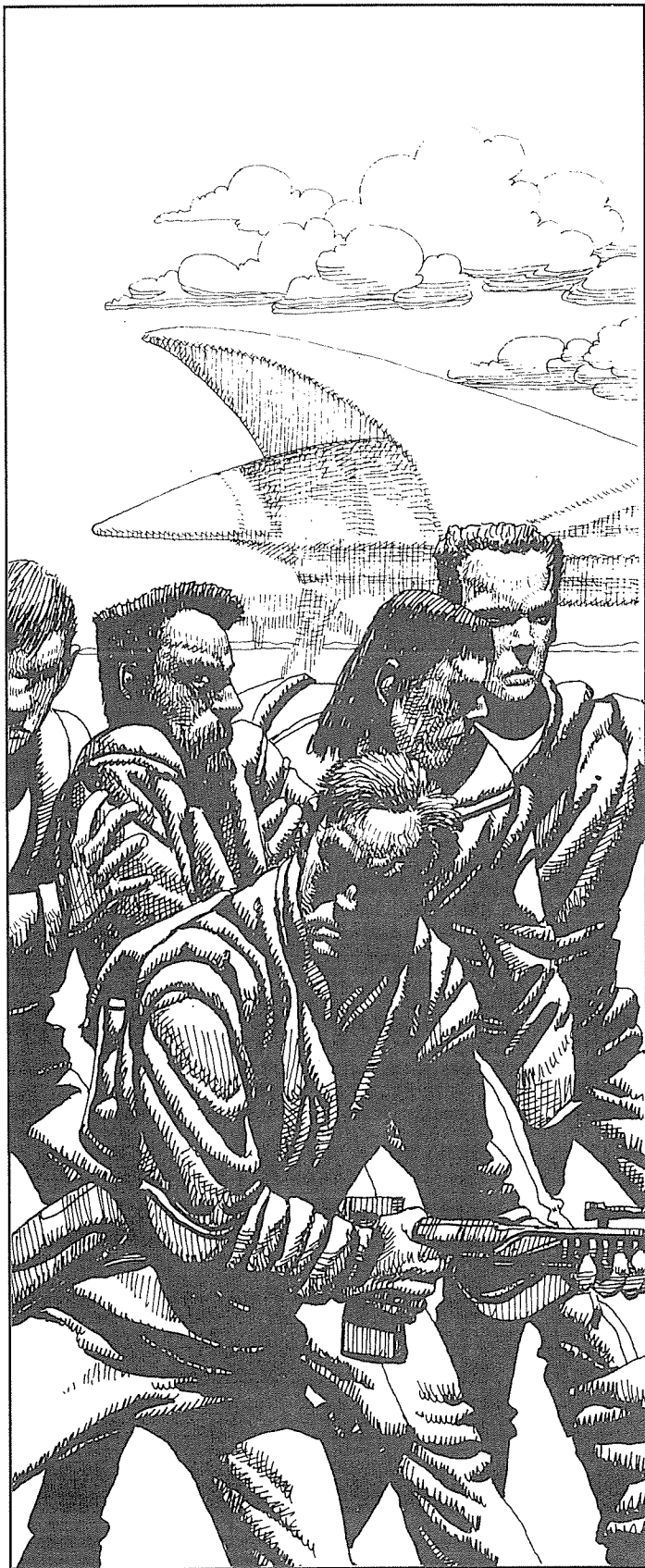
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TOLL ROAD

A covert operation in the Hinterworlds by Mark E. Gelinas



Merchant ships have been stopped recently along the Bruia Diagonal at the system of Gomms. Those ships bearing Imperial registry or Imperial goods have had high tariffs levied against them. It is not economically feasible to detour around Gomms to Dibs to avoid this confrontation because the route is a parsec longer, consuming more fuel.

Gomms is a balkanized world belonging to Ral Ranta. Recently, Bendar, the largest state on Gomms and the one which controls the system, had a change of government—the previous government collapsed after its leader was caught in a kickback scheme.

The new government, headed by President Lancing, is a delicate coalition of several parties. Part of the force holding the government together is President Lancing's charisma. We believe that should this government be removed from power, trade through the Gomms system would return to normal.

It is your mission to bring the new government down.

Your team will be split, with each half taking a separate vessel to Gomms. One team will be sent to the system of Gashuumi, where it will be given Gashuumian identification and use of a free trader bearing Gashuumian registry. The other team will be sent to the system of Damii where it will be given Damii identification and use of a seeker bearing Damii registry.

From those locations both teams will proceed to Gomms. This will prevent the suspicion an Imperial vessel would create. Any questions? Good luck!

The PCs have been hired for a covert operation, and should be allied with Margaret's faction or at least neutral toward her. The adventure may start within Margaret's stronghold and takes place in the coreward end of the Hinterworlds (for more information on the Hinterworlds, see **Challenge 39**)

The characters are recruited by the Vemene, the covert arm of Tukera Lines, and, by default, Margaret's covert agency. The Vemene feel this operation is important, but not important enough to take front-line agents off their assignments. If asked, the recruiters will say that they are hiring for an interested group of merchants. The referee should set the

offered wages to what is slightly above average for the group, probably in the Cr5000 to Cr10,000 range. The referee can play out the recruiting of the characters, if he desires.

The referee can also roleplay the briefing rather than simply read the above narrative. If questioned as to the exact method the PCs should use to accomplish their task, the speaker should be vague, intending to leave that up to the characters. If pressed, the speaker may suggest some of the less violent means presented below. If pressed further, the speaker will say that the president's *removal* (not elimination, although the characters may assume that) may be necessary. The speaker, and Vemene in general, is not aware of the Solomani connection (see below).

The main force of player characters will be sent in the Damiiian seeker. If there are only four or fewer players, the referee should place them all on the seeker and arrange for the other ship to miss its rendezvous. This eliminates the problem of having too many NPCs. An NPC pilot is available if none of the PCs can pilot the seeker. If the characters have a ship of their own, they may use it if it is not of Imperial registry. Otherwise, the patron will provide safe storage for it and cover all berthing fees while the characters are away.

OPTIONS

Treat these suggestions as guidelines—if the characters come up with a feasible alternative, let them try it.

1. Assassinate President Lancing, or kidnap him and remove him from Bendar.
2. Expose President Lancing's Solomani connection, causing a vote of confidence.
3. Entrap President Lancing in a moral or ethical scandal, again causing a question of confidence.
4. Convince President Lancing to change his views on Imperials and stop harassment of Imperial shipping.
5. Convince one of the coalition parties to withdraw its support of the government, calling a vote of confidence.

COMPLICATIONS

Each option presented above involves a number of complications. Part of Freemont's job on Gomm's is monitoring interstellar traffic. He pays attention to anyone who has identification from outside Ral Ranta, which, unless they change their identification, would include the characters. If any of the characters was a high-ranking officer (R-6) in an Imperial military service or is an Imperial noble, then Freemont probably has a dossier on him.

To identify an important Imperial character:

Difficult, Rank, Education, 2 min.

Referee: This is an NPC task. For rank, use the PC's rank divided by five (drop fractions) or Social Standing minus 10.

If the character's cover is blown, Freemont will monitor the group's activities. Although Freemont is no James Bond by any stretch of the imagination, he has had some intelligence training.

1

President Lancing is protected by Bendar's security forces. There are few open spaces in the cities on Gomm's for a sniper to get in a long-range shot. An all-out assault might work. However, with

the high law level, the plot may be uncovered while the characters are gathering weapons and materials needed to make the assault.

MEGATRAVELLER™

To discretely learn President Lancing's schedule:

Difficult, Streetwise or Admin, Int, 2 hr (uncertain).

Referee: This task is for a specific day only, and is subject to change without notice on a roll of 10+. If the player fails the task, no information is gathered. If the referee fails the task roll, authorities are alerted that an unusual source is seeking this information.

To smuggle weapons through starport security:

Formidable, [Skill], [Characteristic] (uncertain).

Referee: Have the characters describe the method they intend to use to accomplish this task, and select an appropriate skill and characteristic (e.g., to bribe the security force, Bribery and Intelligence, or to hide weapons in cargo, Mechanics and Dexterity).

To purchase weapons illegally in Bendar:

Difficult: Streetwise, Intelligence, 6 hours (uncertain).

Referee: If the characters fail this task, no weapons are obtained. If the referee's roll fails, the authorities are alerted. These results are cumulative. Weapons of a strictly military nature are not available in the Bendar underground.

To smuggle a kidnapped president through starport security:

Formidable, [Skill], [Characteristic] (uncertain)

Referee: Have the characters describe the method they intend to use to accomplish this task, and select an appropriate skill and characteristic. If the characters coerce President Lancing into going through the starport on his own power, he will attempt to covertly alert security.

If Bendar police and security forces know of the kidnapping, they will have the starport staked out with special forces teams ready to eliminate the characters should they be identified as the kidnappers. The referee should balance the security forces with the number and armaments of the characters.

2

While exposing Lancing's Solomani connection may work the best, it is also one of the most difficult. The characters are unaware of the Solomani connection Bendar: Lancing is meeting regularly with Sol Sec agent Henry Freemont. If the characters monitor Lancing, they will discover that he meets with Freemont once a week for zero-G handball (neither man is very good at the sport). Lancing's security agents do not go on the court with him but are stationed nearby. Freemont is the *only* non-VIP Lancing will routinely meet with. If the characters follow this slim lead, they can find a variety of Solomani regalia in Freemont's apartment. See Solomani Connection below for information about Freemont's cover and office.

World Map

WORLD MAP GRID		1. Date of Preparation		2. World Name/and UP?		3. Hexagon Scale in Kilometers (circumference divided by 35)		4. Subsector and Sector Location of World	
		90 FEB 18		GOMMS Allidchic		107.5 KILOMETERS		TLIANKE/HATERWOLDS	

This grid divides the spherical surface of any globe into twenty triangles, each of which is further divided into hexagons. Note terrain identifiers and other planning features of the world in these hexagons. Total number of map hexes per triangle: 25. Total number of map hexes: 500.

IS Form 21

★	STARPORT	⬢	RAPID TRANSIT
●	MAJOR CITY	⬢	MAJOR CREATER
☼	MAJOR CREATER	⬢	NATIONAL BOUNDARY
—	NATIONAL BOUNDARY	⬢	

World Map Grid (Large)

Form courtesy of Digest Group Publications, World Builder's Handbook.

World Detail Sheet

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WORLD DETAIL SHEET		1 Date of Preparation 70 FEB 10		2 World UWP GOMS A-110679-C N1 NA 724 M3V	
SIZE-RELATED		3 Diameter 749 MI. 1198 KM	4 Density .96	5 Mass .002	6 Gravity .12
10 Rotation Period 46.46 DAYS	11 Axial Tilt 450	12 Orbital Eccentricity .005	13 Seismic Stress 0	14 Asteroid Belt Zones	15 Primary Mass (Star) .394
		16 Orbit Nbr (Planet) 0	17 Orbital Period (Planet) 7.42 DAYS		
ATMOSPHERE-RELATED		18 Atmosphere Composition TRACE		19 Surface Pressure .07	20 Stellar Luminosity .36
23 Greenhouse Effect 1.0	24 Base Temperature -2 °C	25 Orbital Ecc. Mod ± .15	26 Latitude Temp Effects 9,6,3,0,3 → -21		
28 Daytime Plus +22	29 Nighttime Minus -217	30 Native Life? ☐ Yes ☒ No	31 Atmospheric Terraforming? ☐ Yes ☒ No original:	32 Greenhouse Effect Terraforming? ☐ Yes ☒ No new:	33 Albedo Terraforming ☐ Yes ☒ No new:
34 Atmosphere/Temperature/Terraforming Notes SUMMER: +27 WINTER: -45					
HYDROSPHERE-RELATED		35 Hydrographic Percentage 0.0	36 Hydrosphere Composition N/A		37 Nbr Tectonic Plates 1
38 Hydrosphere Terraforming? ☐ Yes ☒ No original:		39 Terrain Terraforming? ☒ Yes ☐ No	40 Nbr Major Continents/Oceans 0	41 Nbr Minor Continents/Oceans 0	42 Nbr Major Islands/Small Seas 0
44 Notable Volcanoes 6				45 Weather Control? ☒ Yes ☐ No	
46 Natural Resources ORES, RADIOACTIVES, CRYSTALS, COMPOUNDS					
47 Processed Resources METALS, NON-METALS					
48 Manufactured Goods PARTS, DURABLES					
49 Information RECORDINGS					
POPULATION-RELATED		50 Total Population 7,910,000	51 Local Customs ALL: WEAR FAMILY RINGS, LIVE PRIVATELY/LOW SOCIAL: REVERE TECHNOLOGY		
52 Primary Cities (list name, population, starport/spaceport)					
GEDURA 996,000 A		MIRAA 876,000 B		UPPER NYL 787,000 B	
SEJORIAL 976,000 B		LIFER 847,000 C		JOURNEY 212,000 B	
KORELLI 946,000 B		OFTEN 798,000 B		HAVEN 139,000 C	
53 Secondary Cities (list name, population, spaceport)					
14 A7 50,000					
54 Tertiary Cities (list name, population, spaceport)					
69 A7 5,000		399 A7 500		1074 A7 50	
BENDAR POP GOVT. LL 6 4 9					
55 Social Outlook—Progressiveness Attitude: ☐ Radical ☐ Progressive ☒ Conservative ☐ Reactionary Action: ☐ Enterprising ☒ Advancing ☐ Indifferent ☐ Stagnant		56 Social Outlook—Aggressiveness Attitude: ☐ Expansionistic ☐ Competitive ☒ Unaggressive ☐ Passive Action: ☐ Militant ☒ Neutral ☐ Peaceable ☐ Conciliatory		57 Social Outlook—Extensiveness Attitude: ☐ Monolithic ☐ Harmonious ☐ Discordant ☒ Fragmented Action: ☐ Xenophilic ☒ Friendly ☐ Aloof ☐ Xenophobic	
GOVERNMENT-RELATED		58 Representative Authority ☒ Executive ☐ Legislative ☒ Judicial ☐ Ruler ☒ Elite Council ☐ Several Councils ☐ Demos			
59 World Government Description REPRESENTATIVE DEMOCRACY		60 Other Authority ☐ Executive ☐ Legislative ☐ Judicial ☐ Ruler ☐ Elite Council ☐ Several Councils ☐ Demos			
61 Other Authority ☐ Executive ☐ Legislative ☐ Judicial ☐ Ruler ☐ Elite Council ☐ Several Councils ☐ Demos					
LAW-RELATED		63 Uniformity of Law ☐ Undivided ☒ Territorial ☐ Personal		62 Religious Profile (optional) N/A	
64 Legal Profile (optional)					
9-46294					
Overall Weapons Trade Criminal Law Civil Law Personal Freedom		God View Spiritual Aim Devotion Required Organization Liturgical Formality Missionary Fervor Number of Adherents			
TECHNOLOGY-RELATED		65 Technology Profile			
Common C B		Quality of Life D C D C D			
High Common Low Common Energy Computers/Robotics Communications Medical Environment		Achievement Tech Levels Transportation D D D D D Military D D Novelty D			
		Novelty Heavy Military Personal Military Space Transport Air Transport Water Transport Land Transport			

Form courtesy of Digest Group Publications, World Builder's Handbook.

To open Freemont's safe:
Difficult, Intrusion, Dex, 1 min.

To trace funds from Freemont to Lancing's account:
Difficult, Computer, Int, 1 hr (uncertain).

Referee: If the character fails the task roll, a security program prevents access to the files. If the referee fails the task roll, a security program alerts others that an unauthorized user is seeking information.

Note: This task is only to *trace* the funds. If the PCs want to *move* funds, the task becomes Formidable (uncertain, hazardous, fateful).

Once the characters assume that there is some sort of connection between Lancing and Freemont, they can follow several different paths to discover more about it.

They can check fund transfers from Freemont; they can try to learn how long the two have known each other and track Lancing's actions since that time; or they can investigate Freemont by checking out his apartment or office, or by interrogating him. Of course, the latter will alert Lancing that something is up.

If the referee wants to make things easier for the characters, the Solomani connection can be hinted at or revealed during the briefing.

3 Entrapping President Lancing in a moral or ethical scandal could be very difficult for the characters. John Lancing's major vice is his drive for power. Although he is receiving money on the side from Sol Sec, it is largely a mutual arrangement between him and Sol Sec.

Lancing supports anti-Imperial programs in the council, and Freemont performs "dirty tricks" as necessary to keep Lancing in power.

To discern Lancing's driving motives:
Routine, Interrogation, Edu, 1 day (unskilled OK).

Referee: No actual questioning of Lancing is required; those with Interrogation skill are adept at piecing together information. This task assumes that a study of Lancing is made by researching news files, interviews, council records, and other public sources of information.

The characters can use what they learn in a variety of ways. Optionally, the referee can give Lancing additional motives the characters can more readily use.

4 Two tasks are involved in convincing President Lancing to change his views on Imperials and take steps to halt the on-going harassment of Imperial shipping.

To get an appointment with Lancing:
Formidable, Admin, Social Standing, 1 day.

Referee: If the characters give a good reason to see the president—one that can be told to the secretary—reduce this task by one difficulty level.

To convince Lancing to stop harassment of Imperial shipping:
Impossible, Leadership, Int (confrontation, unskilled ok).

Referee: If the characters "have the goods" on Lancing and are, in effect, blackmailing him, the difficulty of this task is lowered to Difficult.

Of course, if the characters are blackmailing Lancing, he will try to have Freemont neutralize the threat.

5 Convincing one of the coalition parties to withdraw its support of the government involves convincing the party leader to change his views.

To get an appointment with a party leader:
Difficult, Admin, Social Standing, 1 day.

Referee: If the characters give a good reason to see the leader—one that can be told to the secretary, that is—reduce this task by one difficulty level.

To convince a party leader to break the coalition:
Formidable, Leadership, Int (confrontation, unskilled OK).

Referee: If the characters can demonstrate that Lancing is working against the interests of the leader's party, lower the difficulty one level.

SOLOMANI CONNECTION

Sol Sec agent Henry Freemont was sent to Gomms with the mission of disrupting Imperial shipping along the Bruia Diagonal by political means. After arriving on Gomms, Henry Freemont checked the political scene for a corruptible councilor. He found John Lancing, who was just rising to the top of his party. Freemont helped Lancing become president by framing former President Tarn. Lancing knows of the operation, and Freemont keeps locked in the safe in his office computer files of the transactions he makes and holorecordings of his meetings with Lancing. Freemont also keeps his Sol Sec identification in his safe.

Freemont uses the position of trading agent as a cover. He is an agent for Diamond Star Lines, a fledgling line operating along the Bruia Diagonal. DSL is a front for Sol Sec, and is the means by which Freemont receives his funds and reports to headquarters. The DSL Office is located in a warehouse inside the starport. It has security far greater than the average warehouse, including nonlethal gas dispensers.

Freemont still has Lancing on his payroll. He transfers Cr2000 each month to Lancing through a secure, numbered account. Lancing has kept his part of the bargain by harassing Imperial shipping and is working to have Imperial shipping banned from Gomms space altogether.

VOTE OF CONFIDENCE

This vote is essentially a general election which usually changes the composition of the council. If the scenario comes to a vote of confidence, the characters have probably succeeded—the referee may either let Lancing lose the vote or play out the scenario in as much detail as desired.

To win a vote of confidence:
[Difficulty], Leadership or Persuasion, Int.

Referee: Set a difficulty level based on how well the characters accomplished their task. If Lancing has been publicly exposed, this might be Formidable. If a party has pulled out, this might be Difficult (and so forth).

Another way to simulate the vote would be to see how many seats Lancing's party held. Roll 2D6 for the largest party. The first die indicates a loss of seats if odd and a gain of seats if even. The second die indicates how many seats were gained or lost. Repeat this procedure for the next three largest parties. There are a total of 100 seats. The smallest party gets what is left over. If the total reaches 100 before getting to the smallest party, it gains no seats, and the next smallest gets whatever is left over. Unless one party has more than 50 seats, which is unlikely, a coalition government will have to be formed.

To convince a party leader to form a coalition:
Difficult, Leader or Persuasion, Int.

Referee: This is an NPC task. Each of the leaders can attempt to persuade each of the other leaders to form a coalition. Start with the party with the largest number of seats. Once a group of parties has a total of more than 50 seats, a coalition government has been formed, and the task attempts stop.

Even if Lancing's party gains seats, he will still have to form a coalition. If a party with more seats succeeds first, that party's leader will become president, and the characters will have succeeded in their job.

NPCS

The following NPCs may be useful in this adventure.

John Lancing: President, councilor (ex-Ral Rantan Navy lieutenant), 5A6AAA, age 33, 3 terms, Cr900.

Tactics-2, Forward Observer-2, Persuasion-2, Electronics-1, Ship's Boat-1, Pilot-1, Grav Vehicle-0, Computer-0, Rifleman-0, Vacc Suit-0.

Lancing is a native of Gomms. He spent 12 years with the Ral Rantan Navy but was not allowed to reenlist for health reasons. He returned to Gomms and entered the political arena, then quickly rose to the head of his party. Lancing is not intimidated by violence—he is cunning and ruthlessly ambitious. He would one day like to rule all of Gomms.

Jeri Caldwell: Councilor (retired general of the Bendar Army), 978AC6, age 50, 8 terms, Cr60,000.

ACR snub revolver.

Tactics-5, Leader-4, Large Blade-3, Liaison-2, Bribery-2, Handgun-2, SMG-1, Combat Rifleman-1, Grav Vehicle-0, Computer-0, Rifleman-0.

Caldwell had a long and active career. A border incident prevented his retirement after seven terms, and President Tarn made Caldwell general of the army. After retirement, Caldwell got into politics based on his position and success. Caldwell is not intimidated by violence and is somewhat sadistic.

Henry Freemont: Solomani security major (active), code named Distant Thunder, 98BBB1 (the last digit of a Solomani character's UPP represents party standing with 6 being the highest.), age 26, 2 terms, Cr900.

Autopistol with silencer.

Handgun-2, Wheeled Vehicle-2, Helicopter-1, Mechanic-1, Electronics-1, Carousing-1, Computer-1, Rifleman-0.

Starport B, Medium World, Standard Atmosphere, Wet World, Low Population, No Law, Early Stellar.

Freemont was a Sol Sec monitor before his cover was blown. He served in administration for a few years until Sol

Sec needed an agent to work on Gomms. Freemont was the logical choice. He believes in the Solomani cause but is somewhat boastful, which probably was how his cover was blown. Freemont has a modest operating budget but has managed to buy the current president of Bendar.

Stevor Kurlan: Councilor (retired law enforcement lieutenant), 557958, age 38, terms, Cr9900.

Streetwise-3, Leader-3, Grav Vehicle-2, Stealth-2, Gambling-1, Recon-1, Guard Beast-1, Computer-1, Rifleman-0.

Kurlan called on some political favors to remain on the force after an unremarkable first term and again later as a sergeant. He is frugal with money and aggressive on the job. Kurlan still has friends on the police force and can get favors if they seem warranted.

Alissa Pacstar: Councilor (retired merchant fourth officer), 392BB8, age 38, 5 terms, Cr11,800.

Admin-3, Computer-2, Vacc Suit-2, Pilot-2, Persuasion-1, Handgun-1, Electronics-1, Leader-1, Mechanical-1, Laser Weapons-1, Tactics-1, Grav Vehicle-0.

Pacstar served with Bendar Lines for 20 years. During her last year, she received a wound during a fight with pirates, refugees from the Imperium. Although the wound did not cripple her, Pacstar decided it was time to retire. She is careful in all her dealings and believes in justice.

Melissa Thax: Councilor (bureaucrat), 9A95B5, age 26, 2 terms, Cr10,000.

Trader-2, Leader-1, Legal-1, Interrogation-1, Stewart-1, J-O-T-1, Rifleman-1, Grav Vehicle-0, Computer-0, Handgun-0.

Thax has been into politics most of her life. She is the daughter of a councilor, was a student politician, and is now the leader of a party she helped create. Thax is greedy and untrustworthy.

LIBRARY DATA

The library data on Bendar and Gomms is available in most ship libraries. Other information is available only on Gomms.

Bendar: The largest state on Gomms, inhabited by over half of the planet's population. Its government is the Bendar Council, which has its seat at Gedura, near the starport.

Gomms (1007 Hinterworlds A110679-C Ni Na): A balkanized world in the empire of Ral Ranta. Gomms is an important world along the Bruia Diagonal, being at a jump-2 break along that trade route. Gomms occupies the first orbital position of a class M star. The surface of this virtually airless world is marked with craters from the system's formation. Gomms orbits its primary once every 7.42 standard days, but it is almost tidally locked, with a rotation period of 46.46 days. Temperatures range from +47 to -262 degrees Celsius. The population of 7,910,000 is predominantly human. Natural resources include ores, radioactives, crystals, and compounds. Products include metals, nonmetals, parts, durables, and recordings.

MEGATRAVELLER™

Part 2

BY: PAUL MORRISSE



Unified Party: The ultraconservative party of Bendar. It advocates a stronger central government. Having enjoyed good trade relations with the Imperium in the past, it is slightly in favor of the Imperium and strongly opposed to the Solomani. It has 13 members in the council, and its leader is Jeri Caldwell. Ω

TRAVELLER *News Service*

Anaxias/Delphi (1724 A253A85-D)

Date: 270-1120

¶Duchess Margaret gave birth to twins today, sparking an air of celebration around the world.

¶The first child, a girl, was born at 20:00 exactly. Her name is Julia Iphegenia Cassir Tukera. Following his sister by 12 minutes was a son, Paulo Trulla Strephon Tukera.

¶Both children and the mother are in good health.

Warinir/Daibei (0507 A889978-F)

Date: 261-1120

¶The Solomani Navy has been driven back with heavy losses by three fleets of the Federation of Daibei Navy after a series of engagements along the border.

¶The initial penetration by Federation forces reached the industrial complexes at Uston/Daibei (0139) and neighboring Aston/Daibei (0140), and spent more than a month destroying the Solomani manufacturing installations of the system before being forced to withdraw.

¶The pursuit drew the Solomani Navy into Daibei territory, where it was ambushed at Sineli (0127).

Wair/Magyar (0116 C89A98C-E)

Date: 301-1120

¶The Solomani Navy has driven back with heavy losses the invading Daibei fleet forces which were marauding the industrial complexes of Uston and Aston in rimward Daibei sector.

¶Initial dispatches calling for assistance were answered by two Solomani task forces under the command of Admiral John Charles.

¶Once the Daibei fleets were driven off, a portion of the force remained at Uston to secure it from further attack and to render assistance. Admiral Charles continued the pursuit of the enemy fleet into enemy territory.

L'oeul d'Dieu/Spinward Marches (3010 B98A510-B)

Date: 275-1120

¶The Patrol has begun security sweeps along the traditional Imperial coreward border of Deneb in the Domain's continuing effort to repulse Vargr corsair invasions.

¶The Patrol, newly established by the Archduke of Deneb, began active operations almost immediately using naval reserve ships and crews. In a show of force, the first sweep was assigned the border from L'oeul d'Dieu/Spinward Marches to Corfinium/Deneb.

¶Elements of the Patrol fleet will be detached to specific trouble spots in the region.

¶In a related development, it was announced that the Imperial Naval Base at L'oeul d'Dieu has been handed over to the Patrol as a permanent base of operations.

Tripolis/Verge (2612 B885A98-E)

Date: 269-1120

¶Unidentified forces attacked this world recently and looted the population centers of the western continent. Initial reports indicated that the attacks were carried out by Illeish Army troops, but post-attack investigations have disproven that theory.

Zuiar/Dagudashaag (0705 B450967-A)

Date: 199-1120

¶Following more than a year of violent civil war, Zuiar declared allegiance to Lucan and the Third Imperium on 090-1120. Loyalist forces answering to Strephon today delivered an ultimatum demanding that Zuiar declare allegiance to Strephon.

¶The ultimatum calls for an electronic referendum of all population with a deadline of 210-1120.

Diishalum/Dagudashaag (0714 B120988-F)

Date: 200-1120

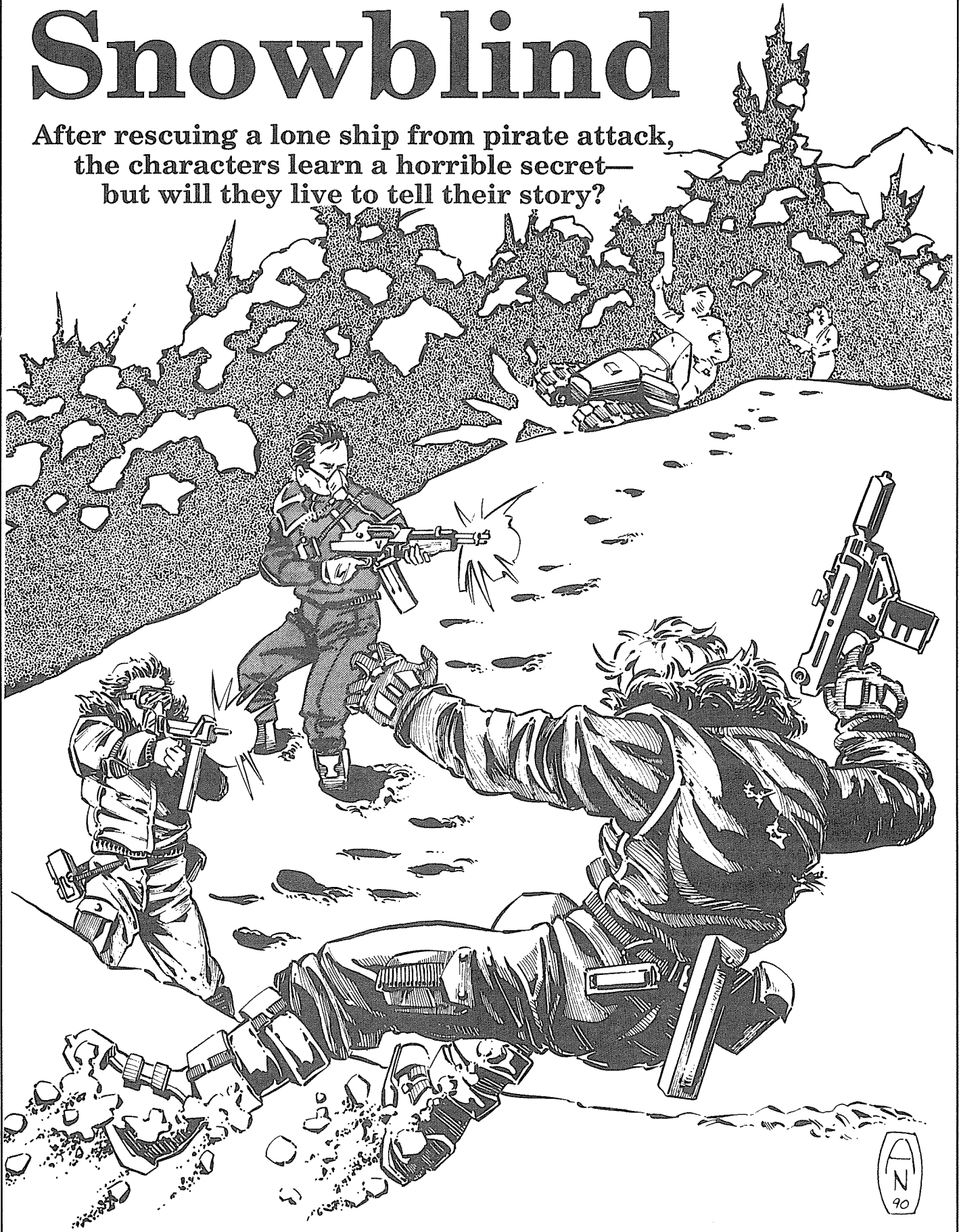
¶Forces loyal to Strephon have seized the orbital starport of this world and delivered an ultimatum demanding allegiance to Strephon.

¶The ultimatum calls for an electronic referendum of all population with a deadline of 210-1120. Ω

Dennis M. Myers

Snowblind

After rescuing a lone ship from pirate attack,
the characters learn a horrible secret—
but will they live to tell their story?



After completing a routine cargo loading and refueling on Zeno/Delphi (0339 C491679-7), the adventurers hear a distress signal on the way to the jump point. A lone ship is under attack by a pirate ship. The PCs valiantly rush to the merchant ship's rescue, and are rewarded for their success with a job offer and chance to earn their own new ship. But our heroes have not seen the last of the pirates. The resulting adventure reveals a horrible secret, but will the adventurers live to tell their story?

"Snowblind" takes place in early 1120 starting in the Eta-Gu subsector (subsector M of Delphi). The adventure is pro-Margaret and is unsuitable for characters who are violently anti-Margaret. The referee may want to generate maps for player use and should feel free to create encounters not related to the main adventure.

PIRATE ATTACK

Characters for this adventure must be able to crew a starship (three to six adventurers are preferred). Any character type could conceivably fit into this adventure, although it is geared toward merchant or navy characters. Preferably none of the characters should have a criminal record or be in immediate trouble with the law.

The adventurers' ship is an old, beat-up, 200-ton, 63-year-old cargo ship named *Ton Pok*. With little or no creature comforts, grimy and in terrible need of a paint job, the ship is equipped with a single pulse laser mounted on a turret and is barely reliable enough to get them through to the other side. Due to a recent overhaul, the adventurers have just enough cash on hand to fill their cargo hold and pay their bills. As the ship departs the starport groundside facilities, a large electrical storm can be seen in the distance.

Leaving Zeno: As the ship nears the jump point, the characters hear a distress signal. A 200-ton merchant named *Della Rose* is under attack by a pirate ship identifying itself as a 200-ton unarmed seeker named *Horace*. But the transponder of the *Horace* is not telling the truth—sensor readings indicate an 800-ton ship with weapons. If a visual sighting is obtained of the pirate ship calling itself *Horace*, the name *Black Fortune* will be seen painted on the side.

As the pirates attack, the *Della Rose* gets in a couple of surprisingly good licks which send the pirate ship reeling. But the next round of shots leaves the *Della Rose* with severe damage.

If the adventurers intervene at this point, the pirate ship will turn its attention to them and leave its first victim drifting rapidly outbound. If the adventurers elect not to get involved, the pirates will open fire on them anyway. During the fight, the pirates' transponder begins transmitting a distinctive clicking static. The pirates' first shot at the adventurers damages the jump drive, cutting off jumpspace as a means of escape. The PCs hold off the *Horace* for some time, but eventually the pirates completely disable their ship. The pirates then maneuver closer, faulty transponder and all, apparently in preparation to board. But at the last minute, an unexpected shot from the *Della Rose* sends the pirate ship tumbling, and the *Horace* responds by initiating a jump.

The adventurers' ship is left with attitudinal thrusters at marginal power only, and the *Della Rose* has no drive capabilities at all and one weapons turret marginally operational. Both ships are rapidly drifting away from any possible source of help. Getting the two together is difficult, but the *Ton Pok* limps toward the merchant ship using its remaining thrusters.

To maneuver the *Ton Pok* close to the *Della Rose*:

Difficult, Pilot, Dex, 15 min (hazardous).

The authorities inform the two ships that a severe storm has grounded most emergency vessels from Zeno's dirtside facilities, and the orbital station's vehicles are aiding victims of the storm in its wake. A ship from the world surface can be dispatched if the two ships' situation becomes life threatening. In any case, a rescue ship will be sent as soon as one is available.

DELLA ROSE

The *Della Rose* has lost the ship's pilot, chief gunner, engineer and navigator. Kursk seems relatively unmoved, but both Whitney and Sanches feel a great loss. If none of the characters has sufficient Engineering skill to fix a maneuver drive, the referee may

MEGATRAVELLER™

choose to have the *Della Rose*'s engineer survive.

The surviving crewmembers of the *Della Rose* include:

Lubriid Sanches: The owner of the *Della Rose* is in her 40s. She maintains an elegance about her, but will deny any connection to nobility, saying she is merely a wealthy business owner on vacation. She will divert questions by saying she hates to talk business while on vacation. If pressed, she will admit to owning a small fleet of merchant ships but will say she has no Piloting skill.

Vaclav Kursk: A friend of Sanches, Kursk is in his mid-40s and seems bookish—not at all the type one might find on a ship. At first he acts the part of Sanches' lover, but Lubriid treats him more as a favored son than an object of passion. Kursk finds Whitney to be irritating and will avoid his company.

Lucky Whitney: The ship's junior gunner and self-appointed mascot is in his early 20s. He is the typical junior gunner who has just made his first "kill," but is enthusiastic and well meaning. He has a love of music and is frequently seen with a headset on, tapping on invisible keyboards.

FROM BAD TO WORSE

It won't take long for the survivors to realize they're heading directly on a collision course with a small asteroid belt. The situation looks grim as the ships drift rapidly away from Zeno with no means of propulsion. To make matters worse, a fire ignited on the *Ton Pok* during the battle with the pirates is now raging out of hand, and the ship must soon be evacuated.

If they run a complete systems check, the survivors may discover they can make the *Della Rose*'s drive operational by scavenging parts from the *Ton Pok*. Both ships might then be saved if they use the *Della Rose* to push the *Ton Pok* back toward Zeno.

To escape from the burning ship:

Difficult, Vacc Suit, Dex, Int, 1 min (hazardous).

TON POK

CraftID: Far Trader, Type A3, TL 15, MCr42.59
Hull: 180/450, Disp=200, Config=3SL, Armor=40G, Unloaded=1185tons, Loaded=2055tons
Power: 3/6, Fusion=988Mw, Duration=30/90
Loco: 4/8 Maneuver=1, 5/10, Jump=2, NOE=190kph, Cruise=750kph, Top=1000kph, Agility=1
Commo: Radio=System
Sensors: PassiveEMS=Interstellar, ActiveEMS=FarOrbit, ActObjScan=Rout, ActObjPin=Rout, PasEngScan=Rout
Off: PulseLaser=x02
Batt 1
Bear 1
Def: DefDM=+3
Control: Computer=1bisx3, Panel=holodynamic linkx240, Special=headsUpx2, Environ=basic env, basic ls, extend ls, grav plates, inertial comp
Accom: Crew=3 (Bridge=1, Engineer=1, Steward/Medical=1), Staterooms=10, SubCraft=air/raft
Other: Cargo=791.2kliters, Fuel=677.48kliters, PurificationPlant, Scoops, ObjSize=Average, EMLevel=Faint

The *Ton Pok* is 63 years old and shows severe signs of age.

DELLA ROSE

CraftID: Far Trader, Type A2, TL 15, MCr43.106
Hull: 180/450, Disp=200, Config=3SL, Armor=40G, Unloaded=1192tons, Loaded=2062tons
Power: 3/6, Fusion=1238Mw, Duration=30/90
Loco: 4/8 Maneuver=1, 5/10, Jump=2, NOE=190kph, Cruise=750kph, Top=1000kph, Agility=1
Commo: Radio=System
Sensors: PassiveEMS=Interstellar, ActiveEMS=FarOrbit, ActObjScan=Rout, ActObjPin=Rout, PasEngScan=Rout
Off: BeamLaser=x03
Batt 1
Bear 1
Def: DefDM=+3
Control: Computer=1bisx3, Panel=holodynamic linkx249, Special=headsUpx2, Environ=basic env, basic ls, extend ls, grav plates, inertial comp
Accom: Crew=3 (Bridge=1, Engineer=1, Steward/Medical=1), Staterooms=10, SubCraft=air/raft
Other: Cargo=774.04kliters, Fuel=683.96kliters, PurificationPlant, Scoops, ObjSize=Average, EMLevel=Moderate

SHAULA

CraftID: Far Trader, Type MF, TL 15, MCr77.171
Hull: 180/450, Disp=200, Config=1SL, Armor=50G, Unloaded=2073tons, Loaded=3207tons
Power: 1/2, Fusion=4500Mw, Duration=15/45
Loco: 14/28 Maneuver=3, 7/14, Jump=3, NOE=90kph, Cruise=270kph, Top=360kph, Agility=4
Commo: Radio=System
Sensors: PassiveEMS=Interstellar, ActiveEMS=FarOrbit, ActObjScan=Rout, ActObjPin=Rout, PasEngScan=Rout
Off: BeamLaser=x05
Batt 2
Bear 2
Def: DefDM=+6
Control: Computer=1bisx3, Panel=holodynamic linkx440, Special=headsUpx3, Environ=basic env, basic ls, extend ls, grav plates, inertial comp
Accom: Crew=6 (Bridge=2, Engineer=1, Gunnery=2, Steward/Medical=1), Staterooms=9, SubCraft=air/raft
Other: Cargo=586.kliters, Fuel=546.48kliters, PurificationPlant, Scoops, ObjSize=Average, EMLevel=Moderate

To estimate the damage to the drives:
Routine, Eng, Int, 1 hr (uncertain).

To repair one maneuver drive enough
to move a ship:

Difficult, Eng, Gravitics, Int, Dex, 1 hr
(fateful).

Referee: More than one person may
attempt this task simultaneously. Skills
are additive.

To maneuver the recently repaired
ship to push the immobile ship:

Formidable, Pilot, Int, 10 sec (fateful)

TRIUMPHANT RETURN

Depending on their success with the
above tasks, the survivors return to
Zeno with either one or two ships. The
survivors of the *Della Rose* give all credit
to the adventurers, and they are hailed
as heroes. The group will receive exten-
sive media attention, complete with
holovid interviews and even offers to do
talk shows. If the *Ton Pok* is rescued,
the facilities on Zeno will be unable to
repair the damage resulting from the
battle. They may be able to sell the ship
for 1% of the ship's price for salvage.

Sanches will trade in her old ship
rather than waiting for repairs, purchas-
ing the *Shaula*. She will offer the PCs
employment, promising them full own-
ership of the *Shaula* if they can get their
new patrons safely to Anaxias. The
Shaula is a 200-ton *Idas*-class, type AF
far trader built at tech level 15 and
loaded with all the comforts money can
buy. *Shaula* also has a full complement
of weaponry installed.

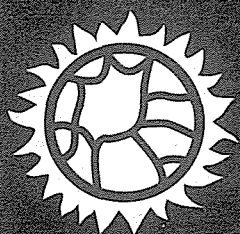
While the *Shaula* is being readied, the
PCs have time to explore their options.

● Accept Lubriid's offer and serve as
crew with the payment of an entirely new
starship paid in full at the end.

● Live in the media spotlight and
commence a profitable career in talk
show interviews. If the PCs opt for this
second choice, Sanches will place ads
for crew replacements in the starport
listings. Within days, another daring
rescue will take place, this time in Zeno's
harsh desert, and the party's media
spotlight will abruptly shut off. If they
inquire again of Lubriid, she will renew
her offer.

To perform well on a talk show:

Difficult, Carousing, Exp, 2 min, (un-
certain).

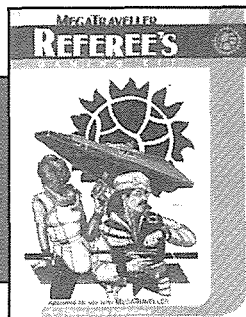
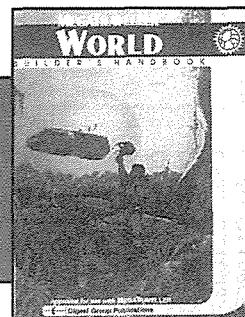


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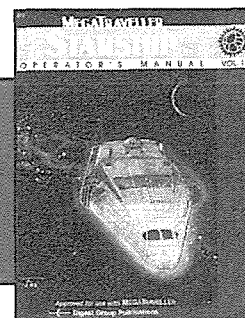


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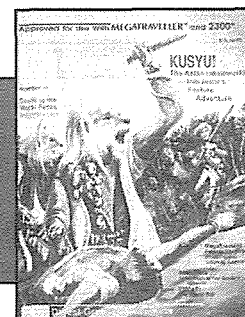


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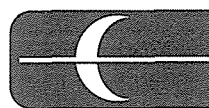


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ETA-GU SUBSECTOR

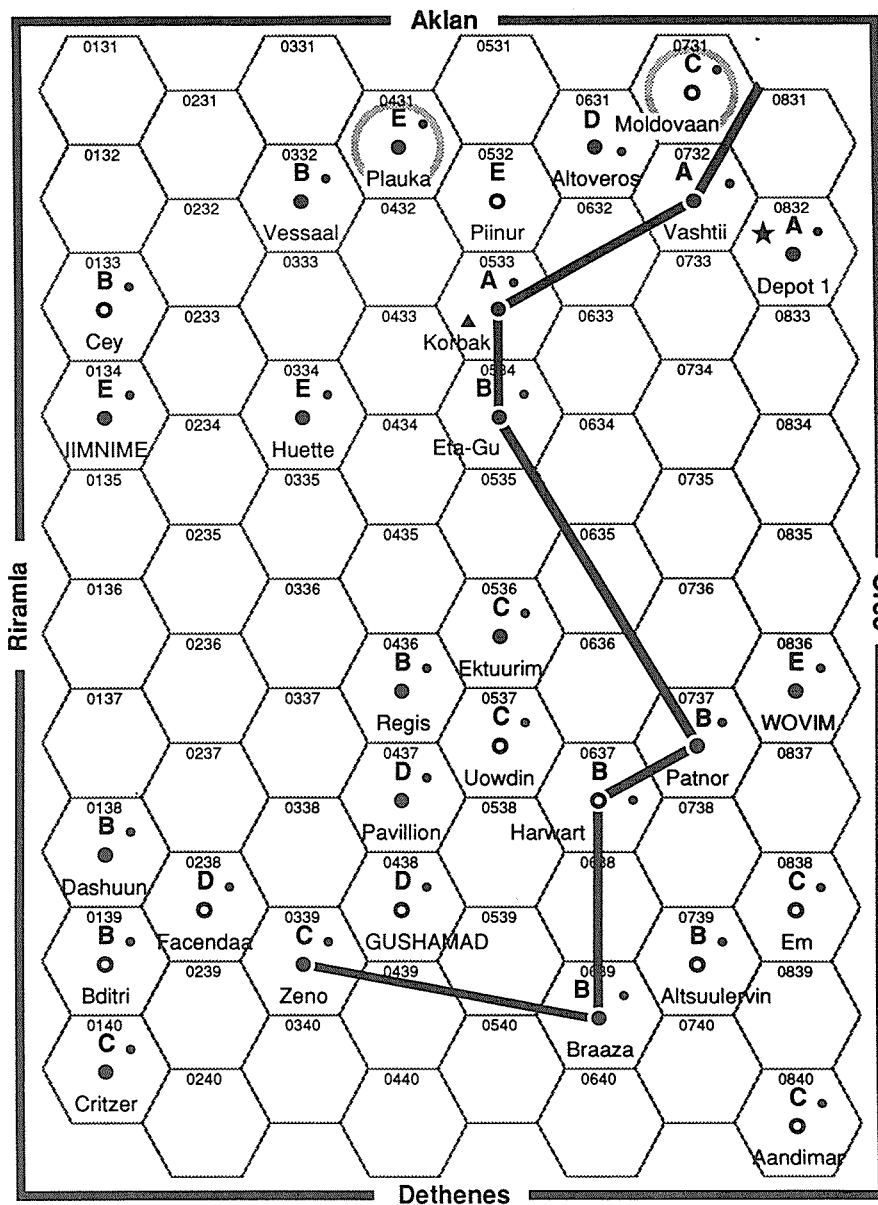
Eta-Gu (subsector M of Delphi sector) is a well settled subsector in Margaret's region of the Imperium. The largest military base of the sector, Depot 1, resides in this subsector.

Vashti is home to Subsector Duke Armond. Patnor was the site of a civil war in the late 1050s—the resulting two-nation split still causes strife today, some 70 years later. On Plauka, a small community of scientists are studying the effects of Plauka's unusual taint on a variety of life forms.

Name	Location	UPP	Bases	Remarks	Zn	Data	AI	Stellar
Cey	0133	B210101-9		Lo Ni		412	Ma	M6 IV M8 D
limnime	0134	E767988-3		Hi		323	Ma	M5 IV
Dashuun	0138	B477765-A		Ag O:0534		612	Ma	G0 V M8 V
Bditri	0139	B11079C-8		Na		712	Ma	G2 V
Critzer	0140	C524210-7		Lo Ni		701	Ma	M7 V M9 D
Facendaa	0238	D20068D-5		Na Ni Va		601	Ma	A4 V M4 D
Vessaal	0332	B583675-6		Ni Ri		923	Ma	M3 V M1 D
Huette	0334	E655452-8		Ni		403	Ma	K1 V M4 D
Zeno	0339	C491679-7		Ni Xb		403	Ma	M1 VI
Plauka	0431	E695340-6		Lo Ni	A	804	Ma	K1 IV M1 D
Regis	0436	B366655-9		Ag Ni Ri		103	Ma	M2 IV
Pavillion	0437	D544720-3		Ag		603	Ma	K3 V M3 D M5 D
Gushamad	0438	D2009AD-A		Hi In Na Va		423	Ma	M3 V M9 D
Piinur	0532	E200533-7		Ni Va		200	Ma	K4 V M0 D
Korbak	0533	A332320-B	S	Lo Ni Po Xb		913	Ma	F9 D
Eta-Gu	0534	B73A552-E		Ni Wa Cp Xb		602	Ma	A1 V
Ektuurim	0536	C788774-4		Ag Ri		703	Ma	M0 V
Uowdin	0537	C11049B-7		Ni		805	Ma	K3 V M5 D
Altoveros	0631	D896451-5		Ni		215	Ma	M1 IV M9 D
Harwart	0637	B210427-9		Ni Xb		205	Ma	M3 V
Braaza	0639	B574578-A		Ag Ni Xb		523	Ma	K7 II
Moldovaan	0731	C100752-8		Na Va	A	904	Ma	K6 III M2 VI
Vashtii	0732	A529455-F		Ni Xb		222	Ma	K5 VI M9 D
Patnor	0737	B673465-A		Ni Xb O:0534		604	Ma	K0 V M3 D
Altsuulervin	0739	B100721-D		Na Va		803	Ma	K2 V
Depot 1	0832	A583447-A	N	Ni		304	Ma	M3 V M3 D
Wovim	0836	E54A998-6		Hi In Wa		914	Ma	K3 V
Em	0838	C210331-6		Lo Ni		512	Ma	M6 IV
Aandimar	0840	C110697-9		Na Ni		203	Ma	G3 V M4 D

Eta-Gu (Subsector M of Delphi) contains 29 worlds with a total population of 17.986 billion. The highest tech level is F at Vashtii. The data column lists the population multiple, number of planetoid belts, and number of gas giants.

Key: Cp: Subsector capital Xb: Xboat station O: Owner.



Eta-Gu Subsector Subsector M of Delphi

NEXT STOP: VASHTII

When the PCs finally accept Sanches' offer, departure will be routine, and jump will be achieved with no problems. Before entering Vashtii, a system three jumps removed from Zeno, the patrons will announce a week-long layover in order to attend to business.

Upon entering the system, the adventurers may check transponder readings as they encounter several ships. One ship will be of particular interest—its transponder, with a distinctive clicking static, signals a far trader with light weaponry. Other readings will confirm that this is, in fact, the pirate ship previously encountered.

To identify the faulty transponder:

Routine, Sensor Ops, Int, 1 min (safe).

If notified, the Vashtian authorities will be unable to intercept the ship on such short notice, but will opt to meet it on the ground. Unfortunately, the pirates will head for a landing far from any inhabited areas in the midst of a dust storm which makes sensor readings unreliable.

Chasing the pirates at this time will bring the ship into danger and give away any later chance of surprise. If the group decides to chase the pirates, a hair-raising dive for the surface will keep them on edge, followed by a cat and mouse game through the mountains during a furious dust storm which jams their sensors. Somewhere in the mountains the pirates will be lost.

To follow the pirates to the surface:

Routine, Pilot, Dex, 10 min (hazardous).

Referee: This task should be rolled three times—upon entering the atmosphere, upon nearing NOE, and upon entering the dust storm. Raise the difficulty one level each try.

To keep the pirates in view:

Difficult, Sensor Ops, Int, Instant (safe).

Referee: Repeat this task often during the chase until it fails.

Rather than giving chase, the adventurers may choose to sit back and watch where the pirates land. Although the precise landing will be obscured, the

resulting location will be more exact than if the *Shaula* becomes involved in a chase.

To track the pirates' landing:

Routine, Sensor Ops, Int, 30 sec, Absolute (safe).

Watching the pirate ship will be uneventful until it nears the world surface, where it descends far from any inhabited area, deep into a mountain range. It will abruptly disappear from the ship's scanners as it dives deep into the dust storm. (A map of Vashtii should be constructed by the referee prior to the gaming session and provided to the players at this time.)

SNOWBLIND

If the adventurers chased the pirate ship, its last known position should be several hundred kilometers from a glacier. If the PCs sat back and observed the pirate ship's descent, its last known position will be only a few kilometers from a glacier. If photographic records of the area are consulted, only a comparison of records older than six years with more recent photos will reveal the sudden growth along one side of the runoff valley and the slight leveling of a nearby area of river bank.

To find the key area using old photographs:

Difficult, Recon, Int, 1 hr (unskilled OK).

Whether or not they chased the ship, the PCs' next step may be to move in and investigate the landing area. Locating the precise landing spot will be hampered by the mountain environment, storms, and anything else the referee feels is appropriate. Vashtii has a dangerous level of suspended dust in the atmosphere, and filter masks must be worn at all times.

What the characters will discover is that the pirates have a huge headquarters right here on Vashtii! The pirate haven, known as Snowblind, is located in a valley adjacent to a mountain glacier. It is hidden by a camouflage dome covering an area large enough for several ships to be concealed, and deep caverns are carved into the glacier's face under the covering. The domed shelter simulates the color and density

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of a glacier and will shield the installation's heat traces. A level area downstream extends beyond the dome, used as a landing field, and water from the glacier is stored in two tanks near the glacier's edge.

The effort expended in constructing this base seems excessive, and guards stationed around the base may cause the PCs to reconsider moving in alone. If the PCs decide to call in the authorities, see *Raid* below. If they wish to continue without support, see *Chase*, *Sneaking Inside*, and *Mayhem*.

Raid: If the group reports the pirates' position to the local authorities, the response will be quick and merciless. The player characters will be invited along in an advisory position to help coordinate the attack, and may participate in the raid if they so choose.

Chase: If the adventurers move in alone, they will eventually be spotted, and a group of pirates will give chase, using the same mode of transportation as the PCs. A break-neck chase through the mountains may result in the characters being stranded or injured, or the characters may shake the pursuit and return to their ship or to the pirate base.

To evade the pirate henchmen:

Difficult, Stealth, Tactics, 1 min (fateful).

Sneaking Inside: If the characters evade any patrols and find an entrance, they must then deal with posted guards. Inside Snowblind are three pirate leaders, five pirate lieutenants, 11 pirate sergeants, 20 pirate corporals, five pirate henchmen, and nine Solomani naval troops. If the heroes manage to sneak or fight their way past the guards, proceed to *Mayhem*.

To avoid detection inside Snowblind:

Formidable, Stealth, Int, 1 min (fateful).

Mayhem: Three 800-ton pirate ships, each with a full crew, will supply aid to Snowblind as long as the ships are in

CHARACTER STATS FOR ALTERNATE PLAYER CHARACTERS

The following alternate PC identities are available for this adventure.

Domart Sernu: Navy commander, 7B7BA6, age 34, 4 terms, Cr80,000.

Nav-3, Sensor Ops-2, Commo-1, Computer-1, Cutlass-1, Electronics-1, Ship's Boat-1, Vacc Suit-1, Grav Veh-0.

4 Low Passages, 1 Cutlass.

Starport A, Medium, Dense, Wet World, Hi Pop, Hi Law, Hi Stellar.

Tuun Gil Havaan: Merchant 4th officer, 774EC5, age 30, 3 terms, Cr20,000.

Engineering-3, Admin-1, Computer-1, Gravitics-1, Handgun-1, Medical-1, Vacc Suit-1, Grav Veh-0.

2 Low Passages, 1 Snub Pistol.

Starport A, Large, Standard, Wet World, Hi Pop, Hi Law, Hi Stellar.

Kibbs Harnil: Merchant 2nd officer, 877B87, age 30, 3 terms, Cr15,000.

Pilot-3, Grav Veh-2, Commo-1, Computer-1, Handgun-1, Medical-1, Sensor Ops-1, Streetwise-1.

3 Low Passages, 1 Snub Pistol.

Starport A, Medium, Dense, Wet World, Hi Pop, Hi Law, Hi Stellar.

Haddoc (Doc) Ware: Navy captain (medical corps) retired, 877FB9, age 54, 9 terms, Cr45,000.

Medical-3, Computer-2, Caring-2, Electronics-2, Forgery-2, Intrusion-2, Ship's Boat-2, Bribery-1, Cutlass-1, J.O.T.-1, Linguistics-1, Mechanical-1, Nav-1, Pilot-1, Revolver-1, Sensor Ops-1, Steward-1, Vacc Suit-1.

2 High Passages, 3 Low Passages, 1 Cutlass, 1 Revolver.

Starport A, Asteroid, Vacuum, Hi Pop, Mod Law, Hi Stellar.

no danger. Crews are a mixture of pirates and Solomani Navy. If the adventurers begin to get the upper hand during the fight, two of the pirate ships will attempt to take flight, fearing capture. If the PCs attempt to stop them, one ship will be hit in the air and will slam into a nearby mountain. The second, the *Black Fortune*, streaks into the air, the lanthanum grid glowing. In a gut-wrenching moment, the ship is gone, its fate unknown. Those on the ground may later show mild signs of jump sickness.

To avoid jump sickness due to proximity:

Impossible, End, Instant (fateful).

Referee: Decrease the difficulty by one level per each 100 meters away from the epicenter of the jump.

THE SPOILS

The PCs will have a tough fight of it but will eventually win the battle. After the fighting has died down, the group should be allowed to poke around the remains of the base. A random encounter with a lone pirate should keep them tense as the PCs help survey the base. During the search, they will find a packet of papers, either on a body or strewn among the wreckage. The papers contain official Solomani naval orders and provide proof that the pirates are part of an independent Solomani mission to disrupt trade and act as an advance military base in the event of a Solomani victory in the region. The PCs may think to look into what contacts, if any, the Solomani had here.

To connect the papers to a local contact:

Difficult, Admin, Int, 10 min, (uncertain).

Referee: A result of some truth will lead to the local traffic control office. Total truth will lead to a minor clerk who schedules patrols of the surface. (Snowblind's area has been skipped routinely for six years!)

The characters may be allowed to stock their ship's locker with some of the weapons strewn about. Most are of Imperial make, with the occasional Solomani weapon cropping up here and there (any high-energy weapons will be confiscated by the Vashtiiian authorities). The base will be placed under

quarantine and classified as a Red Zone. The area will be off limits to civilians until it has been investigated and documented. It will then be scrubbed clean by the Vashtii Marine Corps.

If the PCs try to keep a pirate ship, the referee may want to tell them the ships are all stolen and are therefore not up for grabs. The owners will eventually be found for each ship recovered.

After the raid, media attention is greater than ever as the group is propelled to near stardom by the official reports. This time, however, the fame is far from fleeting as the local planetary government includes the subsector duke, who rewards them with the recommendation for Knighthood in the Order of the Blue Feather. Although this may seem like a political move due to upcoming local elections, the appointments are real, lacking only the ceremony to be performed by Margaret. All the PCs have to do is get to Anaxias.

THE ADVENTURE CONTINUES

At this point, few would argue against continuing to Anaxias, where Margaret will undoubtedly promote the entire group and the patrons will turn over the ship to them. But the journey to Anaxias is far from over! The media attention following the raid of Snowblind will undoubtedly let the pirates who survived know the PCs' identities, employers, and loyalties. And the fate of the *Black Fortune* is uncertain—was it destroyed, or will it now seek revenge on the adventurers? For further adventure in Anaxias, don't miss "Knights of the Blue Feather," coming in **Challenge 47**.

LIBRARY DATA

A thorough search of library data will reveal that pirate activity in this subsector rose dramatically six years ago. If the players discover a Traveller News Service item concerning piracy on Korbak (see **Challenge 44**) they may be able to contact a crewman who will give them the name *Black Fortune*—the same name they saw painted on the side of the pirate ship calling itself *Horace*, if they obtained a visual sighting.

Nonplayer Characters

With some investigation, the PCs may learn more about the survivors of the *Della Rose* than originally revealed.

Lubriid Sanches: Duchess of Breda, 588ACF, age 46, 7 terms, Cr650,000.

Artisan-3, Computer-3, Leader-3, Persuasion-3, Liaison-2, Linguistics-2, Vacc Suit-2, Biology-1, History-1, Streetwise-1, Animal Handling-0, Grav Veh-0.

Traveller's Aid Society Membership, Yacht (paid in full).

Starport B, Small, Standard, Wet World, Hi Pop, Mod Law, Avg Stellar.

Lubriid Sanches is, in fact, the Duchess of Breda. She is only travelling with Vaclav and has never been his lover.

Vaclav Kursk: Ambassador, 345F FD, age 46, 7 terms, Cr6000.

Liaison-3, Linguistics-3, Persuasion-3, Grav Veh-2, Small Blade-2, Admin-1, Artisan-1 Computer-1, Disguise-1, History-1.

Traveller's Aid Society Membership.

Starport A, Small, Thin, Wet World, Hi Pop, Hi Law, Avg Stellar.

Vaclav Kursk is a diplomat working directly for Margaret.

Lucky Whitney: Spacehand recruit, BAB779, age 22, 1 term, Cr2000.

Carousing-1, Gunnery-1, Snub Pistol-1, Vacc Suit-1, Computer-0, Grav Veh-0

1 Snub Pistol.

Starport B, Small, Vacc, Desert World, Hi Pop, Mod Law, Avg Stellar.

Whitney knows Kursk works for Margaret but doesn't know what he is doing now. The recruit is a young, eager-to-please ship's gunner. He is not a particularly good shot. If questioned about his name, he will mention his two older sisters, Faith and Charity, and his younger brother, Destiny.

Eta-Gu Subsector

Library data on the Eta-Gu subsector is available in most ships' libraries.

Ektuurim (0536 C788774-4): Ektuurim is known throughout Delphi as a wonderful vacation spot. The extensive beaches and moderate climate make it an almost perfect paradise. However, recent clashes between Nicoli and Acampa, two of the larger nations on Ektuurim, have made several cities dangerous on the landmass they share. Nicoli has a large concentration of Solomani supremacists and has declared its intent to join the confederation. Acampa saw this as a threat and instigated a preemptive strike. No formal declaration of war has been issued.

Eta-Gu (0534 B73A552-E): During the Rule of Man, Eta-Gu was an important trading center and the natural capital of the subsector. During the Long Night, Eta-Gu's dominance faded, and by the time of the Sylean Federation, it was a minor world in the Free Human League whose capital was Vashtii. Eta-Gu is a cold, wet and sometimes inhospitable world. The temperate zones are the site of several major cities. Due to the low atmospheric pressure, all cities are enclosed structures.

Free Human League: This loose coalition of worlds has a centralized military based in Eta-Gu and Riramla subsectors. The league's major trading partners prior to the Pacification Campaign were the Ychean Empire, which dominated what is now the Aklan subsector, and Ral Ranta, which then extended into Zuume and Breda subsectors.

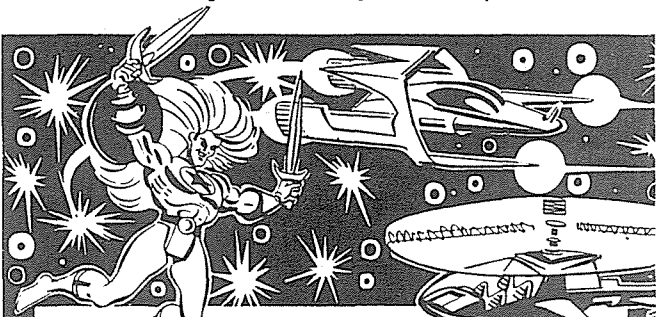
Korbak (0533 A332320-B): In 1118 Imperial Navy Base Korvak was nearly demolished by a Solomani raid deep into the subsector. Repairs have been slow, and the navy is operating out of the local starport in the interim, making for a busy flight zone and long waits for clearance. The starport sustained damage during the fray and from time to time loses pressure in certain sections. Korbak has a traditional and somewhat chaotic democracy which explains the very loose legal code.

Regis (0436 B36655-9): Regis has the great fortune of being a highly productive agricultural world in a cluster of desert worlds. Exports are of prime importance. Stringent measures are taken to ensure that the world's ecology remains free of any possible dangers from ships passing through. Extensive decontamination of everyone and everything destined for the planet's surface make even routine visits

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frustrating and expensive. With the highest cost for berthing and maintenance in the sector (350% above the norm) Regis is a place to avoid unless you have business there.

Vashtii (0732 A529455-F): Vashtii was the capital of the Free Human League from -530 to 132, when a treaty was signed formalizing an existing agreement which allied the Free Human League with the Imperium. The treaty included a clause naming Vashtii as the subsector capital and allowed the league's government to form the new subsector governments for both Eta-Gu and Riramla, which it also dominated. Vashtii is largely desert and has a dangerous level of suspended dust in the atmosphere. Filter masks must be worn at all times. Ships are advised to take care that the dust does not clog equipment. Vashtii has numerous mountain ranges with considerable glacial activity near the poles. Ω



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One Small Step

Charles E. Gannon

We should've known better than to hunt for midpassage bargains while we were lounging in Strend Downport (0419, Cimeon/Hinters). Yeah, we saved a couple of hundred credits on our jump into Harov, but wound up hopping into Harovine, the trinary companion of Harov itself.

Harovine isn't exactly the bright center of the universe. There wasn't another starship out here, and we weren't in the mood to lose time waiting for Captain Grankley to shuttle us into the main system—Harov—at 1G. After profuse guarantees of a free jump to our next destination, Grankley and his crew left to conduct what trading they could in this god-forsaken collection of planetoid belts and small gas giants.

We were stupid enough to get a drink to kill the time. When we got back to the berth, the ship was gone. At least Grankley had unloaded our stowed gear before boosting off for a quick jump outsystem. Real nice guy. Hope to meet him again—in a dark alley.

The unexpected benefit of this disaster was the opportunity to get to know the inhabitants of Harovine. Cheerful and hardworking, these people lived and worked on their ships—the old-fashioned way. No gravitic drives, no wonders of constant thrust. The thousand-odd prospectors of Harovine were plasma-hoppers and ion-drivers, masters of archaic ships with even more archaic propulsion systems. Out there, a ship that could boost for .4G for a week was a real hot hull.

A lot of my people found that funny—until we hitched a ride and covered the 10 AU to the Harov system in only 11 days. The youngsters on my team learned what any old traveller knows: It's not the Gs—it's how long you can keep putting them out.



ong before Humaniti or any major races crossed the gulf that separates the stars, they travelled within their homesystems. The same is true for the innumerable minor races not fortunate enough to discover jump technology on their own. Sometimes the interval between first spaceflight and interstellar transit/contact lasted for centuries—in rare cases, millennia.

While the dramatic role of interstellar adventuring provides one of the major attractions of **MegaTraveller**, another important feature of the game is the ubiquity of in-system craft—many of old and humble design.

The universal craft design sequence in the **Referee's Manual** concentrates on technologies players use most frequently. Expansions of that design sequence—such as the **COACC** (Close Orbit and Airspace Control Command) supplement—fill the gaps left by the UCP design sequence. What **COACC** did for aircraft of all types this article does for slower than light (STL) spacecraft not utilizing gravitic locomotion.

Spaceflight becomes possible at TL5. By TL8, shuttles and space stations are no longer experimental ideas, but are actualities. In this time before gravitic maneuver drives, extraorbital exploration, commerce, and combat are all possible (and overwhelmingly likely). "One Small Step" allows referees—and players—to determine the components and performance of the spacecraft of this pregravitic era.

Referee's Manual is a prerequisite to using the design supplement presented here. **COACC** will also be referred to frequently.

IT DOESN'T HAVE TO GO FAST— IT JUST HAS TO GO

Basic (i.e., inexpensive) transportation may be of two general types: used vehicles or purpose-built economy models. While used vehicles may be more expensive to operate and maintain, they are often sturdier and more reliable.

Economy versions tend to skimp on durability as well as everything else. As a result, a lot of very old hulls sail through space, and some combine antiquated power and propulsion technologies with impressive (if quaint) amenities. Yesterday's luxury liners are today's anachronisms.

Spaceships—particularly those which never enter atmospheres—do not lose their hull integrity nearly as quickly as atmospheric vehicles. Consequently, as technology marches forward and interstellar travel becomes possible, many intrastellar hulls find themselves bumped, rung by rung, down the ladder of importance and value—until they are finally scrapped for parts or sold off at a small fraction of their original worth.

For the prospector or salvage operator who has no need of high performance (but has a pressing need to avoid crip-

A Design Sequence Supplement for Pregravitic Spaceflight

pling ship mortgages) such vessels hold the allure of quick or even immediate ownership. And since the overall value of the hull is low, so are any insurance rates. As a result, even in the heart of the Imperium, pregravitic spaceships are still common sights, particularly in outback areas and planetoid belts. Many are also purchased by in-system trading and bulk conveyance firms which convert them into robot freighters.

With the onset of the Rebellion, functional hulls have skyrocketed in value. Because of their comparative economy (both in terms of maintenance and fueling) many older vessels are being restored and pressed into a variety of service roles.

In the Hinterworlds sector, where the general tech level has always been somewhat low, the reduced flow of Imperial technology and services has actually propelled some TL9+ systems into new production runs of these older vehicles.

The logic is that if the Imperium's fall were complete, each system would have to fend for itself. In that scenario, the easier a spacefleet is to maintain, supply, and build, the more likely it is to endure through the dark times to come.

SLOW AND STEADY

The most important addition to the **MegaTraveller** design sequence made by "One Small Step" is the introduction of new propulsion systems for spacecraft. In the period before gravitic drives were introduced, a number of systems were used, often for very different purposes.

Solid rockets, which are usually associated with the propulsion of unmanned missiles, play an important role in the early stages of spaceflight. They can be dangerous to use since once ignited they cannot be turned off. As a result, any failures within solid rocket systems have a high probability of having catastrophic results. One of the most notable failures dates back to preinterstellar Terra, where that planet's first reusable space vehicle program was halted for more than two years when a solid rocket booster malfunctioned and destroyed the entire craft and crew. This disaster, known as the *Challenger* Incident, caused a serious reassessment of the program's operational protocols and parameters. It also created increased interest in more controllable (but more expensive) cryogenic-fueled rocket technologies. However, the solid rocket retains the advantage of a very high power-to-weight ratio.

Rockets are the basic start-up technology that most civilizations use to get off their planet and into space. The high power of these engines makes them good "bootstraps" but also makes them voracious fuel eaters. While some energy can be gained from rockets, this energy output is usually ignored or used to charge batteries, since rocket operation is usually very short. The rockets most frequently encountered (98% of the time) in known space are cryogenically fueled (liquid hydrogen and liquid oxygen). Others use hydrocarbons, although the disadvantages of using that fuel type generally outweigh any conceivable advantages (which are negligible for game purposes). The rockets included in the "One Small Step" table are taken directly from **COACC** and are used with thanks and acknowledgement to Terry McInnes.

Ion drives undergo experimentation at TL6 but only

become practical for manned vehicle use at TL7. The thrust in this system is created by electronically reducing the fuel to

a stream of charged particles (ions) which create a very low thrust. The ion engine indicated on the chart is actually comprised of more than 100 separate 50-centimeter thrusters. The primary advantage of this system is its endurance, low power requirements, and reliability. However, the low velocities inherent to this type of thrust generally relegage vessels of this type to short-range runs that take weeks or even months.

The fuels used for ion drives are known as *ionizates*. This one term includes mercury, cesium and a variety of liquified noble gases (argon, neon, krypton, etc.). The values given for this fuel type represent an average since some of these substances would be heavier than indicated and others lighter. Ionizates are found as trace elements in most Earth-like atmospheres but are most frequently gathered from certain gas giants and their moons, which occasionally boast large concentrations of the noble gases.

Mass drivers or MDs use electromagnetic repulsion (the principle used by the weapons of the same name) to generate thrust. Basically, just as firing a gun will impart acceleration to the firing part in zero G, so will the electronic firing of rocks—which in this case are propelled in (and discharged from) an endless treadmill of steel containers.

The primary drawback to such systems is that they require a tremendous amount of raw mass as propellant. Poor prospectors find this vice to be a virtue. They can put a pressure dome on a small asteroid (very small!), emplace one or two mass drivers and begin firing pieces of the rock for propulsion—a crude and marginal ship, but many have used it to move on to bigger and better things. Another major use of this system is to propel promising asteroids out of a belt and toward mining vessels that can reduce the asteroid to usable ores.

Magnetoplasma dynamic drives or MPDs utilize hydrogen plasma to create thrust. They are, in effect, crude, very low-temperature plasma guns. It is with this technology that true in-system commerce can begin to flourish freely and easily.

Fusion rockets are identical to those outlined in **COACC**. However, given the importance of space exploration and utilization, fusion rocket technology is pressed into intrastellar use long before it becomes common in **COACC** military craft. Generally, after a first use as an energy source, fusion technology is next employed in spacecraft due to its excellent power to thrust ratio and because it produces considerable power with which to run the ship's other systems. Even once gravitic drives arrive on the scene, many designers prefer to use fusion since these drives—unlike gravitics—do not experience decreased performance when they venture more than 100 diameters away from a significant gravity source. Of course, this limitation to gravitic drives disappears at TL11, at which time fusion drives lose their last tangible advantage.

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If not otherwise stated, designing craft with "One Small Step" proceeds exactly in the same manner as does craft design in the **Referee's Manual**. All new tables and/or additions are identified by the section of the basic design and evaluation sequence they supplement. The sequence of presentation follows that established in the **Referee's Manual**.

Basic Hull Design

STEP 5:

CRAFT CONFIGURATION & STREAMLINING

Modular Frame Hulls: A new configuration designation may be included as a subcategory of configuration O, *open frame*. This designation is *modular frame*. The notation for this subtype of open frame hull in the UCP is OM (Open Frame, Modular).

A modular vessel is actually comprised of a number of discrete hulls, which may or may not have similar configurations.

At least 5% of the total displacement tonnage of a modular vessel must be dedicated to a modular frame hull. (Therefore, a modular frame hull with a displacement of five tons could serve to join together 95 displacement tons of other modular craft.)

The modular frame hull must be of open frame configuration. However, all of its hull volume is waste space (i.e., the entire modular frame hull is dedicated to booms, pylons, struts, connectors and rotational armatures). At TL5 to TL7, craft must be specifically noted as being able to mate with modular frame hulls, or they may not do so. At TL8+, modular frames become capable of accepting almost any ship design as a "clip on" module.

Example: Harovine wants to design a modular ship that will be able to include two modules of 40 displacement tons, one module of 30 tons and four 20-ton modules. In total, this is 190 tons of modules. The modular frame hull itself must displace 10 tons in order to represent 5% of the total displacement tonnage of the modular ship (190 tons of module and 10 tons of frame=200 tons displacement; 10 tons of modular frame hull=5% of total displacement).

Multistage Hulls: The other option that allows a designer to create a craft comprised of discrete hulls is the *multistage design option*. A *multistage vehicle* is *not truly modular*. Each hull fits *only* with the other hulls included in the overall multistage design. As an example, the ancient multistage rockets of Terra's late-20th-century push to space were not at all flexible in terms of swapping a stage out of one design and into another. Multistage vehicles may be configured to use fewer of their hulls in "reduced" configurations.

Multistage vehicles do not require a framework. The complete interdependency of the parts allows them to be designed so the different components offer structural support to each other. This creates a stable, multipart whole without recourse to an additional framework.

Any of the hulls of a multistage vehicle that are to operate within an atmosphere *must* be streamlined. The one exception to this is a cylindrical, in-line, multistage design (i.e., a number of configuration 3 hulls stacked end to end). In such a design, only the first or lead hull needs to be streamlined;

the others may be designed as basic cylinders.

Lift-Assisted Launch Vehicles: A lift-assisted launch vehicle (LALV) is any vehicle which depends on aerodynamic lift in order to achieve orbit. Any vehicle which has a streamlined or airframe hull may qualify as an LALV.

Determining if a vehicle is an LALV involves consulting the Rules for Pregravitic Spacecraft. The requirements for lift-assisted launch vehicles and advisable design strategies for LALVs are included in a special section.

Two separate design sequences may be used to create LALVs: **COACC** and the **MegaTraveller** universal craft design rules. If in-atmosphere operations are integral to the craft's intended mission, use the **COACC** design sequence. Otherwise, use the UCP design sequence. Use the **COACC** Engines Table (in the Fixed Wing Aircraft Design section) to provide additional locomotion options, if desired. Should referees need to approximate the relationships between UCP hulls and **COACC** airframes (e.g., one such use might involve calculating the vehicle's minimum airspeed), use the following table to determine which ratings are congruent.

<u>UCP Hull</u>	<u>COACC Airframe</u>
Unstreamlined	Simple
Streamlined	Transonic
Airframe	Hypersonic

UCP hulls may also incorporate VTOL or STOL features into their design. Most of the performance advantages of VTOL/STOL designs can be found by consulting **COACC**. VTOL hulls add 10% to weight and 50% to the cost of the hull. STOL hulls add 5% to weight and 30% to the cost of the hull.

STEP 8: MINIMUM ARMOR

Certain vehicles designed in this sequence may be disposables: They are not expected to be reclaimed and reused. One example would be any rockets which provide initial lift-off thrust and are then jettisoned to burn up in the atmosphere. A disposable component that is not intended to leave the atmosphere must have a hull armor rating of 4 or more. A disposable component that will leave the atmosphere must have a hull armor rating of 8 or more.

STEP 12: VEHICLE CUPOLA OR TURRET?

Most of the vessels constructed at the tech levels addressed in "One Small Step" do not have enough power output to charge even a single battery-sized laser. Their relatively small energy output will for the most part be dedicated to locomotion and life support. Therefore, designers may want to consider including tactical-level weapons as part of their shipside ordnance (revised values for in-vacuum use are included in the Design Evaluation section).

Tactical weapons *must* be placed in specially built turrets. Use the UCP rules for hull design, step 12 to design these turrets. They are not the same as the battery-sized turrets of UCP design step 6. Unlike the parameters set forth in step 12, the volume of these turrets is *subtracted* from the available vehicle space. To determine the price of the turret, find the smallest standard UCP chassis value (step 1, table 2)

that has the volume you desire. Multiply the listed price by 50. The result is the price of the turret. Note that these turrets have no weight, being a part of the hull itself.

Power Supply

STEP 1: POWER PLANTS

As will be noted from Subtable 5a—Engines, some of the nongravitic thrust engines produce a power output. Those engines which do produce power have an output of 2% of the *current* engine thrust (TT ratings). The listed power output ratings on Subtable 5a—Engines assume the engines are engaged at maximum thrust.

Locomotion

STEP 5: MANEUVER DRIVE

Unless otherwise noted, these engines can be built in larger units (i.e., a fusion rocket engine could be built with double the ratings listed and still be a single engine).

A solid rocket is simply a fuel core. It requires no mechanical engine to speak of, and requires only a hull to encase it. However, this type of rocket burns so fast that it would take 600 of these fuel cores to last for one hour (one fuel core lasts for only six seconds).

Consequently, most uses of solid rockets employ several larger versions simultaneously or in stages. It is necessary to note both the number of solid rocket engines and the number of fuel cores per engine.

Example: A double-sized engine would have two times the

listed ratings: 100 tonnes of thrust, 2× mass, etc.

If it were comprised of three double-sized fuel cores, it would burn at 100 TT for 18 seconds (three double-sized cores at six seconds each).

MEGATRAVELLER™

Weaponry

STEPS 22-35

See the following design evaluation procedure for offensive systems in order to determine the in-vacuum values of tactical weapons systems.

Bridge

STEP 3: COMPUTERS

A computer's computing power is defined as: (maximum CP input)×(CP multiplier). This value is used in determining remote control (RemCon) requirements (see following).

STEP 4: CONTROL PANEL UNITS

A craft may be designated as being remote controlled. Such craft do not require control panel units. They must have one or more communicators (see design step 4) dedicated to command input from the remote controller. Such communicators may not be used for any other purpose.

Subtable 5a—Engines

TL	Type	TT	Mass	Volume	Fuel	F.Type	PwRqd	PwOP	MCr
5	Solid Rkt	50	0.1	1	600/1*	SRkt	None	None	0.05
6	Rocket	30	1	1	19.2	Cryo†	None	0.6	0.25
6	HiPerf Rkt	39	1	1	24.0	Cryo†	None	0.78	0.3
7	Ion	0.05	15	15	0.0001	Ioniz.	0.5	None	0.20
7	Mass Drivr	0.1	0.05	3‡	3.6	Rock	1.0	None	0.16
8	Compact MD	0.2	0.2	0.2‡	3.6	Rock	1.0	None	0.12
8	MPD	0.2	10	10‡	0.005	Hydrog.	0.5	None	0.75
8+	Exp FusnRkt	150	20	5‡	0.005	Hydrog.	None	3.0	2.0
9	Fusion Rkt	195	4	1‡	0.005	Hydrog.	None	3.9	0.35

TL: Tech level

Type: Type of propulsion system

TT: Tons of thrust

Mass: Mass in tonnes

Volume: Volume in kiloliters

Fuel: Fuel consumption in kiloliters/hour F.Type: Fuel type (see Fuel, step 2)

PwRqd: Power required (if the listing here is "none," it means that the engine powers itself and may produce excess power as well)

PwOP: Power output (if the listing here is "None," it means that the engine does not produce excess energy, and probably requires power input to operate)

MCr: Price in megacredits

*Solid rocket fuel is the solid rocket itself. The rocket as listed in the table ignites and consumes itself completely. A single kiloliter of it lasts only six seconds. Therefore, it takes 600 kiloliters to last one hour.

†A variant of this rocket may be constructed to burn hydrocarbons instead.

‡This is the minimum size at which these engines may be constructed. Larger models are permitted.

Fuel

STEP 2: COST AND WEIGHT OF FUEL

The four new fuel types are detailed below:

Type	Mass	Cr
Solid rocket	N/A	N/A*
Cryogenic	0.35	70
Ionizates	1.5	100
Rock	1.0	None

*Solid rocket fuel *is* the solid rocket. The rocket as in Subtable 5a—Engines ignites and consumes itself completely.

STEP 4: SPECIAL FUEL TANKAGE

Solid rockets may not use special tankage options. Radioactives should not use special tankage options. Pregravitic vehicles that are not capable of lift-assisted launches (see the following rules) must design any drop tanks as *separate* hulls according to the UCP design rules. However, such tankage may be designed as a disposable unit. Tankage hulls require no control panels.

Design Evaluation & Suggestions

The design evaluation sequence proceeds in exactly the same order as stipulated in the **Referee's Manual**. A few calculations having to do with thrust and speed differ.

HULL

Modular Frame Hulls: Remember to note if a hull can fit on a modular frame when the hull or modular frame is TL7 or less. Individual craft names (per hull) should always begin with the word *modular*. The ID should be the same for each component hull of the entire modular ship, no matter what the individual role of that hull is. Include a purpose-of-module title in parentheses, if desired.

Each hull should be formatted separately, then all should be combined to provide the values for the total modular hull. Where values do not combine easily, state the value in terms of maximum combined performance. However, if indicating duration, use the least (or shortest) value.

Multistage Hulls: All the hulls of a multistage vehicle should be of the same configuration. For every extra hull configuration included in the design, the vehicle loses 5% of its in-atmosphere speed and suffers an automatic -2 DM to every task roll involving its operation. Therefore, if someone were foolish enough to design a multistage vehicle that included a needle hull, a cone hull, and a disk hull, the vehicle would lose 10% of its rated speed and suffer a -4 DM to all task rolls. The purpose behind most multistage designs is to give the flight crew the option to jettison a stage (one of the hulls) once it has outlived its usefulness. Consequently, multistage vehicles operate in a sequential fashion. The first hull is the primary hull—the part that won't ever be jettisoned. The second is the last hull jettisoned, the third is the next to last, and so on. When designing a multistage vehicle, you must indicate the sequential order of each hull. The first hull listed in the UCP should be the 1 (primary) hull, then the 2 hull, etc.

As hull sections are jettisoned, the overall craft performance may change dramatically. Total vehicle weight and total thrust may be significantly altered. Vehicle performance should be calculated—and included in the UCP—for each sequential stage separation. Any jettisoned stages that are streamlined may be reclaimed and reused. However, the atmosphere rating must be Thin or greater—otherwise, the lack of air resistance will allow the vehicle to plummet to a complete (if spectacular) demise.

POWER

The output of any engines should be included in your power ratings. Frequently, lower-tech designs either depend on the engine as the main power plant, a back-up power plant, or a battery recharger (in which case, the ship is likely to run off batteries while the engine is off).

LOCOMOTION

The calculation of maneuver Gs for spacecraft using nongravitic drives must be handled in the same fashion as for thrust-based vehicles. This equation is: (total thrust+vehicle's loaded weight)-1=top vacuum speed.

However, when calculating the vehicle's spacefaring performance, the -1 need not be included in the above equation. (This -1 refers to the assumed 1G of planetary gravity which must be overcome before any velocity is achieved.) Note that many lower-tech spacecraft (particularly those employing ion engines) will have G ratings which are significantly less than 1. They cannot even *get off the ground* when planetside. This is *not* an error. Not all space vehicles are launch capable—many must be carried to orbit.

When listing your evaluation results in the craft's UCP format, be sure to include a tonnes of thrust (Tt) rating just after the G (or maneuver) rating. Also, instead of simply indicating "maneuver," use the name of the engine type here.

Example: Ion=.001/1.3Tt would indicate that maneuver was being provided by ion engines at .001 Gs. The ion engines are producing that acceleration via a 1.3-tonne thrust output.

For those craft which travel under their own power both inside a planet's atmosphere (and therefore, primary gravitic influence) as well as outside of it, calculate both values and note them accordingly.

Some vehicles may have multiple thrust sources. For instance, a modular frame ship might have an ion main drive, but three of its modules might be high-performance, rocket-driven away boats. The designer must note maximum total thrust and how long it may be maintained, as well as maximum thrust for each component hull of the system. Likewise, it is conceivable that a single hull vessel would use an experimental fusion rocket for quick spurts of speed, while it might also carry ion drives for low-energy, low-signature cruising and/or station keeping tasks. The total G rating of each component as well as the duration of that performance are both important, as are the same values for all the hulls combined (the total hull). These values are critical in the calculation of achieving escape velocities.

Solid rockets have one additional limitation. Not only are they unstoppable once they are engaged, but the amount of thrust they generate cannot be reduced. All other engines

are governable (may be employed at lower thrust ratings than their listed maximum), resulting in less fuel consumption, energy output (if any), etc.

Since pregravitic spacecraft use propulsion systems which do not allow them to hover (unless they are VTOL hulls), it is important to discover whether or not the vehicle can stay airborne in an atmosphere. To determine this, the designer must compare the maximum atmospheric speed of the vehicle to its minimum airspeed. This is determined by finding the hull's equivalent **COACC** airframe characteristics (see comparison chart in the hull design sequence of this supplement). If the vehicle's maximum airspeed is less than its *minimum* airspeed, the vehicle *cannot* fly. Noting this on the UCP format is accomplished by simply listing its cruise and top speeds as *zero*.

OFFENSIVE SYSTEMS

The designer is urged to consider missiles as the main weapon type to be utilized, and also to consider smaller, tactical-scale weapons such as the beam and pulse lasers covered in the weapons section (steps 25-26). While predominantly capable of structural damage only over shorter ranges, designers will discover that large, multibattery battlegroups are *extremely* expensive at these lower tech levels. Consequently, the very nature of combat changes, with more emphasis on hit-and-run and attritional tactics, rather than the toe-to-toe slugging matches that often characterize the Stellar level technologies and beyond.

If tactical scale weapons are included, the battery rating is always "—" (less than 1) whether it is a single weapon or a cluster of weapons. A single "—" battery may be comprised of a single turret or a number of turrets. The designer must note these decisions on the craft's UCP.

The listed values of tactical-scale weapons change in vacuum (their ratings assume in-atmosphere use). All weapons now have their attenuation rating decreased, but they also begin to suffer penetration attenuation much later. The listed maximum range is where the attenuation "counting" begins.

Lasers have their attenuation value reduced by one. For example, a TL8, 25-megawatt laser would now have a penetration of 47, and its attenuation of 3 would now begin three steps after regional range. This gives it a penetration

of 47 at regional, continental, and planetary ranges. At far orbit range, this drops to 23 (which is generally harmless to most everything in space that is manned).

Fusion and plasma weapons have their attenuation reduced by 2, as do mass drivers and guns.

Each type of "—" battery included in a design should have both its original and new "—" battery values listed in its UCP format.

All tactical weapons to be used as "—" battery weapons must be stabilized. Any "—" battery weapons that are to be used in a defensive role must be equipped with a point defense system of the same or greater tech level; "—" batteries fired in a defensive role do not receive any defense DM.

Since missiles *do* become highly important, it is a good idea to reserve some extra empty space on board for an expanded magazine.

CONTROL

List remote control devices used on a craft in *this* section, not communications. Note the vehicle as being RemCon.

OTHER

At the end of the design sequence, the designer may opt to designate any craft which may be launched from a planet as a launch-dependent vehicle. A launch-dependent vehicle leans on support from ground systems such as a launch gantry, transporters, etc. Such a vehicle only costs 90% of its listed price. A launch dependent vehicle may *only* be launched from a launch support facility.

The cost per launch support facility is equal to the full (100%) cost of a single vehicle. The cost of the facility in MCr is its maximum support capacity. Any vehicle costing that amount or less may use the facility to support its launch.

Launch facilities are in fact spaceports (**Referee's Manual**, UWP tables, 2). The correlation between star/spaceport ratings and support capacity will be defined in the following rules.

Acceleration Requirements

	Gs of Acceleration												
UPP	.1	.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
1	18	3.6	1.8	1.2	.9	.7	.6	.5	.5	.4	.4	.3	.3
2	35	7	3.5	2.3	1.7	1.4	1.2	1.0	.9	.8	.7	.6	.6
3	51	10	5.1	3.4	2.6	2.1	1.7	1.5	1.3	1.1	1.0	.9	.9
4	68	14	6.8	4.5	3.4	2.7	2.3	1.9	1.7	1.5	1.4	1.2	1.1
5	86	17	8.6	5.7	4.3	3.4	2.9	2.5	2.2	1.9	1.7	1.6	1.4
6	103	21	10	6.9	5.1	4.1	3.4	2.9	2.6	2.3	2.1	1.9	1.7
7	119	24	12	8.0	5.6	4.8	4.0	3.4	3.0	2.7	2.4	2.1	2.0
8	139	28	14	9.3	6.9	5.6	4.6	4.0	3.5	3.1	2.8	2.5	2.3
9	157	31	16	10	7.8	6.3	5.2	4.5	3.9	3.5	3.1	2.9	2.6
A	175	35	18	12	8.6	7.0	5.8	5.0	4.4	3.9	3.5	3.2	2.9

Rules for Pregravitic Spacecraft

ORBITAL TRANSFERS

At lower tech levels (8 and less), achieving orbit is the most difficult and dangerous of all tasks. The amount of power required to push a vehicle up and out of a planet's gravity well is extraordinary and represents the hardest design challenge for these early technologies.

Generally, the only early technologies capable of generating the necessary thrust-to-weight ratios are rockets (either solid or cryogenic). However, being voracious consumers of fuel, these engines usually have short operational periods which are usually measured in minutes rather than days.

Therefore, achieving a transfer to orbit usually involves a brief high G acceleration up out of the gravity well. (Another option is open to lift-assisted vehicles. Rules for this follow.) While very high G ratings are possible, more than 6 is not feasible for human operations. More than 3Gs is inadvisable if the designers want to avoid the likelihood of crew blackout. (Note, however, that nonfragile/nonliving cargoes *may* be launched at much higher Gs without risk.)

The following table indicates how long (in minutes) a vehicle must remain at a particular G rating of acceleration in order to achieve low planetary orbit (LPO). An LPO will eventually decay into a reentry trajectory if not maintained with additional thrust, but this takes quite a while to occur (weeks or months). Additionally, the amount of thrust required for this station keeping is very minimal (just about anything will do.)

The values in the Acceleration Requirements Table indicate the minutes of *y* thrust required to lift off from a world with *x* diameter. In the case of acceleration values which do not conform precisely to the values included on the table, interpolate the value. For instance, on a planet of size 1, 1.25Gs would produce a value that is the average of the values of 1G and 1.5Gs (or 1.5 minutes since $1.8m+1.2m=3m$; $3m+2=1.5m$). The chart assumes a controlled launch (see the following launch rules) and an atmosphere rating of Standard (taint is unimportant). If the atmosphere is not Standard, then use the following chart to modify the result:

Atmosphere Type	Multiplier*
Vacuum/Trace	.4
Very Thin	.6
Thin	.8
Dense or +	1.2

*Multiply LPO acceleration requirements by this value to arrive at final result.

For multistage vehicles—and any others that have varying acceleration rates—a constant acceleration value over the entire time of launch may not be available. In such cases, break the acceleration into steps, and resolve these sequentially.

Example: A two-stage rocket is prepared for launch. The #2 stage has a thrust of 2Gs that can be maintained for 4.2 minutes. The #1 stage (after #2 is jettisoned) can produce 1.5Gs of thrust for 4.0 minutes. The rocket is on a Size 8 world with a Standard atmosphere (unmodified chart values).

Let's see if it can make it to LPO.

The second stage engines engage and burn to produce 2Gs of acceleration for 4.2 minutes. We consult the interstice of planet Size 8 and 2Gs of acceleration. We discover that 5.6 minutes of constant 2G acceleration are required to achieve LPO. Our 4.2 minutes of 2G acceleration can only provide 75% of the needed boost. But that's okay, because that boost has accomplished 75% of the job. We have finished the first step and jettison the spent #2 stage.

Our #1 stage engines kick in at 1.5 Gs. We consult the table and find that on a Size 8 world at 1.5Gs constant, it takes 9.3 minutes to attain LPO from the surface. However, we've already accomplished 75% of the job with our first 2G lift. So we only have 25% of the job left to do at 1.5G. Therefore, 25% of 9.3 is 2.325 minutes. Since we have four minutes of 1.5G boost available, we'll reach LPO with 1.675 minutes of engine use (fuel) remaining (4 min. avail.—2.325 min. used=1.675 min. remaining).

(My apologies to physicists everywhere, but the real calculations—including diminished weight and increasing acceleration as fuel is consumed—are best left to NASA; we, after all, want to enjoy a game. Despite the broad liberties taken, I believe you will find that this calculation imparts the feeling of launch considerations without making them a burden that no player wants to bear.)

STABLE PLANETARY ORBIT

Stable planetary orbit (SPO) means an orbit that will not decay over time and requires no additional station keeping. Use the Acceleration Requirements Table to determine the additional boost required to achieve SPO. Multiply the given value by .3. The result equals the number of minutes of boost to achieve permanent orbit from LPO. Note that this second leg of a boost to SPO (ground to LPO, then LPO to SPO) is not subject to any of the atmosphere modifiers that can affect boosting to LPO (you're in vacuum now).

However, frontier launch modifiers (see the following launch rules) still apply. Also, unlike in the journey to LPO, lift-assisted craft do not attain SPO with one-tenth the normal nonatmospheric boost (see the rule about lift-assisted vehicles). This advantage is only accrued during transfer to LPO.

ESCAPE VELOCITY

Any boost beyond SPO indicates that the craft has achieved escape velocity (EV) and is heading *out of* orbit and away from the planet. If it means to return, such a craft must boost back or be retrieved. Otherwise, it will continue to drift along its last vector.

LIFT-ASSISTED LAUNCH VEHICLES

Lift-assisted vehicles use their aerodynamic lift to enable them to achieve orbit. They may employ air-breathing and—less commonly—nonair-breathing locomotion to bring the air/spacecraft to the edge of the atmosphere. A nonair-breathing locomotion method is required for pushing the vehicle in orbit. In each case, the locomotion methods must have a certain minimum endurance, which generally must be much longer than that required for nonlift-assisted vehicles. However the thrust requirements for lift-assisted vehicles are

usually much lower. Vehicles designed in accordance with the **COACC** design sequence must meet the same endurance and thrust requirements as basic design sequence vehicles.

The required endurances are as follows. The propulsion system used in-atmosphere must be able to perform for 10 times the number of minutes required to put a launching spacecraft into LPO. Therefore, while a rocket with 3.5G only takes four minutes to achieve LPO on a Size 8 world, a jet-propelled spaceplane would require 40 minutes of 3.5G boost to reach its orbital transfer point.

This time increase represents the comparatively slow climb enabled by the design of aircraft. However, once at the orbital transfer point, the aircraft needs only .1x(10%) the LPO acceleration rating indicated to achieve orbit. Therefore, if the same spaceplane had used its jets to reach its orbital transfer point and was now preparing to use a 1.5G rocket to effect the transfer, the rocket would only have to burn for .93 minutes (one-tenth of the 9.3 minutes indicated on the chart).

Nonfusion-powered designs will generally benefit from a mix of air-breathing engines (these **COACC** engines are *not* listed in the "One Small Step" subtable 5a) and a nonair-breathing engine. Usually, the air-breather is used to get the craft to the orbital transfer point, and the nonair-breather is then used to "kick it upstairs."

Lift-assisted launches may either be controlled or frontier launches (see the following launch rules).

DISPOSABLE HULLS IN ORBIT

If fragile cargo (armor rating 30 or less) is carried on board a spaceside (i.e., no longer within an atmosphere) disposable hull for more than half a day, that cargo may begin to take micrometeoroid damage. Per half-day there is a one-sixth chance of a micrometeoroid hit to the component. Roll on the Vehicle Hit Location Chart (**Player's Manual**, combat charts) to determine the outcome of the hit. Micrometeoroids have a penetration of 8x1D6. Living cargoes will begin to suffer from radiation exposure immediately. Depending on the proximity of radiation sources and their intensity, this effect could be severe with a quick onset of symptoms or mild with a gradual onset. The referee must adjudicate the situation based on the astrographic realities of the environment.

LAUNCH

Pregravitic spacecraft may make two types of launches: controlled and frontier. Lift-assisted vehicles may make either frontier or controlled launches (depending on their design).

Controlled Launch

The LPO Acceleration Requirements Table assumes a controlled launch. Controlled launch conditions include the generation of a carefully plotted and computer-simulated launch window, access to an optimal launch site (usually within the tropical/equatorial zone), and perfect launch conditions (temperature, wind, weather, etc.). It also assumes a support staff (two individuals are required for every day of launch preparations—see below) and a spacious staging area with a plenitude of assembly winches and subgantries. These resources are connected with a launch support facil-

ity (cf. the Other section under Design Evaluation and Suggestions, above, for launch-dependent vehicles).

Every launch support facility is a spaceport (or starport). The size and support capacity of a facility is determined by the credits invested in its construction. The following table correlates the support capacity value of a facility with its UWP rating (and vice versa).

<i>Support Capacity is Not Less Than</i>	<i>Starport Type</i>	<i>Spaceport Type</i>
MCr1,000,000	A	—
MCr50,000	B	—
MCr5000	C	—
MCr500	D	F
MCr10	—	G
MCr.1	E	H
None	X	Y

Ensuring a controlled launch takes time. Any vehicle with access to a launch support facility can be prepared for a controlled conditions launch in a number of days equal to: $(100 - TL^2) \times (\text{Price of vehicle} + \text{MCr}100) = \text{Minimum days to prepare vessel for controlled launch}$.

Therefore, a TL7, Cr50,000,000 vehicle would take the following amount of time to prepare for a controlled launch: $(51) \times (.5) = 25.5$ days

Note that at TL10, controlled launches require *no* preparation time. This is why downports can handle such a steady stream of traffic. Vehicles using insufficient facilities may be able to prepare for controlled launch by taking a greater amount of time—how much more time is left to the referee's discretion. However, it is virtually impossible to achieve a controlled launch from preindustrial facilities, no matter how much time is spent.

Frontier Launch

A frontier launch is the type described in the **Imperial Encyclopedia** (Starship Operations). A frontier launch will result in a less optimized use of the vehicle and its environment. Therefore, the time required to achieve LPO is greater. In most cases, multiply the time required by 1.3. In truly disastrous cases (exceptionally poor facilities, almost no time for computation or simulation) this modifier could grow considerably worse.

The LPO/SPO launch times listed in "One Small Step" are not intended to supersede the listed values in the **Imperial Encyclopedia** (Starship Operating Procedures, step 4—Travel To Orbit). The values on that table reflect normal, gravitic-powered, commercial transfers to stable planetary orbit. These launches are assumed to be casual frontier launches, with the star/spaceport providing traffic control rather than launch support. However, it should be noted that *if* ships with gravitic drives have to get off of a planet *fast*, the launch times reflected in the LPO Acceleration Requirements Table represent the minimum time. However, completing a

launch in the indicated time is a Difficult task. Ship safety is not at risk, however, unless extraordinary conditions exist.

Spacecraft that have VTOL hulls and/or are equipped with fusion rockets may use the launch rules from the Starship Operating Procedures if they are capable of 1G in an air-speed and can sustain it for one hour. In all major aspects, such vehicles are effectively the equivalent of gravitic craft.

GRAVITY

Prior to the emergence of gravitic technology, another major difficulty with spaceflight was the absence of gravity. Without a certain minimum gravity, the human body begins to suffer ill effects.

The primary answer to this problem in pregravitic spacecraft is to impart spin to the hull (or part of the hull) and house the humans at the extreme outer edge of the spinning hull. There the combined effects of centrifugal and centripetal forces create downward/outward pressures that simulate some degree of gravity. Modular frameworks offer one advantage in this regard—they can be designed so that one boom spins while the rest of the craft remains stationary.

Unless the craft is very large (700m or more in diameter) it is very unlikely that a full 1G of gravity will be simulated, even at the outermost areas of the hull. The spin rate required for a full 1G simulation would begin to cause severe disorientation and spacesickness, even in highly adapted crewmembers. Consequently, most pregravitic ships only simulate 20-30% of 1G, and then only at the extreme edges of the hull. It is not uncommon to find living quarters and exercise areas in these locations (in order to maximize the time and effort spent under gravity-simulated conditions).

Spin is always discontinued when a ship is undergoing major maneuvers, approaching a planet or belt, or about to engage in combat.

SPECIAL COMBAT RULES

Damage to Modular or Multistage Vehicles: When a hit is scored on a modular or multistaged vehicle, the displacement tons of each module/stage must be ratioed. These ratios determine the chance that the hit has to impact any of the given modules/stages.

Example: If a three-module ship had two modules of 20 displacement tons, and one module of 80 displacement tons, the ratioed value of the modules is as follows:

Module	Tons	In Ratios
1	20	1
2	20	1
3	80	4

In this example, there are a total of 6 chances (1+1+4), and the result can be determined by rolling 1D6. A 1 would indicate a hit on module 1; a 2, a hit on module 2; and a 3-6 would indicate a hit on module 3.

Movement: The very low velocities of most pregravitic designs necessitate some special considerations when using the ship-to-ship conflict rules (**Referee's Manual**).

Determine the vector of a pregravitic ship at the time combat is joined since many of these early designs will not be able to alter their course significantly during combat. For every

round in which a vehicle's acceleration is less than 1G, the "fractional thrust" should be recorded and tallied with any previously accumulated fractional Gs of thrust. When this incremental thrust from each successive combat round adds up to a whole 1G increment, it can be awarded as 1G of movement. For instance, if a ship were capable of .2G constant, it would take five combat rounds for the ship to effect the equivalent of a 1G change in its vector.

Another option (if all the ships involved have a 2G or smaller maximum acceleration) is to reduce the per hex scale to 2500 kilometers (one-tenth the scale). Given this reduction, a vessel with 1G of boost would therefore have a movement allowance of 10 hexes; a ship with .1G would have a movement allowance of 1. Use any other scale that fits the needs of the situation.

Finally, a combination of the two methods—reduced scale and fractional thrust addition over time—can work very well and make it possible for a wide range of vessels to participate meaningfully in the same combat environment.

(An alternate method is to use the original **Traveller** rules for starship movement, in which fractional G movement is possible. However, we advise caution if you decide to stray too far from the **MegaTraveller** combat rules.)

Tactical Lasers and Other Nonbattery-Sized Weapons:

As was suggested in the design section, limited power generation makes it necessary for designers to consider lower power lasers, such as those designed for tactical use.

Attacks by "—" nonbattery weapons do not receive any weapon table DM (regardless of how many weapons are actually grouped together). Resolve the attacks using the starship combat tasks in the **Referee's Manual**. Use the new values determined in the design evaluation stage. If a "—" battery hits, roll standard penetration attacks for each weapon in that battery, using the Vehicle Hit Location Chart in the **Player's Manual** to determine which components are hit.

Technically, any fusion, plasma, or projectile weapon also imparts acceleration to the firing vessel. The acceleration is along a vector directly opposed to the line of fire. Per penetration point fired, .1 ton of thrust should be applied for one second. (This rule can certainly be ignored with almost all ships except those powered by ion drives and at very low velocities.)

IN-SYSTEM TRANSFERS BY PREGRAVITIC SHIPS

Every iota of velocity is precious to pregravitic spacecraft, particularly those about to engage in combat. Therefore, it is important to be able to determine the speed of such vehicles at any point during a transfer.

Therefore, additional travel formula are introduced (courtesy of the original **Traveller** rules). In these equations, each variable has the following value: *d*: distance (in meters) *a*: acceleration (10 meters/sec=1G) *t*: seconds *v*: speed in meters/second. With the exception of the velocity equation, all assume a standing start to standing stop journey with a midpoint turnaround (as indicated in the **Referee's Companion**, In-System Operations). While the use of these equations is optional, they're very easy to handle:

$$\text{Time} = 2\sqrt{d/a}$$

$$\text{Distance} = at^2/4$$

$$\text{Acceleration}=4d+t^2$$

$$\text{Velocity}=at$$

Velocity is useful for determining the speed of a ship at the time it comes into contact with other vessels. However, the "v" value must be divided by 1200 (the number of seconds of acceleration per 20-minute combat round) in order to convert this value into the vessel's movement speed in hexes (**Referee's Manual**, Starship Combat section).

When using these equations, remember that the units you're using to calculate with (meters, seconds) may not be what you wish to wind up with (kilometers, minutes or 20-minute combat rounds). We recommend that you get your answers in the presented units *first*, then convert to the units you want.

Pregravitic Spacecraft Tasks

Most tasks required to run the ships designed with this supplement are duplicates of (or can be extrapolated from) the tasks listed in the **Imperial Encyclopedia**. However, a few new tasks deserve to be detailed here.

Controlled Launches

Making a successful controlled launch:

Difficulty varies (see chart below), Navigation or Pilot-1, Computer, instant (after preparations—see the Controlled Launch section preceding) (fateful, hazardous).

Referee: The difficulty of this task is directly connected with the tech level of the vehicle and launch facility (if they are different, average the results). The maximum computer model available at the given tech level must be available for launch plotting and simulation throughout the preparation and launch phases. If it is not, the referee should impose a -2 DM on the task roll.

TL	Task Difficulty Rating
5	Impossible
6	Formidable
7	Difficult
8	Routine
9	N/A, as per gravitic vehicle operations

To jettison a stage (for recovery) while within atmosphere:
Routine, Navigation, Computer, instant (fateful, hazardous—to jettisoned hull)

To jettison a stage and to allow for successful stage reentry (for recovery) from LPO:

Difficult, Navigation, Computer, 1/2 Pilot, instant (fateful—to both mother ship and jettisoned hull, hazardous—to jettisoned hull)

To jettison a stage and to allow for successful stage reentry (for recovery) from SPO:

Formidable, Navigation, Computer, Pilot, 30 minutes (fateful, hazardous—to jettisoned hull)

Any mishaps involving a jettisoned stage are most likely to be trajectory errors that result in bad reentry or descent angles.

If the planet of reentry has a hydrographic rating of 3 or less, there is a task DM of -2. If the hydrographic rating is 1, there is a task DM of -4. If the hydrographic rating is 0, the task is impossible.

Referees can also use these task profiles for satellite seeding and recovery tasks.

Frontier Launches

The UTP for any frontier launch operation is almost identical to its controlled launch counterpart, except that the difficulty level of the task is increased by one (therefore, frontier launches are not possible at TL5). The time increment for a frontier launch is one hour. Note that hasty frontier launches are fraught with peril.

To reiterate, if a maximum computer model (by tech level) is not available to support the frontier launch, a further -2 DM is imposed on the task.

Remote-Controlled Launches and Operations

Remote-controlled tasks are very similar to nonremote-controlled tasks of the same type. The only differences are that a remote-controlled task has an automatic DM of -1, and Robot Ops skill is used (and required) in place of Pilot and/or Ship's Boat.

Remote controllers must be equipped with an appropriate transmitter and a single computer (or a combination of computers) with the required computing power. The control points equation of $CP=(Pr+100,000) \times TL$ is used to determine the remote control requirements of a vehicle.

If for any reason contact is lost between controller and vehicle (communicator failure, weather, out of range), the vehicle is out of control. It is a Formidable task to recover control once it has been lost, even if contact is reestablished. For every two attempts to recover control, an additional -1 DM is applied to the task roll. DMs are awarded for Commo, Robot Ops, and Education.

Points to Consider

As technology slides downhill with the rest of the Imperium, heavy political and economic emphases on the construction and maintenance of local technologies will become the order of the day. Off-world supplies can be expected to dwindle, and, therefore, machinery that is dependent upon extrastellar technologies will be seen as being undependable in the long run. One can hardly find a better illustration of this kind of concern than in the Hinterworlds Sector. Darvis Subsector, a mere nine parsecs from Imperial space, has an average TL of 6.6. More than one-third of all the systems in that subsector are of TL6 to TL8. Although Arkon is an industrial powerhouse, she is only now upgrading her starport to B. It will be years before she completes a full upgrade to A (a viable commercial producer of starships). Her smaller protectorate, Varag, is the only starship yard in the subsector.

The consequences are clear—most of the smaller, lower-tech systems will be forced to fend for themselves or face absolute domination at the hands of such local powers, however humble they may seem by Imperial standards. On the other hand, even at TL5, a spacefaring planet is a planet to be reckoned with and traded with—not conquered wholesale.

This perspective should guide the referee not just in the construction of spacecraft, but other machinery as well. Rather than invest in expensive air/rafts, can VTOLs be used, or air cushion vehicles? What about helicopters? The referee who is interested in such matters is strongly urged to consult the pages of **COACC**. Gravitic technology is not a prerequisite for military potency.

On a different note, "One Small Step" offers a number of other play and design possibilities. For example, what about the intrasystem skirmishing of the prestellar Solomani, circa AD 2050? Various global and off-world power blocs were involved in small squadron actions in the asteroid belt and amidst the moons of both Jupiter and Saturn during that time. Some confrontations included planetary assaults, such as the fiercely fought Titan conflict of 2053, waged between the Pan-Asian Combine and the Multinational Corporate Forces.

On a less martial note, "One Small Step" enables you to recreate the initial exploration of the Sol system: the first Martian landing, the Europa expeditions, the dramatic ship-

wreck and rescue of the first Titan mission. The commerce of those days—like the year-long voyages of the sail and steam era—was enabled by a delicate web of refueling and mining waystations. The onset of newer technologies, the outrush of settlers, and the establishment of agricultural colonies all served to make it a time of change and adventure. And in certain areas outside the Imperium—notably, many places in the Hinters—this drama is still in the process of being played out.

Last, "One Small Step," while based on technologies already extant or being tested, is obviously highly simplistic. In order to keep it apropos to a playable game system, many sacrifices regarding details and actualities were knowingly made. The author trusts that readers will see this as welcome streamlining, rather than as unsettling deviations from reality. After all, enjoyability is the key to **MegaTraveller**—and the sole reason for using "One Small Step." Ω

*For two adventures using this design sequence supplement, don't miss "Two Small Steps" in **Challenge 47**.*

The author gratefully acknowledges the help of NASA personnel and publications from Ames Research Center, Lewis Research Center, and Kennedy and Johnson Space Centers, as well as publications of the National Commission on Space, the American Astronautical Society, and a number of commercial imprints.

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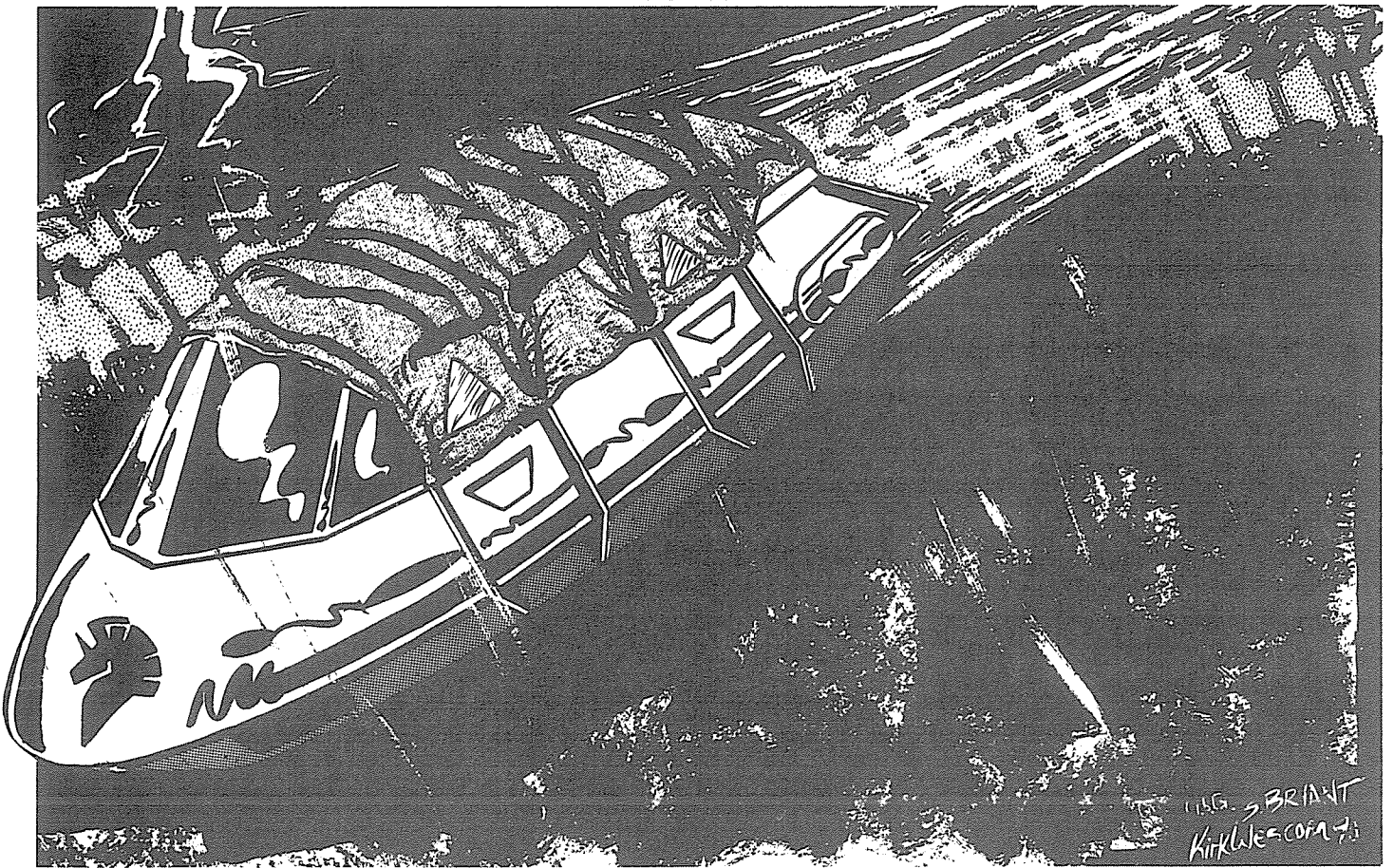
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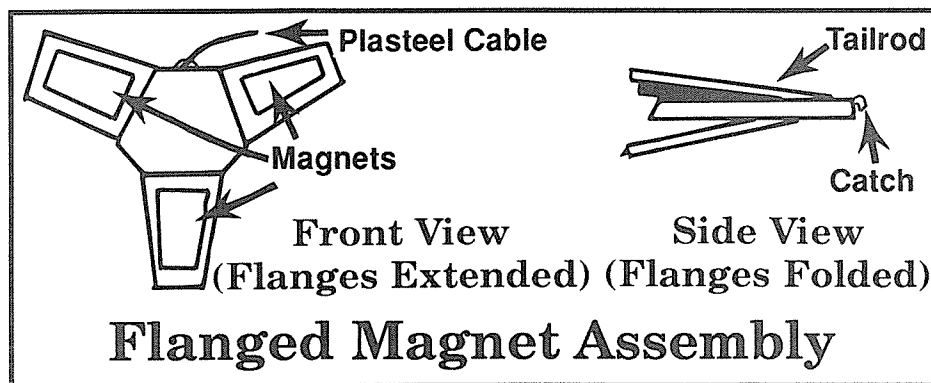
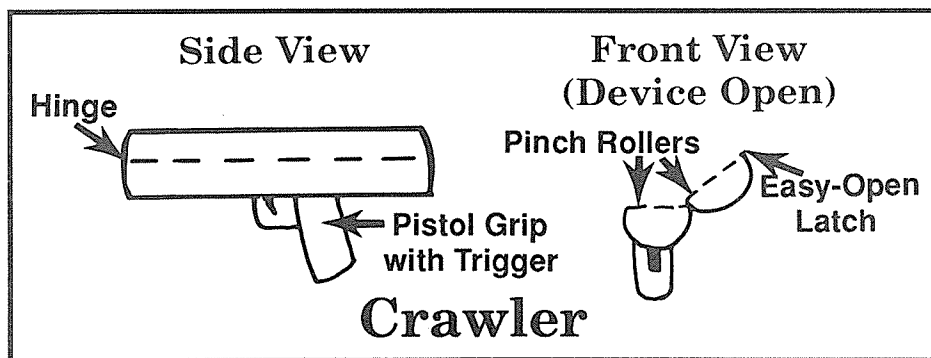
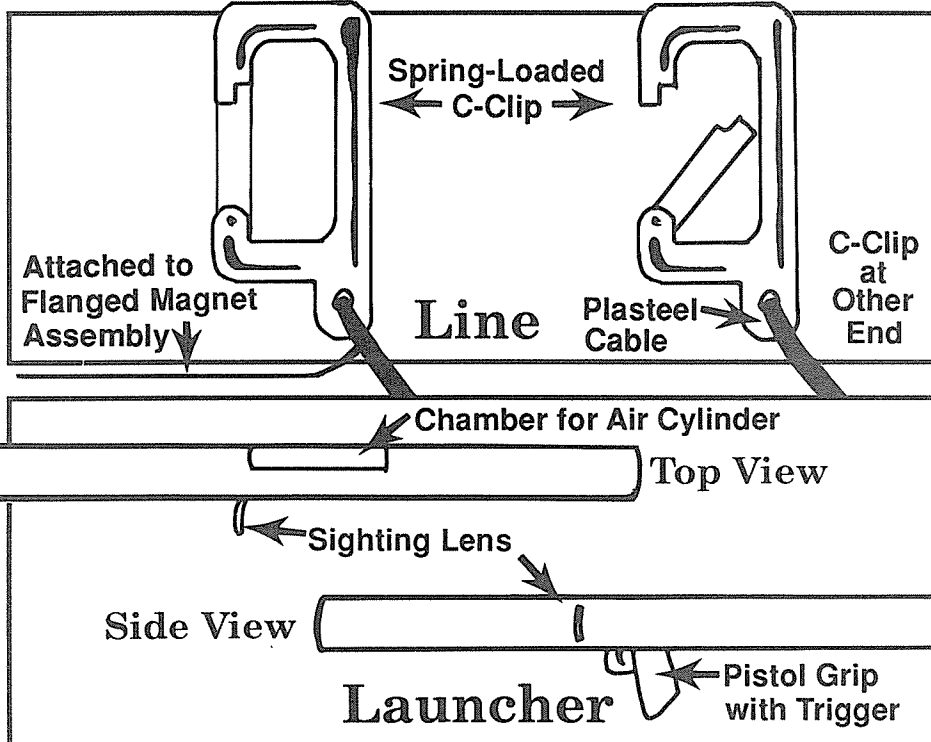
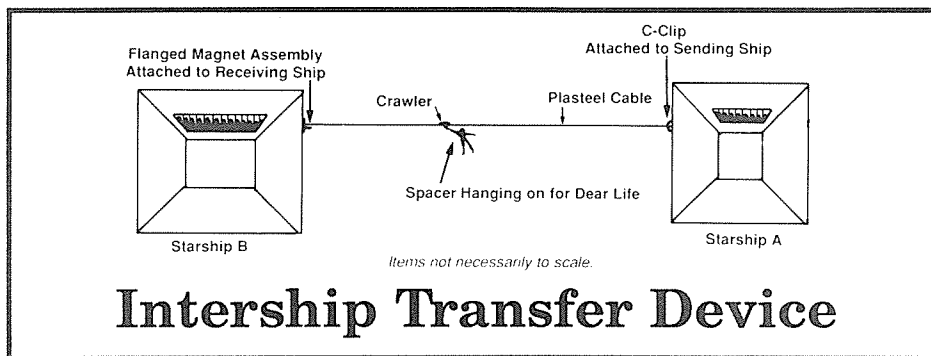
Air/Raft Tops

For a variety of reasons—including volume constraints or aesthetic value—designers made the air/raft an open-topped vehicle. But at times, such as during severe weather, an enclosed environment is desirable.

Air/raft tops produce an enclosed environment and also provide reasonable protection from

weather conditions. The basic top consist of a collapsible framework with a canvas or synthetic cover. Clear duraplastic inserts allow vision to the sides and rear. Access to the interior of the air/raft is obtained by separating different sections of the top.

Once mounting hardware has been attached, one person can place or remove the top in about 10 minutes. A second person assisting would reduce the time to



about four minutes.

At TL 12, air/raft tops are available with a thermofiber cover. Thermofiber is an advanced synthetic material which has significant insulative capabilities. When used in air/raft tops, it will maintain the interior of the air/raft at room temperature.

The top can maintain this temperature in the air/raft's interior in an ambient air temperature range of 0-40°Celsius. Beyond this range, the thermofiber cover still maintains the interior at a more constant temperature than other materials could.

The tech level of the basic air/raft top is a result of the tech level of the air/raft itself. One can obtain a similar item for the air/raft or other open-topped vehicles at lower tech levels for about the same price.

Air/Raft Top: TL 9, 15 liters, 15 kilograms, Cr100.

Thermofiber Air/Raft Top: TL 12, 15 liters, 10 kilograms, Cr100.

Intership Transfer Device

The transfer of personnel or goods between ships in space can often be a hazardous task, and a variety of devices are used to increase the safety of such transfers. One such device is the intership transfer device (ITD).

The ITD consists of three components—the line, the launcher, and the crawler.

Line

The line is a 100-meter length of braided plasteel cable. Attached to the sender's end is a C-clip for connecting the line to the ship's hull. Fastened to the other end is both a C-clip and a flanged magnet assembly.

Launcher

The launcher is a mechanism designed to propel the line across the space separating two ships which have matched course and speed. Physically, the launcher is a one-meter-long tube. It has a pistol grip with a trigger mechanism underneath and a sighting lens on the side.

The operator fires the launcher from the shoulder with the flanged magnet assembly inserted into the front end. When the operator pulls the trigger, compressed gas will propel the flanged magnet assembly forward. The launcher simultaneously fires a countercharge of gas in the opposite direction, making the launcher a low-recoil device.

As it travels across the intervening space, the magnet assembly opens to the attachment position. It also carries the line across to connect it to the other ship's hull.

Normally, the magnet assembly will have enough hold to allow the crossing of personnel. For a more durable connection, the operator attaches the C-clip to the other ship's hull after crossing. The launcher has enough charges for five launches. After it is empty, the operator may remove the cylinder for recharging or replacement. Any starship can charge a gas cylinder. Commercial recharging cost Cr1. Replacement cylinders cost Cr5.

Cargo Crawler

The crawler is a hand-held device used to pull personnel along the line. It is similar in appearance to the launcher, except it is smaller and does not require a sighting lens.

The crawler's tube opens to clamp over the line. A small electric motor activated by the trigger operates pinch rollers to pull the crawler and its operator along the line.

There is a safety line for connection to the operator's suit.

A standard ITD will come equipped with four crawlers.

A modified crawler used to facilitate cargo transfers has a remote control and cargo net arrangement.

Another accessory available is the personnel rig. This modified crawler can transfer invalid beings or space-wary groundlings between ships. It's similar in appearance and operation to the bos'n's chairs of

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many wet navies.

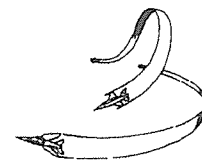
Intership Transfer Device: TL 7, 10 liters, 10 kilograms, Cr500.

Personnel Rig: TL 7, 2 liters, 2 kilograms, Cr50.

Cargo Crawler: TL 7, 2 liters, 2 kilograms, Cr50. Ω

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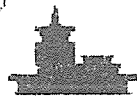
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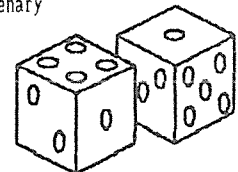
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Catch & Carry Team

At Once Both Cat and Mouse

Erick Melton

In the effort of pirate syndicates to take that which does not belong to them, the catch and carry team has evolved as the best means to effect the illegal transfer of goods from one vessel to another.

The combination of a small, armed, highly maneuverable vessel to run down prospective prey (the *catch*) and a modified medium freighter with good speed to move in quickly and spirit away the cargo (the *carry*) has proved so effective that it has become the most common method of space hijacking today.

The inherent difficulties of keeping a catch and carry unit operating have promoted the rise of family-style pirate syndicates and have virtually eliminated the independent operator.

With the systematic development of the catch and carry type of pirate organization, law enforcement agencies must take new directions to suppress such units; in response, the pirates must be ever more clever and resourceful to overcome the law.

The modern pirate must now be quick and cunning as never before to evade the grasp of patrols sent out to destroy him while at the same time running down those ships which would make him rich.

A delicate balance must now be struck between his role as hunter and his lot as

prey. He lives in a world where he is at once both a cat and a mouse.

SAMN

The greatest asset the forces of the law have in the war against pirates is that of international cooperation. Unfortunately for free commerce, cooperation can, at times, be rather un dependable.

Some nations may enjoy a great deal of mutual assistance. The Americans and Australians, for example, cooperate very closely with each other to make outright piracy virtually unheard of in the American Arm of space.

Strained relations between other countries can prevent effective action against space hijackers. In fact, in some regions of human explored space, pirate syndicates count on such difficult relations in order to operate.

To help alleviate this problem, an organization called the Spacelanes Activity Monitoring Network (SAMN) was formed. The network evolved out of the task force created to monitor the treaty which ended the Alpha Centauri War. Today SAMN, or Sammy-N as it is referred to in the American Arm, has evolved into one of the largest, and easily most far-ranging, international crime-fighting organizations created by man.

Empowered by its charter to fight "crimes of interstellar transit," SAMN's front line units in the war against piracy are the national bureaus. Each bureau is controlled, staffed, and funded by the signatory nation it serves, with as many branch offices

as that nation deems necessary. The American National Bureau, for example, is staffed by agents from the U.S. Treasury Department, with the central office in Washington, D.C.

SAMN's greatest contribution in the war on piracy has been the development of its suspect traffic reports. Data gathered from crime reports—along with sensor readings from patrol vessels and navigational buoys, and the work of agents in the field—are sent to the individual national bureaus, where they are processed and sent to the Central Bureau at SAMN headquarters in Provence Nouveau on Tirane. (Appropriately, SAMN was the first international organization with headquarters located outside the Earth/Sol system.)

Once at the Central Bureau, the data is compiled and cross-referenced along numerous parameters: pattern of attack, vessels present in-system at the time, type of cargo stolen, etc. From this literal mountain of data, SAMN prepares its suspect traffic reports, which are distributed to the national bureaus for use by local authorities. These suspect traffic reports are known as "rainbow" reports, from the practice of color coding them to indicate level of urgency. The color coding runs from white, the least urgent or detailed, through yellow, green, red, blue, and finally black. Vessels registered to member nations which appear on the blue list may be legally held for questioning if they are in-system when a pirate attack takes place.

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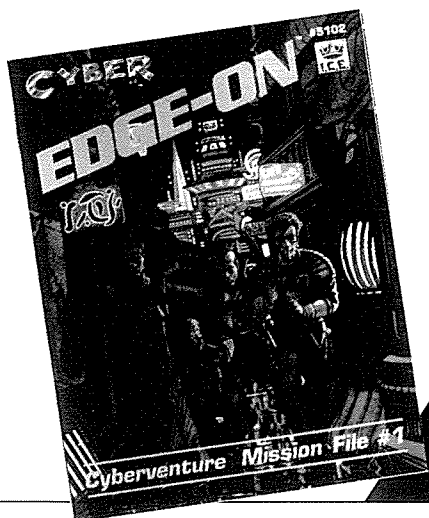
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The **adventures** section gives detailed instructions on how to set them up and describe them.

Plus administering experience, the types of rewards to offer player characters (and how much), and motivating players (and characters) to play out enjoyable adventures.

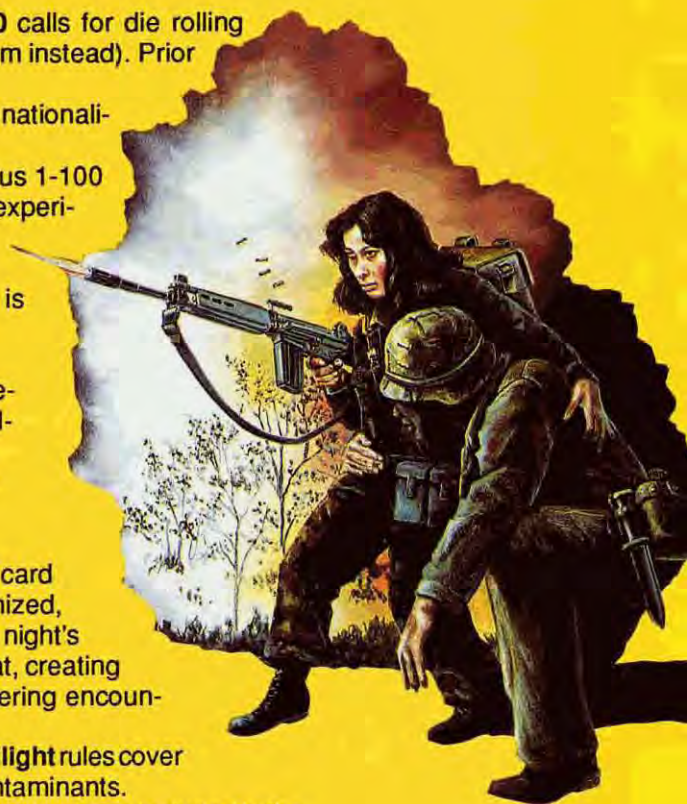
HAZARDOUS ENVIRONMENTS: The *Twilight: 2000* environment has become more colorful—it's a bigger, wilder, more threatening world out there. Referees can set adventures anywhere in Europe with no additional material. Other areas where U.S. troops are stationed are similarly treated: the Middle East, Far East, and the United States.

Background: The opening situation in *Twilight: 2000* covers Poland, with background and details for a "real" adventure with maps, NPCs, the works. It ends up in Krakow, with a lot of detailed coverage of the city.

Service Background: Military service details are included, with discussions of life in the service, definitions of weird terms (like MOPP, MOS, and klick), and explanations of what equipment is like and what a typical character might have experienced.

The New **TWILIGHT: 2000**

The boxed set includes a 288-page basic rule book, 20x28" map of Europe, and blank forms.





Vessels on the black list are to be seized immediately upon positive identification, and their crewmembers are to be deported for trial. Updates of these lists are sent to the national bureaus on a quarterly basis, and specific updates concerning a particular incident, vessel, or individual, are sent to member nations upon request.

In gaming terms, it is up to the referee to decide the status of a group of characters in regard to the rainbow reports. Obviously, the longer the time spent in piracy, the greater the likelihood of appearing somewhere in SAMN's records. This is influenced by the availability of sensor readings from patrol craft and/or navigational buoys of the subject vessel, and the steps the pirate craft has taken to disguise its presence (examples of which will be described later). In addition, it is always possible that a group of characters may be in the wrong place at the wrong time. They might be placed on a rainbow report when innocent of wrongdoing or could be implicated by SAMN for a crime they didn't commit while carrying the goods from another incident.

POP-OUT DRONES

An increasingly important source of data for the SAMN computer analysis is the "pop-out" distress drone. An automated remote with a flight data storage device and communication gear, the pop-out is designed to be rapidly deployed in the event of an attack. While in flight, the pop-out's recorder will take down all sensor and communication data of a ship's progress. When the hostile boarding of a vessel is imminent, the drone will be launched from its external sling and follow a preset flight path, usually toward the

nearest orbital facility. If the freighter is travelling a minor route in a system without such facilities, then the drone is commanded to fly a random pattern and then go dormant. More sophisticated drones include a passive sensor package, allowing them to continue to run if a vessel gets too close without giving a proper signal. This signal is provided by port authorities just prior to the freighter leaving dock and is used by patrol craft to activate the drones' homing signals. The data from a pop-out is sent to SAMN Central Bureau for processing and inclusion in future lists.

With the combination of sensor data from pop-out drones, system patrol craft, the ongoing readings of navigational and traffic control buoys, and the continual work of individual nations' crime-fighting organizations, it would appear that the future of any prospective pirate would be a difficult one at best. In the face of truly enormous volumes of information processed by SAMN and distributed to every member nation, it would seem only a matter of time before any pirate would find himself cowering in his dock rock, waiting for the forces of law and order to come knocking.

The criminal mind, however, is often a resourceful one. While spacegoing nations can be counted on to come up with the means to make piracy difficult, pirate syndicates can be counted on to come up with the means to circumvent them.

DRIVE SMEARING

A pirate syndicate's greatest concern has always been how to better disguise the presence of its ships. With contact in space normally taking place at distances

ranging in the thousands of miles, this concern has centered on disguising the vessel to electronic observation rather than visual observation. Even when the vessel is at dock, its visible parts are usually limited to what can be seen through the air lock.

The most common and widespread method of fooling unwanted sensor readings is to alter the frequency of the stutterwarp unit. Known most commonly as "drive smearing," "lumping the drive," or "scaring the unit," this method makes use of the residual radiation built up during interstellar flight to change a drive's detection signature.

During normal operation, the stutterwarp unit will be calibrated so that the residual energy built up during transluminal flight is spread evenly over the drive coils. This allows the unit to reach the 7.7 light-year limit on travel. Upon entering a significant gravity well, one of 0.1G or greater, the coils will be discharged evenly in order to maintain maximum efficiency of the unit while operating in-system.

When a drive unit is being smeared, the discharging process takes place differently. While in-system, the ship's engineer will bypass one or more of the drive coils. This creates an energy lump which will become slightly greater each time the coil is bypassed. As the drive cycles, an energy drag will be created by the lump, and the unit's telltale frequency will be altered. If only one coil is used, the resultant pattern is that of a unit with a failing coil. If a number of smaller lumps are created throughout the unit, the drive frequency will be read as that of a different vessel of approximately the same mass and power range.

Obviously, whenever one

tampers with the normal operation of a system, a drop in efficiency can be expected. Depending on the number of residue lumps created and their placement throughout the system, the drop-off can approach the difference normally experienced when an empty cargo vessel becomes fully loaded.

The possibility also exists that the unit may be damaged. The greater the size of the energy lump and the longer the unit is operated in such a state, the greater the chance that the coil will reach its threshold limit and burn out, a small-scale version of what happens when the unit as a whole is pushed past the 7.7 light-year range. While the release of radiation is relatively small, the stutterwarp unit will need major repairs before it can be counted as operational. Drive smearing is used exclusively by carry vessels when entering a system where they may be identified or where they will be joining a catch operation. The drop in drive efficiency is too high and the risk of damage in a hostile system too great for this method to be used by catch vessels.

The attempt to smear a drive unit is a two-step process. Before the journey begins, the drive engineer must successfully prepare the unit to delay its discharge. This task is described on page 63 of the **2300 AD Director's Guide**, and it must be attempted regardless of the distance to be travelled.

Once in the target system, the task below must be attempted:

Task: To smear a drive unit: Difficult, then Formidable. Ship Drive Engineering skill. Special, see below.

Referee: Success means the drive signature has been altered, and no permanent

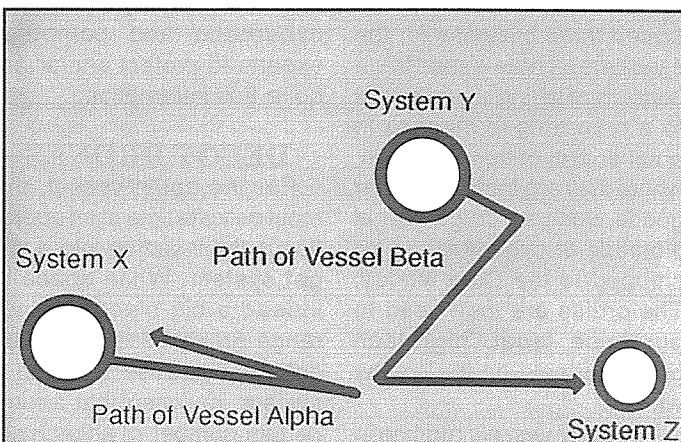
damage has been suffered. The results of the task are known within moments; however, the task must be repeated

every 10 hours, or fraction thereof, while the ship is travelling within the system. The first two times the task is attempted it is Difficult, and failures are resolved using 2D6. The next two attempts are Formidable, and the roll for failures is made using 3D6. Four is the maximum number of times the task may be attempted. After that, all the residue energy will have been discharged, and the vessel will operate normally

if undamaged by the strain. Even if all the rolls are successful, there will be at least a 15% drop in the stutterwarp's efficiency rating. A Superficial result on the Mishaps Table will increase this drop to 30%. A Total mishap indicates that one of more of the drive coils has experienced threshold burnout and will need to be replaced at a major repair facility.

At any point, the ship's engineer can declare that he

2300AD



Shell Game Dogleg

In a shell game dogleg, a syndicate wants carry vessel alpha to join a catch vessel for a hijacking in system X. Carry vessel beta is operating for the syndicate with a legitimate cargo in system Y. System Z can be reached from both systems X and Y.

At a prearranged time, carry vessel alpha leaves on an outbound departure angle from system X for system Z. At the same time, carry vessel beta leaves system Y.

Once in deep space, both vessels will alter course and transponder signals. Vessel alpha will dogleg back into system X. Vessel beta will dogleg to match, as closely as possible, the entry angle of a vessel travelling from system X to system Z, matching the transponder signal used by vessel alpha.

If everything goes according to plan, SAMN sensor data will show that carry vessel alpha was absent from system X at the time of the attack.

is completing a normal discharge. He may then roll the task at one step lower than normal (Routine if within the first 20 hours and Difficult if later). If the roll is successful, the discharge is completed normally. Failures are resolved using 2D6.

SHELL GAME DOGLEGS

With the advent of the SAMN suspect traffic lists, pirate syndicates have found it necessary to devise means to keep their carry vessel clear of any suspicion of wrongdoing. The use of fake transponder signals is widespread, the illegality of the practice hardly a deterrent to such individuals. The practice is used primarily by vessels conducting *three-armed trade* business for the syndicate. (Three-armed trade consists of taking stolen goods to a prearranged meeting in another arm of human space, where they are traded for other goods, such as drugs, illegal biomods or cyberwear, to be shipped to the Core worlds. The profits are then used to purchase legal, high-tech goods for sale on the colony worlds.)

For carry vessels running in the syndicate's area of operation, another method has been devised to make it appear that a particular carry vessel was elsewhere at the time of a hijacking. This method has become known as *shell game doglegs* (see diagram for example).

There are several variations to the basic concept, such as a *drop transit*, where two vessels leave the same system, the second doglegging back for an attack, while the first masquerading as the second in the destination system. The second vessel, once its hold is full of stolen cargo, proceeds to the next system, now passing itself off as the first vessel, with a story of "deep space repairs."

For shell game doglegs to work, the pirate syndicate

using them must be highly organized, with well disciplined crews manning its vessels. Depending on the number of ships the syndicate controls, a veritable "musical chairs" of identity switching can go on, often as a vessel passes from one system to the next. This level of sophistication requires extensive computer analysis, planning, and simulation—which is often done months in advance.

Transit data has increasingly become the focus of law enforcement undercover operations. By obtaining copies of a syndicates' transit plans, law enforcement agencies can wait for unsuspecting pirate vessels. Today both the pirate syndicates and government agencies employ numerous cybernetic and computer experts to protect and/or acquire this information.

DECOY DRONES

For the catch vessel, the most delicate time of an operation is the insertion into a target system. While space is indeed a big place, a long-range gravitational scan can detect any vessel entering a system. Knowing that an uncertain number of ships have entered and suddenly disappeared from scan is more than enough to rouse the curiosity of any patrol commander of reasonable intelligence.

To assist catch vessels in entering a system unnoticed, pirate syndicates have made use of what is referred to as a decoy drone or *dee-dee*. As highly modified sensor probes, *dee-dees* are designed to mimic the activity of a normally operating vessel.

The drones are given large power plants, with their shielding stripped to a bare minimum. Automated communications equipment is added to broadcast the normal signals of a ship under power, and more sophisticated programs allow the *dee-dee* to respond to navigational buoys found in most systems. The *dee-dee*

can be launched ahead of the catch ship, but it is more often in an external mount, from which it is launched as the vessel powers down. This method can be used to confuse pursuit, in the hope that patrol vessels will follow the *dee-dee*. The method is generally used when a catch vessel wants to *rendezvous* with a *dock rock* to keep the coordinates secret. (Dock rocks are the supply caches and sensor platforms syndicates place on floating chunks of rock).

The use of *dee-dees* involves two separate tasks.

Task: To prepare a *dee-dee*: Variable. Ship Engineering, Mechanical, and Electrical skills. 2 days.

Referee: The preparation is handled like any other repair task and involves the modification of a deep space sensor probe used for long-range exploration. The difficulty level depends on the degree of sophistication desired by the syndicate. A *dee-dee* that travels along a predetermined path broadcasting its ship noise is *Difficult*. One that can respond to basic requests put forth by nav-buoys and follow assigned flight lanes is *Formidable*. Trying to modify the drone to respond to real-time requests put forth by human communications officers on naval patrol craft and fly a completely random yet believable flight plan is an *Impossible* task (attempts have been made). Whenever the latter two levels of sophistication are desired, the ship crew skills of Communications and Computers are also required.

Task: To launch a decoy drone: *Difficult*, *Uncertain*. Pilot and Remote Pilot skills. Instantaneous.

Referee: In the launch task, success means the drone would appear to be a single ship continuing on its course of travel. Both the pilot of the catch vessel and the remote

pilot responsible for the *dee-dee* must roll for this task. Failure means any sensor instruments would detect something wrong—a momentary dual image, for example. A Minor mishap means any recognition programs keyed to this type of activity and monitoring the progress of the catch vessel have been alerted, and any subsequent attempt to detect the pirate vessel is lowered by one level (two if the mishap is Major).

Most *dee-dees* are programmed to broadcast the signals associated with independent asteroid mining craft. These vessels stay out of dock for extended periods of time and are often unmanned as the crew goes EVA to prospect, leaving the ship's computer to handle incoming communications. This programming has left the perception in the minds of the general public, and with some law enforcement agencies, that there is an association between belt miners and piracy.

IN ACTION

A pirate syndicate has discovered that a freighting company has been contracted to carry tantalum drive coils for an exploration and resource development company operating on the fringes of explored space. The coils are to upgrade the drives of the company's survey vessels.

The action begins with the catch vessel entering the system. As it closes upon its syndicate's dock rock, it cuts power and launches a *dee-dee* which has been programmed to maintain a minimum distance of five light-seconds between it and any other vessel. If queried, the drone will respond with the information that it is conducting an independent mining survey. The catch vessels link up with the dock rock, transferring part of the crew to the survival canisters there. The data from a passive sensor array is downloaded to the ship's

2300AD

computer for analysis, and an EVA team is sent to retrieve the fuel processed by a cracking station on a nearby chunk of ice.

Next, the carry vessel enters the system. It has just completed a shell game dogleg and is operating under a different name and registry. It enters the system smearing one drive coil, broadcasting to the local port facilities that it needs to put in for emergency repairs of a failing drive unit. This broadcast also serves to alert the catch vessel, which sends a squirt transmission to the carry vessel containing its analysis of the sensor data. The data indicates that a window of opportunity exists on the target vessel's departure angle in a volume approximately one AU inside the system's transluminal horizon, the point at which stutterwarp units can achieve faster than light pseudovelocities. The carry vessel codes then stores the information, receives the go-ahead from port authorities, and proceeds in-system to the port.

Infiltration

The carry vessel docks and begins "repairs." It also hooks into the station's database,

and a *spiker*, a member of the syndicate's infiltration unit, jacks into the base to discover the target's departure time. With this information in hand, the carry vessel reports to station authorities that its problems are minor and requests a departure time shortly after the one given the target vessel. With reports that security around the target is tight, the captain of the carry vessel decides that getting a spiker team on board is not feasible. The spiker team can perform another mission, and the unit is sent out of the air lock.

An hour after the spiker team returns, the target vessel powers up and departs. The carry vessel leaves as well, maintaining a specific distance and angular relationship with the target ship—one that will aid the catch vessel in pinpointing the target's position. The catch vessel slips free of the dock rock and powers up as the dee-dee returns.

Capture

Moving into the window of opportunity, the catch vessel closes on the target. The freighter tries to evade, but the catch ship is too maneuverable and disables that target with a well placed laser shot.

The captain orders one last sensor sweep, and commands that the pop-out drone be fired. But nothing happens—the spiker team disabled the explosive release couplings on the pop-out drone—and the remote remains attached.

The end comes swiftly as the catch vessel crew boards the damaged freighter. Once the freighter is subdued, the carry vessel comes alongside, allowing the catch vessel to stand off (jamming any possible communication) or to draw away any possible assistance to the target. The carry vessel crew begins transferring the cargo from the target vessel, while the spiker team searches through the target's computer records, looking for any useful information and wiping out any sensor data it might find.

Success?

Once the cargo is safely on board, the carry vessel signals to the catch ship, and both leave the system. The catch vessel will pick up its decoy drone or activate the drone's destruct sequence, then head

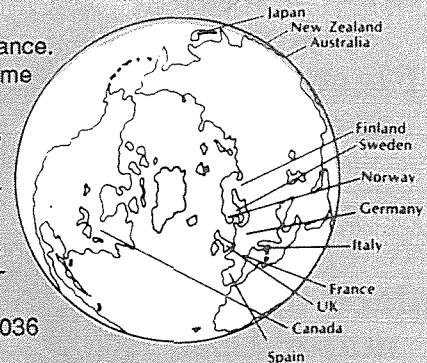
to the nearest safe place, such as another dock rock off a minor trade route. There it will wait until it gets another assignment, or it may go through a crew transfer. The carry vessel will go to a prearranged meeting with a transfer ship, part of the syndicate's three-armed trading system. At the rendezvous, it will trade the coils for a legitimate cargo (allowing it to continue on its own run) or trade for something more lucrative, such as a shipment of illegal biomodifiers for sale to the populations of the Core worlds. On the other hand, life might not be quite so rosy if the pirates have pushed their luck a little too far and the meeting is really an ambush set up by the agents of law and order. The life of a catch and carry team is, after all, fraught with peril—sometimes the cat becomes the mouse without knowing it until it's too late. Ω

For more information on piracy, refer to **Challenge 41**.

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Hot Stuff

**2300 AD/
cybertech
scenario
for 1-5
players.
At least
one should
be a cyber-
jockey or
Electronics
specialist.
This
scenario
can take
place in any
major U.S.
city.**

*Matthew S.
Prager*



It had been a quiet night. I was making my usual round of the clubs, on the look out for anything that might prove interesting. I could feel the 'biz in the air, deals being made, items bought and sold. I hadn't seen or heard anything of interest, until Jimmy D walked up. He normally dealt in hot equipment, but he had this interesting piece of software that he wanted to sell. How could I have known what I was getting into?

The player characters are out on the town looking for some action when they're approached by Jimmy D, a local black market 'wareman. He's got a few items he's trying to move, but they all seem like pretty ordinary stuff. When the characters show a lack of interest, he mentions that he has "something special" that he just picked up. He won't talk about it, but he will invite the group to his place the next day.

Jimmy D works out of his home, a flat on the 11th floor of a 20-floor housing complex. When the player characters arrive, they'll see that he uses an augmented security system to protect his home (see the floor plan provided). Once inside, Jimmy D will show them an unusual piece of software that he has acquired. It is a black, ribbed, plastic cartridge with no exterior markings and a nonstandard interface. Jimmy doesn't know what it is—he picked it up a few days ago with some other items he fenced.

If the PCs ask to see the items it came with, Jimmy D will produce a cloth briefcase and leather wallet. The briefcase has dark red stains on it and contains papers in French—business documents of no particular value dealing with a fast food chain. The wallet contains a couple of bankcards, as well as a passport and other identification. The owner's name was Jon-Claude LaRoque, a French businessman visiting the U.S. Jimmy D doesn't know what happened to the man, only that a couple of punk kids wanted to fence the stuff. Jimmy D offers the software for sale at a price of Lv1500.

The French businessman was a DGSE agent who had stolen the cartridge from a U.S. company and was attempting to return to France. He was mugged by a gang of juveniles and lost it. He will continue to try to recover the cartridge with whatever force is necessary.

That software was certainly interesting. Funny thing though, after I bought it I asked Jimmy where I could find the two punks that sold it to

him. He said he heard someone found their bodies in an alley downtown. That kind of stuff happens all the time, what with the gangs and all, but I should have realized it was more than coincidental.

SOLVING THE MYSTERY

Once the characters have obtained the software, they will have to modify the cartridge to allow its information to be accessed, then figure what the software is. In order to dismantle and modify the cartridge, an advanced electronics lab (consisting of microwaldo systems, scanning microscopes, and diagnostic test equipment) will be required for delicate electronic work. If the characters do not have access to this sort of equipment, which costs Lv10,000 and fills a large tabletop, they will have to hire a hardware tech to do the modification. If they have the equipment, modifying the cartridge is a task.

While the cartridge is disassembled, the characters will find that the components carry a manufacturer's identification—DataCorp. If the characters wish to research this company, they will have to successfully complete the following task.

DataCorp is a company in the U.S. that specializes in cyberspace programming and research, generally working on government projects or for megacorporations.

After being modified, the cartridge can be interfaced with any standard cyberdeck and is similar to using a Second String. Once the car-

tridge is interfaced, the characters can attempt to find out what it is.

If they successfully determine the software type, the characters will realize that they have in their possession a military ICEbreaker (ICE stands for Intrusion Countermeasures Electronics). The software is called Chameleon and adds the following modifiers to a cyberdeck's stats: +16 Accuracy, +10 Defense, and +10 Offense. This software allows the user to sneak into a system without being detected, raid the system's volume, and run. This is a one-shot program which can be run at the same time as any other program or programs. It has an internal volume of 30 and is connected in the same manner as a Second String. *Price:* Unavailable.

HOT ON THE TRAIL

Within 48 hours of purchasing the cartridge, the characters will learn that Jimmy D's place has been broken into and that he has gone into hiding. Also, if the characters hired a hardware tech to modify the cartridge, they will find out that the tech had been attacked by unknown assailants and is in the hospital.

The party is now being followed by LaRoque, who has traced them through Jimmy D and any others they've contacted. He will wait until the party is separated, at which time he will attack lone individuals in order to retrieve the cartridge.

If the characters realize they are being followed and try to capture LaRoque, a firefight will ensue. LaRoque is an Elite NPC armed with a

Task: To modify the cartridge: Difficult. Electronics. 3 hours.

Task: To re-search DataCorp: Routine. Information Gathering. 4 hours.

Task: To determine the software type: Difficult. Computer. 30 minutes.

Task: To notice pursuer. Formidable. Streetwise. Instant.

Jimmy D's apartment has been equipped with extensive security equipment in order to protect him and his merchandise. Jimmy D carries a beeper that will go off when his security system is triggered.

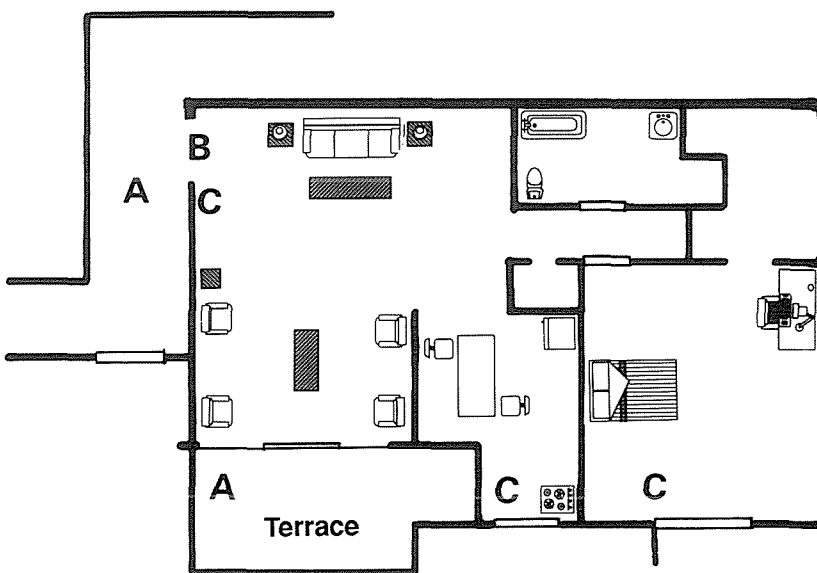
The doorway and terrace have pressure sensors (A) located in the floor to alert those inside of the presence of a possible intruder outside.

The door to the apartment (B) is a security door. It logs the face, voiceprint, pheromone signature, and retina print of all persons entering. (This function can be disabled by placing the door in privacy mode.) Information that is logged can be later recalled to a computer terminal in order to run an identification check on an individual. The door contains an integral intercom and voice/handprint analyzer lock system. An advanced option also scans for the presence of weapons or cybernetic implants.

All doors and windows are equipped with infrared intrusion sensors (C). These are linked to a security gas system (unlicensed) loaded with Doze.

Sensuppress units are spaced in an efficient coverage pattern throughout the apartment, and Jimmy D regularly scans the premises for bugs.

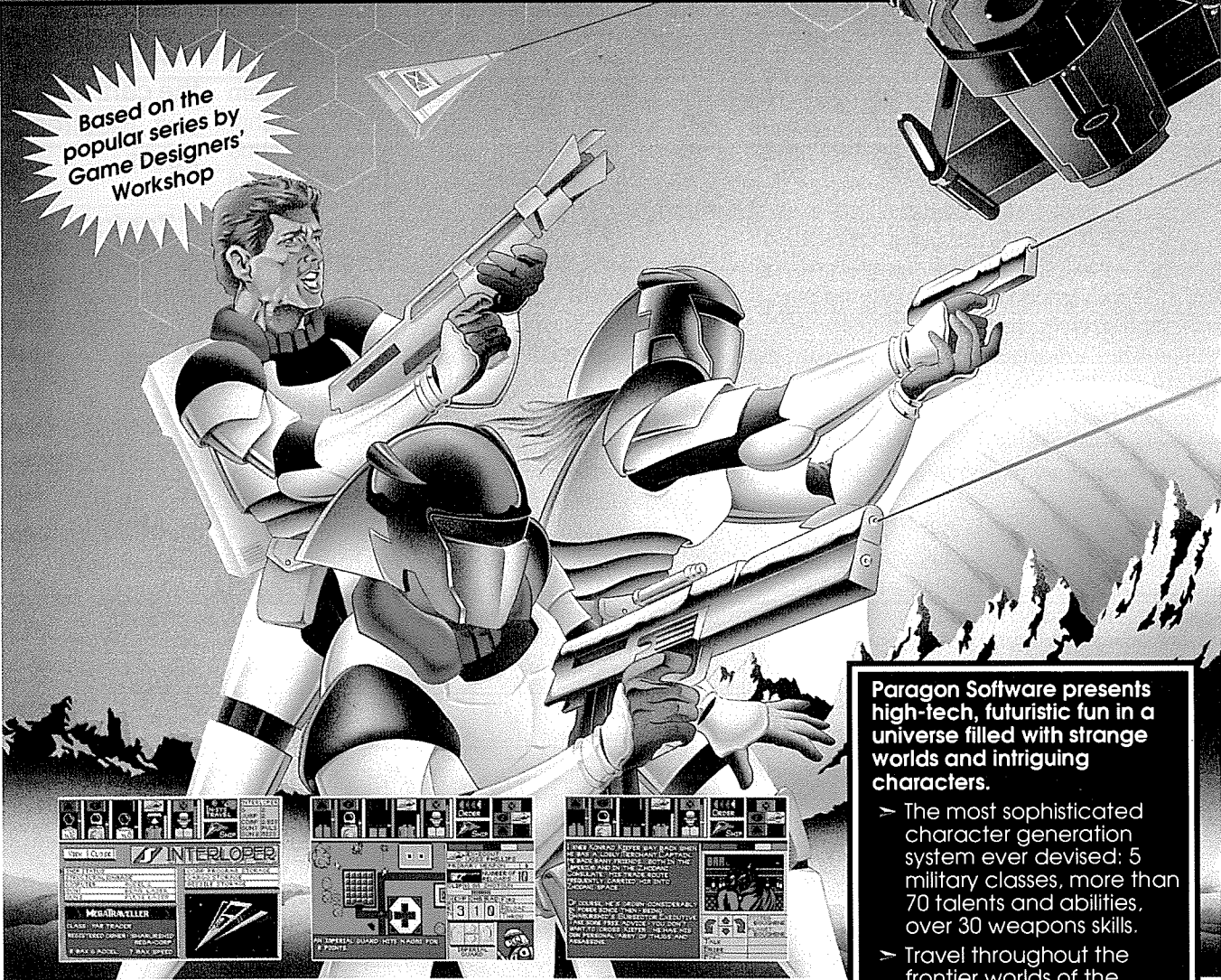
Jimmy D's Apartment



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silenced Stracher P-11mm and two extra magazines. If the characters manage to capture LaRoque alive, he will not willingly answer questions. If the characters are very skillful at Interviewing and/or Psychology (or resort to torture or drugs), they will learn that he is a field agent for the DGSE and that his mission was to steal the software from the U.S. military development program. If LaRoque is killed, the characters may recognize him from documents at Jimmy D's. Either way, the case will be picked up several weeks later by another DGSE agent, who will continue to try to recover the software.

END RUN

The PCs have several options. They can keep the software and run for it, hoping to use it later for themselves. Or they can attempt to sell it to the French or anyone else, or try to return it to U.S. military authorities. Regardless of what they do, the PCs are now marked by the DGSE, which could continue to harass them in the future.

DGSE

The Direction Generale de la Securité Exteriure (DGSE) is a French military intelligence organization which is divided into three directorates. The first directorate deals with the collection and analysis of foreign intelligence, while the second is responsible for counterespionage outside of France and her colonies. The third

plans and conducts political/military operations abroad, specifically in former French colonies that have gained their independence. The third directorate normally has access to French military troops. The DGSE was created in 1981 to replace the Service de Documentation Exteriure et de Contre-Espionage (SDECE) and maintains a reputation as one of the best intelligence agencies in operation. The DGSE normally works out of a country's French Embassy, but it has also been known to use various business fronts.

NPCS

The following NPCs might be useful.

Jimmy D: Jimmy D is a small-time fence who specializes in electronic hardware and computers. Ordinarily, he fences stolen items for various street gangs, but he will sell anything, including his friends, for a price. Although he normally deals in ordinary items on a small scale, he considers himself one of the movers and shakers of the local black market and is constantly talking about his "big score."

NPC Motivation Results: Diamond 6, Spade 2.

Jon-Claude LaRoque: An agent for the DGSE, Jon-Claude is fiercely loyal to France and the agency, and will do whatever is necessary to complete his mission. He is a very determined person and is not above using extreme violence in accomplishing his goal.

NPC Motivation Results: Spade Queen, Heart 5. ♀

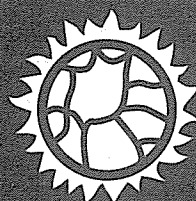
GDW LIBRARY

The black market spans the entire sphere of man's influence—throughout the history of man, from Earth to the most distant colony, regardless of trade regulations or laws.

Challenge 44 reveals the secrets of getting what you want (and sometimes more than you want) from this clandestine group of operators. Look for "Black Market" by Matthew S. Prager.

Also, don't miss Rotten to the Core, GDW's sourcebook revealing the corruption in Libreville, corporate haven and playground of the rich and famous.

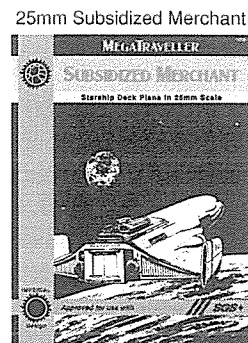
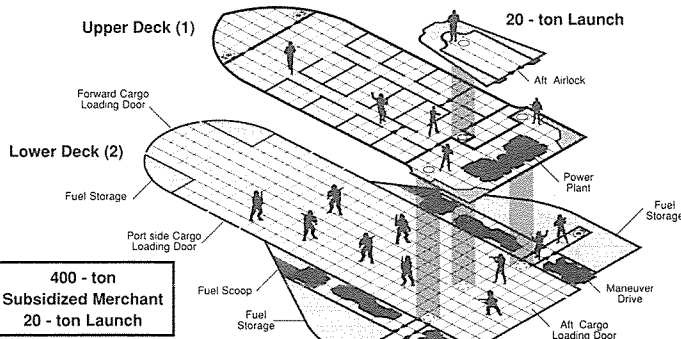
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CHALLENGE

Briefs

STEVE JACKSON GAMES' new release schedule includes: *GURPS Martial Arts* (September, 128 pages, \$16.95), *GURPS Horror* 2nd edition (October, 128 pages, \$16.95), and *International Super Teams* (November).

KNIGHTFALL releases this month from GDW. If the PCs can find a fabled lost city of technological wonders from the Long Night period, its technology could help Margaret prevail. **MegaTraveller**. 96-page book. GDW: 0219. \$10.

SILENT DEATH is new this summer for *Metal Express*. ICE's other recent releases include *Day of the Destroyer* (a *Champions* adventure), *Rolemaster Companion IV*, *Greater Harad* (a *Middle-Earth* campaign module), *Emer* (a boxed set to complement the *Shadow World* legacy), *CyberRogues* (a character compendium for *Cyberspace*), and *Silent Death* (a new boxed game of space fighter combat).

CITYBOOK IV releases in August from Flying Buffalo. Other recent releases are *Elven Lords for Tunnels & Trolls*, the *Fort Beavits Campaign Book* and the *Citybook II* reprint.

BATTLEFIELD: EUROPE, new from GDW, is a fast-playing wargame of modern European conflict. Includes extensive analysis of regional conflicts and armed forces, plus scenarios. Boxed. Game maps. Die-cut counters. Game rules. *European Warfare Handbook*. GDW: 0115. \$26.

SCHUBEL & SON markets four unique PBM games. In *Robot Armies*, you lead an army of huge robot fighting machines in AD 2400. *Company Commander* is a squad-level game of strategy, diplomacy, economics, and military conquest. In *Masters of Magic*, you assume the role of a mighty magic user searching for apprentices to lead your legions in battle, search for artifacts, or act as emissaries to help you extend your domain. And *Crusade* is a century-level wargame of intrigue and diplomacy. Write to Schubel & Son, Inc., PO Box 192, North Highlands, CA 95660.

MANSIONS OF MADNESS is the new collection of *Call of Cthulhu* adventures from Chaosium Inc. Other recent releases include *Pendragon* (2nd edition), *At Your Door* (*Call of Cthulhu*), *Arkham Unveiled* (*Call of Cthulhu*), and *Stormbringer* (4th edition).

OVER THE TOP is a miniatures wargame rule book and reference source from GDW. Rules cover gas attacks, artillery barrages, complex trench systems, rudimentary armored fighting vehicles, and the machinegun. Includes 10 World War I battle scenarios, plus troop lists and statistics. **Command Decision**. 96 pages. GDW: 0734. \$12.

THE NEW TWILIGHT: 2000 is here from GDW! *Twilight* explores the dark potential for a third world war, with American forces trapped behind the lines in eastern Europe. What do they face on the battlefield of tomorrow? Boxed set includes 288-page trade paperback, map, charts. GDW: 2001. \$24.

WEST END'S new releases include *Galaxy Guide 5: Return of the Jedi* (the final chapter in the *Star Wars* trilogy brought to life) and *Lurid Tales of Doom* (a *Ghostbuster* adventure pitting the heroes against some unusual enemies). Plus *Game Chambers of Questal*—when the Rebel heroes discover the fate of a close friend, can they survive the dangerous game being played on the planet Questal?

ROTTEN TO THE CORE from GDW lays Libreville bare in all its frenzied glitz, gaiety, and profound corruption. Chapters cover the black market, gangs, nightlife, corporations, government, lifestyles of Libreville's rich and shameless, and going shopping in the most high-tech, haute couture and expensive city on Earth. **2300 AD**. 64-page book. GDW: 1017. \$8.

SHIELDS OF POWER is a new fantasy roleplaying game which includes a fast-paced, realistic combat system, rules for creating eight races belonging to 11 different guilds, reproductions of all 19 shield designs, and a fully stocked

armory and weapons glossary. Plus *Gold Quest*, a full GM game. Write to Shield Maiden, 8273 Ramshorn Dr., West Jordan, UT, 84088.

AVALON HILL'S recent releases include *Third Fleet* (No. 30031, \$35), *Republic of Rome* (No. 885, \$35), *Napoleon's Battles Module* (No. 8831, \$15), *New World* (No. 884, \$25), *Eldarad: The Lost City* (No. 8589, \$15.95), *Showbiz* (No. 6410, \$20), and *Wrasslin'* (No. 9450, \$15).

SPACEGAMER/FANTASY GAMER is now under new management. It will be published bimonthly by Future Combat Simulations, PO Box 268, Lakewood, CA 90714-268.

HÂRNWORLD 2nd edition is a realistic medieval environment with a complex and detailed fantasy background. Write to Columbia Games, Inc., Box 8006, Blain, WA 98230.

T-SHIRTS with a variety of prints are available from Invisible Dragon Designs, PO Box 3084, Dept. F, Reno, NV 89505.

SCIENCE-FICTION PLAYERS SURVIVAL KIT includes character records, star ship cargo logs, equipment records, and blank vehicle forms for use with **Traveller**, **MegaTraveller**, and other SF RPGs. Write to Sage Lore Productions, PO Box 14616, Portland, OR 97214.

HIRED HANDS, a book of NPC dream warriors for *Morpheus*, is now available from Rapport Games. Each NPC has a complete power breakdown and a psychological profile. Other products available include *Operation: Hitler* and *The Stuff Dreams That Are Made Of*. Write to Rapport Games, 1031 E. Battlefield, Suite 114B, Springfield, MO 65807.

Briefs describes gaming news and releases from a variety of publishers. Announcements should be sent in at least four months before a product is released, if possible. Write to Challenge Briefs, PO Box 1646, Bloomington, IL 61702-1646 USA.

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Features in Future Issues

#20 (April/May)= Superhero issue. Features material for DC Heroes & Champions. Plus a fantasy adventure and the final installment of "Demon Killer."

#21 (June/July)= PBM issue with several reviews and game descriptions. Also science fiction material and a fantasy adventure.

LEADER OF THE PACK!

CHALLENGE *Showcase*

While miniatures are by no means required to have a great deal of fun playing *Star Wars: The Roleplaying Game*, most players feel a certain satisfaction in picking up a miniature figure to represent their character.

Grenadier, which makes the *Star Wars* miniatures sets for West End, has come out with over a dozen fine, well detailed sets of figures of approximately 10 figures per set. The *Rebel Troopers* set featured on the facing page is only one of these sets.

Most players can find a figure to represent their character either in this set, the *Rebel Characters* set issued earlier, or one of the collectors' movie sets (as long as they don't mind their character looking like one of the movie characters).

Each set features a flier which describes the miniatures in the set in game terms for *Star Wars: The Roleplaying Game*. Recently, statistics are also being included for the *Star Wars Miniatures Combat* system, the companion miniatures rules set for the roleplaying game. This feature is helpful to the referee and intriguing to the player, especially when it comes to comparing statistics of the movie characters at different "stages"—Luke on Tatooine and Luke in his Jedi outfit on Endor (or rather the new Death Star above Endor).

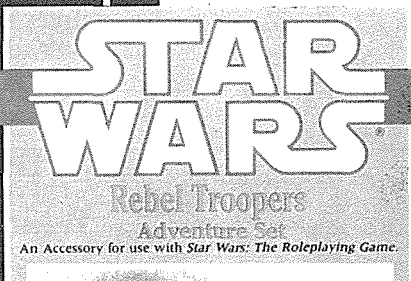
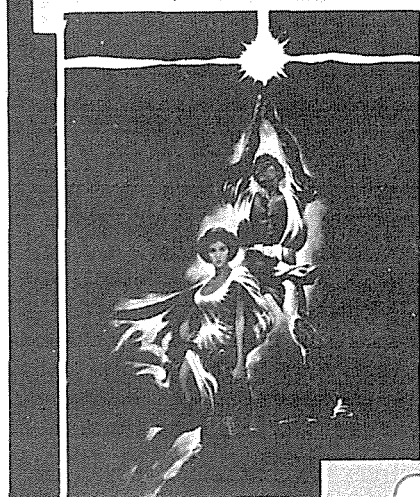
Figure sets in the *Star Wars* line superbly address the varied needs and requests of miniatures users. Some sets, such as *Rebel Characters*, present figures readily usable to represent player characters.

Others, such as *Stormtroopers* and *Rebel Troopers*, also address the need for mass quantities of a certain kind of figures to represent large bodies of troops.

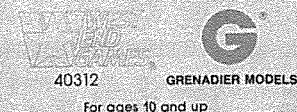
For the miniatures gamer looking to produce a set piece, perhaps for display at a convention, *Jabba's Palace* and the *Rancor Pit* feature figures painstakingly accurate to the *Return of the Jedi* movie scenes they come from.

Finally, multiple collector's movie sets of figures which depict the characters from the movies in their assorted costumes are available for those who like to collect *Star Wars* memorabilia or just enjoy having the really important NPCs in their campaign look "like the real thing" from the movies.

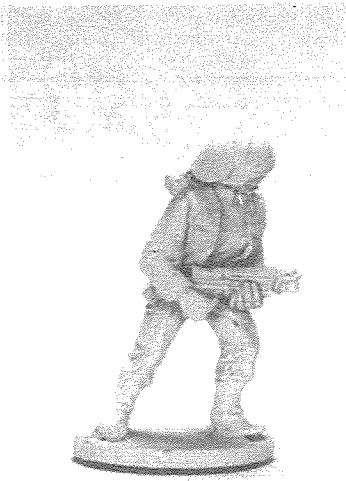
If you're a *Star Wars* player or ref, look into the *Star Wars* miniatures. They'll allow you to stop using orcs or skeletons for stormtroopers, and will really improve the flavor of the game.



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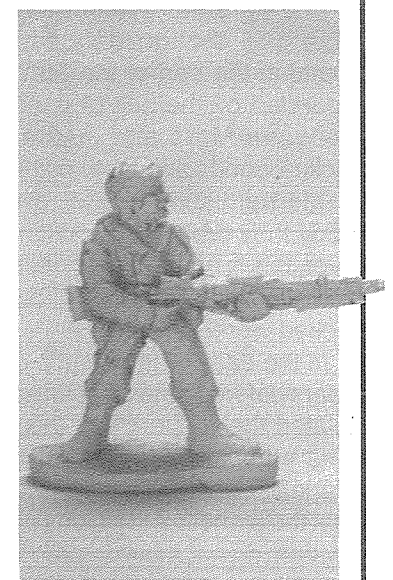
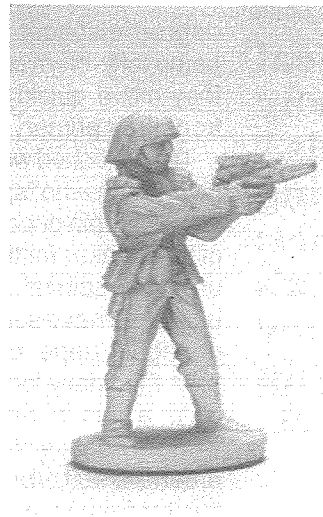
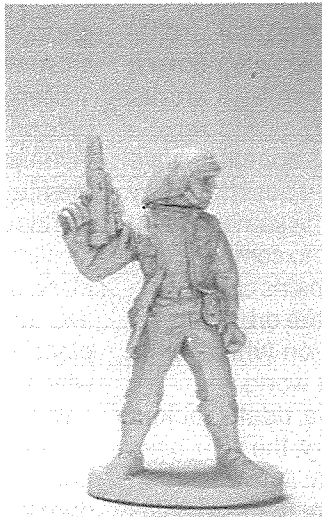
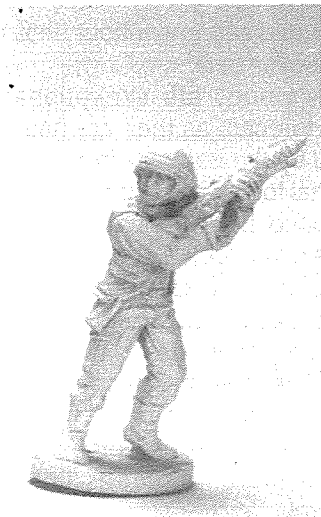
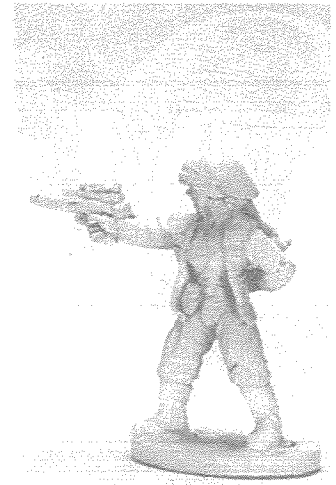


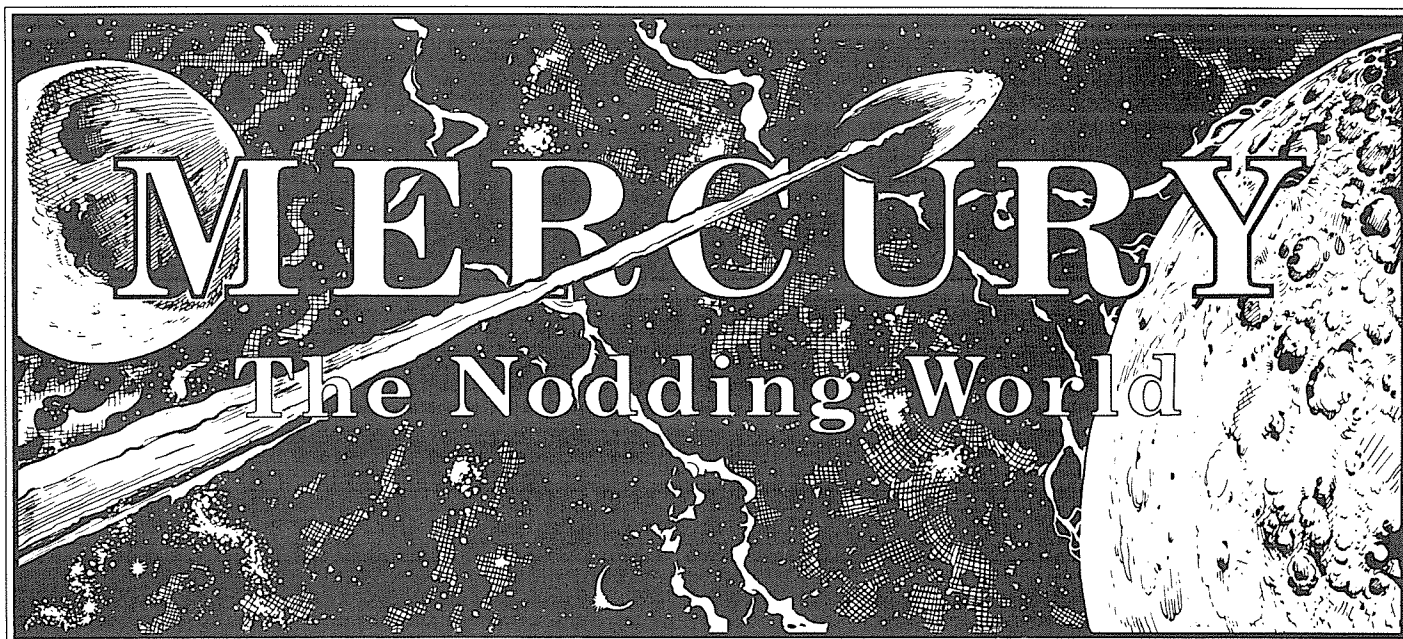
Our aim in Showcase is to provide a look at miniature figures, both old and new, that can enhance your science-fiction gaming. Tell us what you want to know about miniatures: Write to **Challenge Magazine**, PO Box 1646, Bloomington, IL 61702-1646 USA.



STAR WARS®

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**Astronomical
analysis of why
Mercury “nods,”
plus two exciting
adventure outlines:
Le Durieux’s
Mad Journey
and Supply Ship
Rescue.**

David S. F. Portree

Mercury is a tidally locked world—one of many in the solar system as a whole, though only the second found in the part of the Sun’s domain bounded by the belt of minor planets between Mars and Jupiter. Tidally locked worlds appear to rigidly hold the same hemisphere toward whatever body they orbit (their “primary”). However, this is not strictly correct for either Mercury or that other well known tidally locked world, Luna.

In the early 17th century, only a few years before René Descartes first postulated the existence of the all-pervasive ether we now use to reach the planets, Johannes Kepler determined that the planets and moons of the Solar System do not move in precisely circular paths about their primaries. Rather, their paths are to a greater or lesser

degree elliptical. When their orbital paths take them close to their primary, they move quickly; when they are far from their primary, they slow down.

Tidally locked worlds appear to have no rotation—no “spin”—but in fact they do. They spin once in the same amount of time it takes for them to complete one orbit. The spin rate remains constant—but as we have seen, the orbital speed changes, depending on where in its orbit the tidally locked world is.

As a result, when a tidally locked world is near its primary, the spin loses ground to fast orbital motion, and when it is far from its primary the spin gains ground upon orbital motion. The net result is that, viewed from the primary, the tidally locked world “nods.”

First it nods east, as the spin gains on orbital motion, then it nods west, as the spin loses. This reveals to an observer stationed on the primary rather more of the surface of the tidally locked satellite world than the 50% one might expect.

From Earth, about 59% of Luna may be observed over time. Even before ether flyers passed over Luna’s far side, patient earthly scientists armed with powerful telescopes were able to map tiny parts of the “hidden” face as Luna nodded back and forth.

To an observer on the Sun (were such a thing possible), Mercury would also appear to nod. However, Mercury’s orbit about the Sun is far less oval than Luna’s orbit about Earth. As a result, the hypothetical Sun-based observer of

Mercury would see only about 54% of its surface over time.

Mercury’s nods are exceptionally difficult to forecast as they are heavily influenced by the complex interplay of gravitational forces of the cisasteroidal worlds superior to it—Venus (especially, as it passes so near), Earth-Luna, and Mars. In addition, turbulent solar storms and the passage of comets by the Sun place subtle pressures on the planet which must be taken into account when calculating its movements.

Under normal circumstances, the nodding of Mercury means little to humans exploring the planet. By recording the positions of shadows cast by poles erected for that purpose, scientists at Britain’s Princess Christiana Station at Mercury’s north pole have noted that the Sun appears to “roll” a short distance back and forth along the horizon over a period ranging from hours to weeks. However, for all intents and purposes, the Sun remains still at Princess Christiana Station, and it is only through such precise measurements that the nodding of Mercury can be detected.

Such is not the case all over Mercury, however. In four places, the nodding of the planet can produce spectacular local effects: Throckmorton Lake, Lake Plim-soll, Sterling Bay, and Mt. Edison.

**THE SLOSHING
OF THE WORLD RIVER**

Mercury is, of course, unique for having an endless river. It crosses the

north pole near Princess Christiana Station, flows southward to the antipodes, then winds northward to rejoin itself. It constitutes the endlessly flowing lifeblood of Mercury's temperate Twilight Zone, supplying water to the planet's paleozoic animal and plant life.

Coriolis force, rather than gravity, drives the World River. Just as Coriolis force stands in for gravity, the slight nodding of the planet replaces the tides which Mercury, with no Moon, cannot have. The planet nods and the water sloshes, just as does water in a rocked washbasin.

NOD SURGES

The net effect is barely measurable along 98% of the World River's meandering course. However, in three places natural landforms conspire with the nod to concentrate the shifting waters, producing dangerous "nod surges." Just as the Dominion of Canada's Bay of Fundy funnels tides to produce tidal bores as high as 60 feet, Throckmorton Lake, Lake Plimsoll, and Sterling Bay on Mercury gather the waters to produce sudden surges more than 80 feet high.

The violence of these irregularly occurring floods destroys large stands of fast-growing Mercurian ferns and primitive trees. The floods also kill thousands of animals, in spite of their aquatic or semiaquatic nature. They are rent by currents, dashed against rocks and trees, or left stranded too far from water to escape the predators and scavengers which move into the area after the water drains back to the World River.

Parties exploring the areas often immersed by nod surges will note several unique characteristics. Nod surge lowlands are spongy with the rotting remains of crushed trees and ferns. Species of trees and ferns especially adapted for holding tight to the loose soil during inundations populate the lowlands. These species are squat and have deep roots, and some have parts which close up when submerged. Others are streamlined to reduce the pressure of moving water on their trunks. They are oriented toward where the flood originates (thus providing a handy direction-finding device).

Some animals can ride out the nod surges by exploiting these plants. Some insinuate themselves into the parts that close up when immersed. Some simply

hold onto branches and fronds, while others burrow into trunks and stalks. Adventurers who decide to poke into these burrows will be unpleasantly surprised to find them occupied by all manner of gnashing, nipping creatures. Using the burrows as stair steps to climb the trees, as one might be tempted to do to get above an approaching wall of nod surge water, may result in damaged boots—and missing toes.

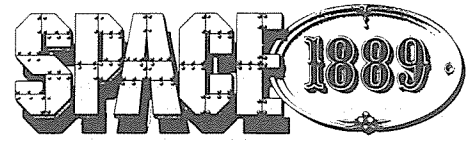
Certain plants use the surges to spread seeds, spores, or "cuttings." The post-surge lowland landscape is soggy and deeply littered with debris, with only a few specially adapted trees left standing. Thus, it presents a colonization opportunity for young plants. Species adapted to using the surges to trigger their reproduction come out on top in the race to colonize after a nod surge.

Animals also use the nod surges in their reproduction. Some creatures plant eggs high in the trees. The eggs develop to a larval stage there, then go dormant until a surge immerses them, causing them to hatch. The eggs thereby are prevented from being eaten half-formed in the dangerous environment of the World River. Other creatures plant their eggs in pits on land. Nod surge currents scoop out the pits, freeing the eggs contained therein to hatch into turbulent waters. The larvae find their environment rich in food in the form of carrion and pulverized plant matter, as well as other, weaker larvae and injured animals. The newly hatched, long-dormant creatures go into a feeding frenzy, not hesitating to attack beleaguered animals many times their size.

Adventurers travelling by air in these regions are advised to remain close by their flyer should they decide to land. Those travelling by boat must take their chances. On the whole, they are best off moving as rapidly as possible through these areas, making few stops. Adventurers exploring the aftermath of a nod surge should beware of quicksand and savage creatures attracted for miles around by the surfeit of carrion produced by the flood.

MT. EDISON AND THE FALLS OF ICE

In 1879 Sir Basil Throckmorton's third expedition circumnavigated Mercury along its Twilight Zone, making occa-



sional forays into the lands of darkness bordering the Ice Sheath. One such foray was inspired by a glimpse of a mountain silhouetted against the stars just inside the land of eternal night. According to Throckmorton, it looked like a "great fang" forming a partial rampart against the encroaching dark side Ice Sheath.

To reach it, Throckmorton steered his flyer between the looming walls of a deep canyon which opened out until it ended at the foot of the mountain. Cold winds from the snow-clad peak high overhead whistled past his flyer, making control difficult. The desolate scene was lit only by the twinkling stars and, low over the mountain's shoulder, the brilliant beacon of Venus and twin lights of Earth and Luna.

Throckmorton guided his flyer up past enormous icicles hanging from the sheer wall of the mountain's lower canyonside face.

Some appeared more than a dozen feet in diameter midway between their roots, high overhead, and their tips, lost in darkness far below. Apparently, there had once been a great waterfall here, now frozen solid.

Eager to more easily observe the splendor of the frozen fall, Throckmorton ordered the crew to light the electric lamp atop the flyer's pilothouse. The lamp drew on a stored charge and focused its light by means of a concave mirror and one of the largest lenses made up to that time. It produced a great deal of heat while operating, so Throckmorton knew he would have to content himself with only a few moments of observation.

The rainbow patterns and diamond-like sparkles of the mighty icefall took Throckmorton's breath away. Then the flyer was shoved sharply to port by a fierce cold gust, so the beam of light fell on the bare face of the mountain itself. The blackness of the rock seemed to drink the light, so for a moment Throckmorton thought it had gone out. What happened next is recorded in Throckmorton's log:

I turned to shout to Sidebotham (the sailor whose job it was to operate the lamp) to turn the lamp back toward the ice. Then I realized it was still functioning and saw from the corner of my eye a straight line in the rock. I realized suddenly that the mountain (at least where I could see it) comprised what seemed to be flat plates of black stone arrayed like bricks, as though the mountain were the work of a giant mason.

I cried out and made to move the flyer closer to see more clearly. Then from above, I heard a terrible crash and a cry of pain. The light was extinguished, and my eyes, unaccustomed now to the pervasive gloom, were as though blind.

I feared the flyer might strike the mountain, so I made to halt our forward motion. Amidst the shouting behind me I heard the cry "fire!" and I realized then that the roof above me was ablaze. When I observed that the flames allowed me to see my way clear of the rocks and hanging icicles, I ordered them to let the fire burn. Then, when we were free of the buffeting winds of the mountain, I had them doused.

The hot lamp filament and the cold winds from the top of the mountain had set up too great a temperature differential in the lens used to focus the lamp's light. It had exploded, mortally wounding the sailor Sidebotham, destroying the filament, and setting fire to the flyer. Throckmorton would never again venture into the land of darkness.

What Throckmorton saw just before his lamp was destroyed remains a mystery. Mt. Edison lies some 2000 miles beyond Princess Christiana Station (it is more than two-thirds of the way to the south pole), so to date no new expeditions have travelled there. However, the great exploring clubs, universities, and governments of the spacefaring empires have taken an increasing interest in the "apparent artificial nature" of Mt. Edison, so it is only a matter of time before an expedition is mounted to explore it.

Mt. Edison is included in this discussion of the nodding of Mercury because some calculations indicate that rare periodic nods cause the Sun to rise at the narrow sunward end of the canyon leading to the great mountain.

Dr. Jacques Le Durieux in 1887 con-

structed an analytical engine which he claims demonstrates that such alignments occur only about once every three centuries, and that one may be expected in mid-1890.

When such alignments occur, he claims, the peak of the mountain is lit "as by a giant spotlight." While the validity of Le Durieux's conclusions is disputed, this has not stopped some from seizing on them as further proof of Mt. Edison's "constructed" nature. They contend that the unusual arrangement of the local landforms could not have occurred merely by chance. Le Durieux is the leading proponent of the exploration of Mt. Edison, and has for the past two years been touring Europe, presenting magic lantern shows and amusing crowds with his flamboyant manner of dress and half-crazed speaking style.

OTHER PRODUCTS

Certain plants on Mercury appear to have a growth cycle tied to the nods. Apparently they can sense the slight change in the angle of the Sun's light as the planet rocks back and forth, and they use this to determine when to expel spores or shed leaves and fronds. None have as yet been determined to be of commercial value. However, by no means have all such plants been discovered, let alone catalogued or tested for practical benefit when a nod triggers certain secretions or changes in coloration which last only a short time thereafter. Such products would be rare luxuries, indeed, and would make heavier the purse of any explorer lucky enough to discover them.

In the Lead and Tin zones, liquid metal may slosh just as water does in the Twilight Zone. Any future expeditions using vehicles like Wisniewski's Tin Juggernaut will have to consider this and attempt to avoid landforms which might focus a nod surge of molten lead or tin. However, the likelihood of a nod occurring which would endanger the crew of such a craft is quite small when reckoned alongside the many other dangers such an expedition would face.

FUTURE IMPORTANCE

Though smaller than any cisasteroidal world save Luna, Mercury's many unique aspects make it ripe for profitable endeavors. Dark, frigid Kelvin's Land hints at the exotic wonders which

can be expected among the giant worlds of the transasteroidal Solar System, so far from the warming rays of the Sun. The hellish Lead Zone is a natural smelter, rich in resources which will fuel the continued progress of science and industry in the coming 20th century. Admittedly, both places are located out of reach of the limitations of our technology, but experience in the past two decades of etheric space voyaging has made it abundantly clear that such limitations are ephemeral. In the coming decades, we will conquer all parts of Mercury, just as we will conquer all parts of Sol's domain. The spacefaring empires of Earth will come to realize the importance of Mercury's abundant resources and will begin to jockey for preeminence there—just as they do now in Africa, and on Mars and Venus.

Le Durieux's Mad Journey

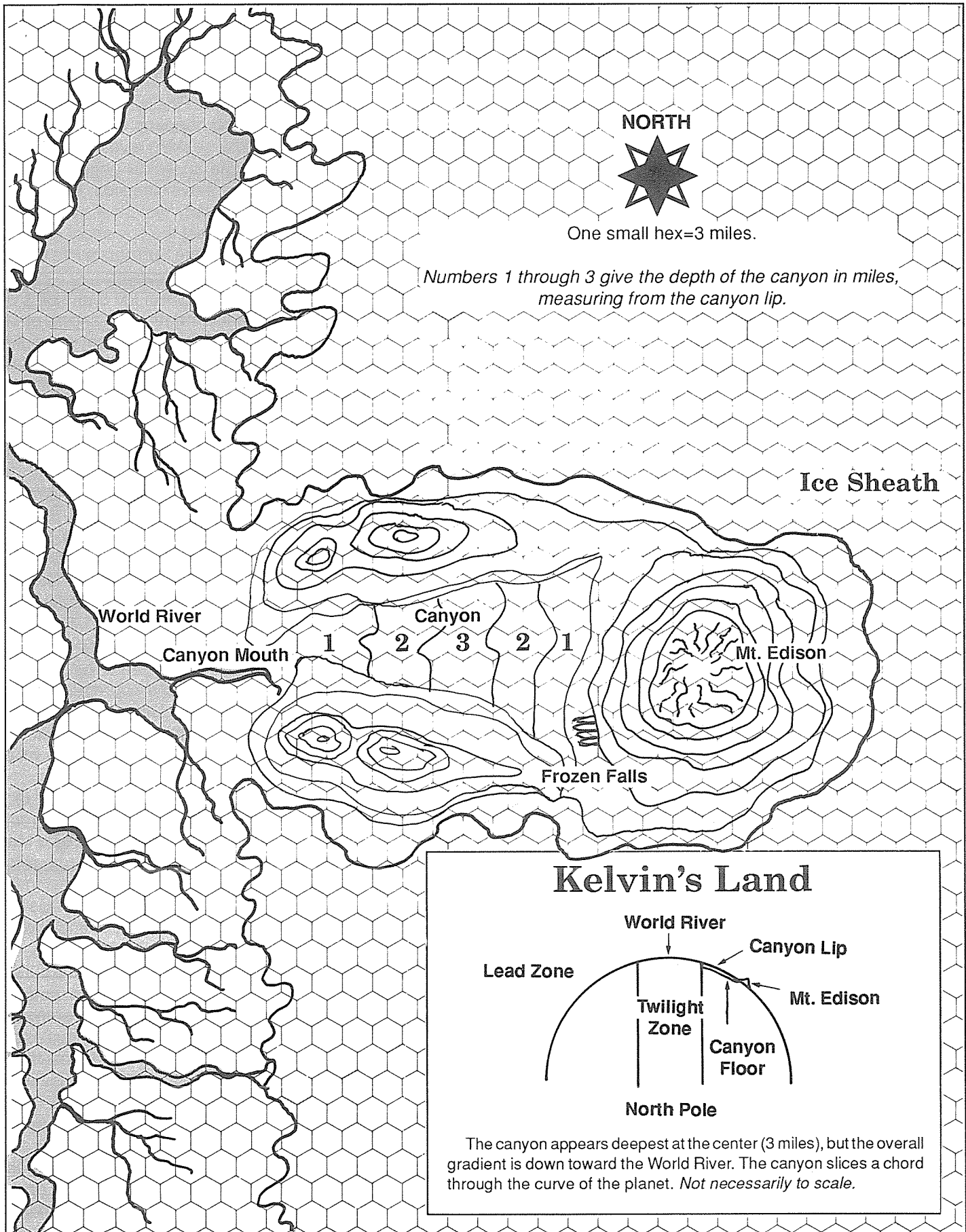
The eccentric Dr. Jacques Le Durieux, his assistant, and a one-ton analytical engine for predicting Mercury's nods have come to Princess Christiana Station. Le Durieux's intention is to travel along the Twilight Zone by specially equipped flyer to Mt. Edison, where he will confirm its artificiality and witness its illumination by what he terms "le grand nod." He enlists the expertise of the player characters in order to bring his quest to a successful conclusion.

Another NPC is the flyer's pilot, Welsh-born merchant marine Captain Benjamin David, hired for his flying skill and unmuddled mind by one of the expedition's backers. Captain David makes no secret of his opinion that Le Durieux is a charlatan. He complains that the analytical engine constitutes a concentrated mass which makes it difficult for him to keep the flyer in trim, and he is eager to find an excuse to dump it.

SABOTAGE

Unbeknownst to all aboard save one, the Mt. Edison expedition has become the center of a swirling maelstrom of international intrigue. The German government has determined that a failure at this juncture to reassert its 1878 claim to the territory containing Mt. Edison will mean a grievous loss of

Mercury



prestige. In response, the Germans put a spy aboard in the form of Le Durieux's recently acquired assistant (whom Le Durieux calls "my idiot"), whose purpose is to delay the expedition through sabotage long enough for a German gunship to arrive from Venus.

Le Durieux continuously works on perfecting the analytical engine as the expedition makes it way south to Mt. Edison. Periodically, he announces a revised estimate for the time when le grand nod is to occur—the anticipated time slides inexorably closer to the present. But the spy's attempts at sabotage cause delays and periodic forced landings.

To make up lost time, Le Durieux insists that the expedition fly during the frequent Mercurian storms or take other risks. This places him in open conflict

with Captain David, whose only concern is the ship. Meanwhile, the spy attempts to convince the PCs that Le Durieux caused the sabotage to discredit Captain David or to avoid reaching Mr. Edison (as doing so will disprove his theories about Mercury's former inhabitation).

RACE TO THE FINISH

The expedition's lightly armed flyer reaches Mt. Edison at about the same time as the German gunship. The German ship flashes a message at the expedition flyer, "Heave to and prepare to be boarded."

Retreat is not an option. Captain David and the player characters probably want to stand up for queen and country, while Le Durieux wants to stay to witness the illumination of the peak.

At this point, the German spy reveals himself by producing a revolver and holding the party at gunpoint to prevent it from taking action against the approaching German borders.

Meanwhile, Le Durieux counts down to the moment of le grand nod using a pocket watch. Finally, he calls out "zero!" but nothing happens.

The spy, seeking revenge, threatens to hoist the analytical engine on deck and throw it over the side. Le Durieux becomes nearly hysterical, and must be restrained, lest the spy shoot him.

Suddenly, the Sun bursts into view at the mouth of the canyon.

After the gloom of the dark side it will be flashbulb-bright. The snows of Mt. Edison is lit "as by a giant spotlight." Everyone experiences momentary vertigo as the vast depths of the canyon and the enormity of the mountain, heretofore only suggested when seen by the light of stars and planets, become apparent. The spy, standing near the edge of the expedition flyer's deck, is most profoundly affected. The moment of distraction may allow the PCs to disarm the spy, if they act quickly.

From the viewpoint of the German ship, the expedition flyer is suddenly lost in the Sun, giving it a short-lived combat advantage. If the PCs do not immediately think of it themselves, Captain David will suggest dropping the analytical engine on the Germans. Le Durieux satisfied that the engine has at last served its purpose, will remain much calmer than before.

If the engine hits (roll a 4, 5, or 6), it will cause an automatic loss of trim critical hit similar to that caused by a Martian lob gun, plus whatever damage the impact causes. Suddenly relieving the expedition ship of a ton of mass will destabilize it; roll a 4, 5, or 6 to avoid a loss of trim.

The referee may wish to help out the characters by providing a sudden downdraft (the sudden appearance of the Sun at the canyon mouth makes the air near the mountain very unsettled). The German gunship might never recover from its loss of trim.

If the characters fail to destroy the German ship, they are either boarded or shot down. If they are boarded, the German spy will be collected (if the characters have left him in a condition worthy of collection). Characters who



resist are treated roughly, if not savagely, by the German boarders, and characters who shoot are shot at. Survivors are stranded on the canyon bottom with (they will be told), "just enough lantern fuel and food to reach the World River—after that you may find your own way out of German territory!"

If they are stranded, the characters may be able to hitch a ride on an icicle. The ferocity of the Mercurian Sun rapidly melts Mt. Edison's snows, creating torrents of water, which converge at the frozen falls. The icicles seen by Throckmorton break loose and crash amid an ear-bursting din to the canyon floor, then are borne by the water until they form a jam in the narrowing canyon. A temporary lake backs up behind the jam—when it breaks, water and giant icicle fragments rush all the way to the World River. The characters then have an adventure-packed 2000-mile trek back to Princess Christiana Station ahead of them.

However, it is probable they may be rescued before they can travel very far along the World River. The German Empire's assertion of its claims on Mercury will be useless if it remains a secret, and when the British Empire learns of it, it immediately sends a heavily armed ether flyer to counter the German move. The characters are doubtless recovered by it and then have a new opportunity to engage in aerial combat—this time with weapons more equal to those of their opponent.

FACE OF THE PAST

The illumination of Mt. Edison persists for about an hour, after which time the Sun sinks away, putting the mighty mountain back into the realm of darkness for three centuries. This is sufficient time to completely denude it of snow. Using a field glass, Le Durieux (either on the canyon floor with the other characters, bruised and battered, or aloft in the expedition flyer, with the smoking wreckage of the German ship far below) determines that the brickwork pattern viewed by Throckmorton is confined to only a few small areas and is largely illusory. It is his opinion—confirmed by PCs of scientific bent, once they get a chance at the field glass—that the pattern is merely a product of the crystallization of cooling basalt. Terrestrial examples include the hexagonal col-

umns making up Devil's Tower, Wyoming Territory, or the Hogar Mountains of the Sahara Desert. Le Durieux is dejected and depressed.

However, just before the Sun drops from view enough snow melts to unveil what appears to be a carved human face a thousand feet high on the mountain's peak. Le Durieux seizes upon this as his vindication; further, he states that Mt. Edison, while not artificial, was at least taken advantage of by some lost Mercurian civilization to create this unique monument. But Captain David insists the face is at best ill defined, and the question of the face remains open.

Le Durieux plans to return to Mt. Edison with a powerful source of artificial illumination in order to light the face and prove its artificiality. He invites the PCs along for his second Mt. Edison Expedition and plans to return to Earth to raise funds through more lectures and magic lantern shows.

Supply Ship Rescue

The twice-yearly supply flyer from Earth is late. A month goes by, then an exhausted traveller reaches Princess Christiana Station. He claims to be the single survivor of a party of five sent out from the crashed flyer. Just before he succumbs to a giant centipede bite, he will describe how the supply flyer, after being damaged in the ether wake of an uncharted passing comet, crashed in the nod surge lowlands around Throckmorton Lake, 160 miles from the station.

A party is immediately assembled to recover survivors and supplies from the wreck. Calculations, doubtless flawed, indicate that a nod surge will sweep the Throckmorton Lake lowlands in about three weeks. The party must race against time, travelling by three small boats to the area and collecting what survivors and supplies it can. No flyers will be available, as all are out on exploratory forays along the World River and into the Forbidding Desert, and are not expected back for weeks.

CRASH SITE

Upon arrival at the crash site, the characters will have to decide how to put as many supplies as possible aboard



their three small boats, while at the same time recovering the 15 injured and 12 able-bodied survivors. Leaving behind survivors intentionally would be neither sporting nor properly British. But the supplies include medicinal tonics, nutritional supplements, spare parts, and other items vital to the continued survival of Princess Christiana Station.

The nod may catch the adventurers running out of time, and they may be forced to ride out the surge. The heavily laden boats will at best make five miles per day against the current of the World River; at that rate it will take six days to clear the nod surge lowlands, which is probably more time than they have. Parties marching with supplies on their backs and the injured and supplies in litters will take even longer.

To ride out the surge, the characters can bury the supplies or build rafts anchored to deep-rooted trees by ropes fashioned from some clinging native vines (which the PCs will have had to hack through to reach the crash site). The PCs and crash survivors can hoist their boats high into the trees to avoid being thrown against things while the surge builds, then anchor them with vine-ropes to avoid being thrown willy-nilly by the flood.

JOURNEY HOME

Once the surge has subsided (about five to seven hours) the rescue party and ambulatory survivors can retrieve what supplies they can, all the while dodging vicious carrion-eaters and frenzied, feeding larvae. They can then set out for Princess Christiana Station, returning to the crash site for more supplies if need be.

A few NPCs may insist on walking rather than riding out the surge. They cannot possibly survive, and their remains or possibly a distinctive bit of clothing or equipment will be found stuck high in a tree. Ω

*For more information about Mercury, refer to **Space: 1889**, **Conklin's Atlas**, and **Tales From the Ether**.*



Hole-N-One Donuts lies at the southwest corner of a horseshoe-shaped collection of small shops in midtown Seattle. Entry into the parking lot is from the south, with businesses lining the other three sides.

The front and south sides of the donut shop consist primarily of plexiglass with chromed plastic trim, through which you view an interior of chipped formica counters and faded synthleather seats. Two frazzled women sip soykaf at a table in front, near an ancient juke box, and keep an eye on a trio of preschoolers spinning stools at the counter. Behind the counter, a teen in a stained t-shirt wipes plastic glasses. Business seems light.

You make your way inside, through a glassed-in vestibule, past a half-stocked display case. Through a door behind the case, you can hear the sound of voices, muffled by the hum and clatter of donut production. Passing onward, you take a table near the back, where you can keep watch in all directions. Then you place your order and settle down to business.

While you talk, the young mothers nurse their soykaf; their brood clambers on the bar stools; and other customers come and go. Everything appears to be just wizard, but suddenly you feel a difference—a new tension in the air. You make a quick scan for trouble. There's a pair of rent-a-cops getting out of a van just outside, but that seems normal enough. The kid behind the counter is gone, though, and the back room sounds awfully quiet.

Without warning, that silence is shattered as the mirror behind the counter erupts with a burst of autofire that also splinters the plexiglass above the young mothers' heads. One rent-a-cop is knocked down by the shots, but the second dives for cover. Then more cops begin to scramble from the back of the van, some to cover the front of the shop, others running to the alley behind it. Looks like a whole SWAT team!

Just your luck. Minding your own business, you get caught up in somebody else's private war. You curse, but your voice is drowned in a sea of noise—guns blazing, cops shouting orders, young mothers and their children screaming. It's another glitter day in Seattle.

DONUT RUN

A Short Shadowrun Adventure by Lester W. Smith

"Donut Run" can be inserted into any urban adventure, adding an element of uncertainty to a larger adventure as the players struggle to analyze this encounter's significance.

Or it can be played as a simple shoot 'em up, a chance for players to practice the *Shadowrun* combat rules.

During the course of a mission, the shadowrunners decide to meet at a donut shop in a nearby mini-mall in order to talk over plans or meet someone important. While they are at the donut shop, a place called Hole-N-One Donuts, a rent-a-cop van pulls up outside.

For rent-a-cops to stop at a donut shop is not unusual, but this shop is a front for a black market operation with a load of military weapons and explosives, and the donut shop personnel panic. While two of them begin loading weapons and explosives into a van outside the back door, the others pull out shotguns and automatic weapons, and begin firing on the rent-a-cops out front. In the firefight that follows, the shadowrunners are caught in the middle between rent-a-cops who want to take everyone in for questioning and donut shop employees who want to kill all cops and witnesses, then make an escape.

Background: For several weeks now, Hole-N-One Donuts has been a front for a healthy black market operation. Most of the stuff that has passed through the business has been small-time electronics and light weapons, but last night the proprietor took on a load of military weapons and explosives, and the entire staff is very jumpy about it.

The rent-a-cops are on their way back to the station after a hard two-day contract as bodyguards for a news team doing a report on the worst of Seattle's barrens. Spotting the donut shop, they decided on the spur of the moment to stop for soykaf. Leaving the bulk of the team inside the van (to keep from causing a stir on the street), the driver and "navigator" prepare to get drinks for everyone.

Unfortunately, when the teen tending the counter spots the rent-a-cops, he freaks and heads for the back to tell the rest of the staff. Panic spreads, and while the owner and one employee begin running hardware to a van parked in the alley behind the shop, the other employees arm themselves and prepare to hold the cops off.

In his panic, the counter kid shoots through the two-way mirror above the back counter and hits the cop's van, as well as its driver.

At the sound of gunfire, the rest of the rent-a-cops suit up and vacate the van. Three head for the alley, where they will encounter the proprietor and his sidekick; another five lead an assault on the front of the shop.

Beginning the Firefight: Have each of the players make an Initiative roll while you roll for the cops and employees, giving the employees a bonus of six to the roll.

PCs whose Initiative roll is higher than those of the cops or employees will hear the weapons being readied in the back room before the first burst is fired, and they can take any actions they have coming before the cops' and employees' initiative points.

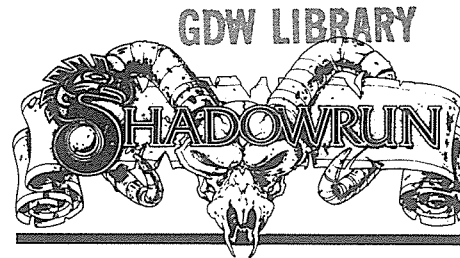
Character Motivations: Keep in mind that the donut shop employees want primarily to escape and secondarily to geek any witnesses to the firefight, while the cops want to capture anyone and everyone for questioning. The cops fire upon anyone who tries to escape.

The player characters, of course, want to keep from being killed by the shop employees. But they also want to avoid capture by the cops, lest they be checked for SINs and weapons licenses.

If ignored, the mothers and their children will simply cower beneath a table and hope that no stray shots hit them. If the PCs interact

with them in some way, it is up to the referee's discretion how these noncombatants react.

After a few minutes of firefight, the referee should tell the players that their characters hear the sound of sirens approaching. They have only a short time in which to clear the area.



DEBUGGING

How well the PCs do in this situation will depend, of course, upon what skills they have, what equipment they carry, and how well the players roll dice. The referee is encouraged to make any changes needed to suit the team of shadowrunners, even during the course of play, if necessary. Remember that at the beginning of the fight the players have no way of knowing how many donut shop employees there are. They should only know that three cops headed for the alley, and that sounds of shooting are coming from back there. If the fight out front becomes too one-sided, the referee can bring the three cops or the manager and his pal back into the picture to bolster the losing side. The players can be told that the reinforcements must have finished with their opponents in the alley.

One potential problem is that the PCs might simply cower under cover and let the cops and donut shop employees fight it out, in which case the players will be reduced to watching the referee play combat solo.

If this happens, simply have the players take over the part of the rent-a-cops for a while. This will give even players with combat-poor characters a chance to shoot big holes in things for a change.

After the fight is over, the referee should leave the players guessing as to what brought it about. If they picked up any of the black market stuff or the computer files from the manager's office, it should be obvious to them that the donut shop was merely a front. For that matter, the very fact that the employees were so heavily armed should clue them in to that fact.

It is suggested that one Karma Point be awarded to each PC who survived this mini-adventure.

CHARACTER STATISTICS

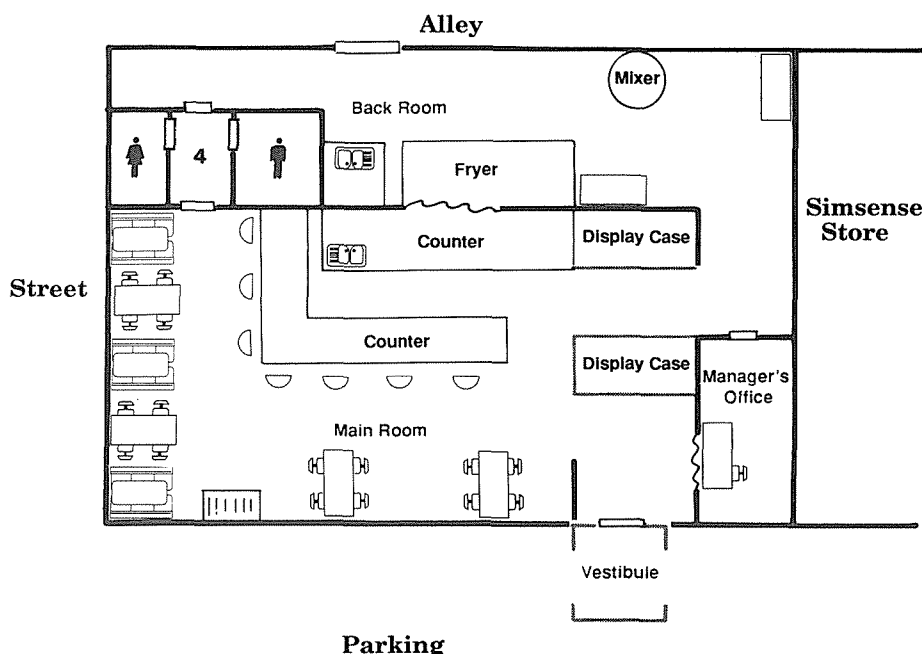
For the donut shop owner and his five employees, use the Gang Boss contact's stats (page 167 of the *Shadowrun* rules book).

The owner fights with a Defiance T-250 shotgun, as does one of the employees holding off the assault from the front of the shop.

The other employees all carry HK-227s.

For the eight rent-a-cops, use the Street Cop contact's stats (*Shadowrun*, page 171). One of the trio headed for the alley, and two of the cops out front carry AK-97 SMG/carbines. The others all have standard AK-97s. All wear armor jackets.

Hole-N-One Donuts



Key

- Wall
- Plexiglass
- ~ Two-way mirror
- ⌂ Door
- ☺ ☹ Chair or stool
- ☺ ☹ Booth seat
- ☺ ☹ Table
- ☺ ☹ Sink
- ☺ ☹ Jukebox
- ☺ ☹ Men's room
- ☺ ☹ Women's room

DONUT SHOP

See the map of the donut shop above.

Vestibule: This plexiglass entryway keeps the drizzle out in the street. It also slows exit from the shop.

Main Room: The counter against the west wall contains tableware, soykaf brewers, a microwave, and a credstick register on top, with extra napkins, sugar, and soykaf packets in cabinets beneath. The easternmost display case is 1.5 meters high, and the case against the wall is ceiling high.

On the wall behind the counter is a two-way mirror through which employees in the back room can watch the front, and a similar mirror is located on the north wall, allowing a view from the manager's office.

Manager's Office: This room contains a cheap desk and has crates of black market items along the walls. By the time the PCs might have occasion to be back here, many of the crates will have been opened to allow the donut shop employees to use the firearms inside. However, four HK227s are still here, as well as 50 kilos of Compound 12 plastic explosive. If the PCs cannot find a clear way out of the shop, they might wish to use these explosives to create one.

On the owner's desk is a personal computer (Orange 5, Scramble 3). In its files are records of the shop owner's black market activities, which the referee can use to introduce the

PCs to new contacts (fixers, gang leaders, etc.). The referee can also roll for marketable data stored in this computer, using the rules on page 158 of the *Shadowrun* rule book, but keeping the value per 10 Mp at 2500¥.

Rest Rooms: There's not much of interest here, except a locked (Target Number 5) door that opens into the back room.

Back Room: This large, rambling room is where the shop's donuts are produced. It contains several work tables, a large steel sink, a floor-standing mixer, and a fryer large enough to hold a human body. Soy flour, oil, and flavorings are stored in the corridor at the south end of the room.

The back door opens into an alley with a small parking space for the store owner's van. When the fight starts, three employees will be in this room, firing through the two-way mirror above the fryer and the doorway between the display cases. The shop owner and one more employee will be carrying armloads of black market goods out the back door to the van. Ω

"Donut Run" is intended to be played with the variant shotgun and armor rules described in "New on the Street," also in this issue. But if you are using "Donut Run" as a combat training device for new players, you may want to discount those new rules for the present.

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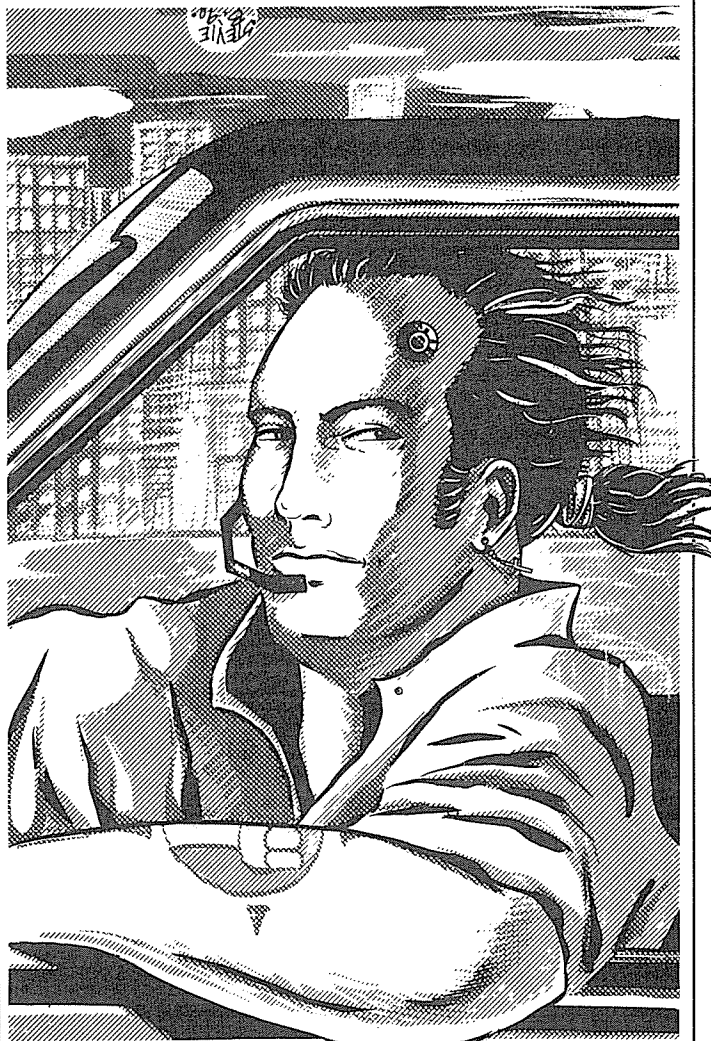
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New on the Street

New Shadowrun Equipment and Rules

Brett A. Foland and Lester W. Smith

T It's good to keep your PCs guessing as to the capabilities of NPCs. One way to help keep your campaign constantly evolving is to give NPCs equipment the shadowrunners have never seen before, such as that listed below.



OPEL FIREBRAND

You say you need a fast, flashy car, but you don't have the nuyen for a Westwind? The Opel Firebrand may be just the solution to your problem. This sassy little two-seater will outrun the Runabout, Jackrabbit, and Americar, while fitting nicely within your budget. But utility wasn't forgotten when this beauty was designed. The Firebrand features a hatchback to store your gear or carry one extra passenger in a pinch.

Hand.	Speed	Body	Armor	Sign.	Pilot	Cost
3	55/165	2	0	2	2	65,000¥

PERIPHERAL MOTION DETECTION SYSTEM (PMDS)

PMDS, or "tail-warning radar," as it's called on the streets—is just the thing for the samurai in the thick of things. A trio of tiny motion sensors designed to be implanted in the sides and back of the your head give that extra bit of warning you need when there's no wall to put your back to. Hair can be worn long to hide the sensors when you wish, then ponytailed to clear them when you're ready for action. Designed by the up-and-coming New Age Security Concepts Corporation, the PMDS package is sure to be a big seller, so order now while prices are at their lowest.

	Essence Loss	Cost
PMDS	0.4	10,000¥

"As it's called on the streets"—now there's PR for you. This was originally released as "peripheral motion sensor." But when jokes started cropping up on the street about jumpy samurais having PMS, the ad execs had the name changed.

—Hoser <00:17:56/3-16-50>

(PMDS allows its user to make a Resisted Reaction Test to detect attacks from outside of the normal visual arc, even from directly behind. The target number for this test is 1, plus the distance in meters to the attack's origin, minus 1 if the attacker is troll-sized or larger. Also, the referee should increase the target number to account for thick crowds, heavy rain, and other high-motion conditions. The attacker makes a Stealth Test versus the PMDS user's Reaction rating, and the character with the most successes wins. If this is the defender, the number of net successes:

- Translates into how many dice can be used from the Dodge or Defense Pool—whichever is appropriate—to avoid the attack.
- Determines how much information is gained about the attacker.

Any motion will set off a PMDS—fax sheets blowing in the wind, traffic, people running for cabs, etc.—which tends to make PMDS user's jumpy and irritable. To simulate this, the referee should make all detection rolls for the character, and they should be made frequently, against randomly generated target numbers, with total failures providing the character with misinformation. PMDS is considered a reflex enhancement, which means it falls under the CB legal classification.)

BARCHETTA MODEL 279

This smooth operator carries twin magazines for double the duty.

Each 25-round magazine can be loaded with a different type of ammunition, and an easy-to-use thumb switch allows either to be accessed instantly, avoiding the need to change magazines when you want to change ammunition. Or load them both with the same ammunition to increase your firing time before you run out of your ammunition between reloads.

The Barchetta Model 279 also boasts a gas-vent recoil reducer and can be purchased with a built-in smartgun link.

	Type	Conceal.	Ammo	Damage	Weight	Cost
M279	SMG	4	2×25	4M3	4	1900¥
M279s	SMG	4	2×25	4M3	4.25	2600¥

Just don't forget what kind of round you've got chambered, or when you shoot at that rat, you might take out the wall behind it!

—Hoser <01:23:19/3-17-50>

(Comes with Gas-Vent 1 recoil reduction. M279s is the smartgun variant.)

BARCHETTA MODEL 193

This pistol lets loose with the firepower! Together, its patented recoil system and high cyclic rate let you fire a three-round burst so fast you don't feel the recoil until after the third shot is away. (Settings for single shots or three-round bursts only.) The Barchetta Model 193 is available with or without a smartgun link.

	Type	Conceal.	Ammo	Damage	Weight	Cost
193	Hvy	5	15	4M2	2	1200¥
193s	Hvy	5	15	4M2	2.2	1750¥

Drek! The 193 may kick less than other SMGs, but it still kicks.

—Fuzz <11:06:48/3-17-50>

(Rather than apply the standard autofire recoil modifiers when using the 193 or 193s, add 0 to the first round, 1 to the second, and 2 to the third.)

SHOK DOTS

These small (25mm diameter, 3mm thick), liquid-filled dots can easily be attached to any firearm to help cushion the recoil. They're useful on automatic weapons to help keep the muzzle on line.

Mount	Conceal.	Rating	Weight	Cost
Stock	—	×1/2	—	400¥

(When using Shok Dots, divide the normal recoil modifier by 2, rounding up.)

KNIGHT SCX SHAPED CHARGE EXPLOSIVE BULLETS

Choose SCX when you need a round that packs a punch! This is just what the doctor ordered for piercing heavy armor.

Not available for Light pistols or smaller.

Damage	Weight	Cost
+1 Staging, +1 Power	1	75¥/10 shots

It's stuff like this that makes me glad I didn't go to Street Samurai school.

—Hoser <01:23:19/3-18-50>

JACK-IN RADIO

For those who want the benefits of an implanted radio but don't want it all the time, the jack-in radio will fit the bill.

It's cheaper than a full implant, too, and it doesn't reduce your Essence. The chipjack version plugs into a standard chipjack, and the datajack—well, you guessed it.

Either model can be purchased with or without the mike implant.

	Option	Cost
Jack-In Radio	2 channel	2000¥
	3 channel	3500¥
	5 channel	4200¥
	Mike implant	+800¥

NEURO-STUN III GAS GRENADE

Cheaper than the Neuro-stun VII grenade, N-S III is used by a number of small security companies as their gas weapon of choice.

Conceal.	Damage	Weight	Cost
6	4M2 Stun	.4	30¥

It's cheaper than Neuro-stun VII because it's not as effective. This stuff you have to breathe.

As for "a number of small security companies," two is a number, and they might be in downtown Mudville, for all we know.

—Hoser <00:23:19/3-19-50>

(Treat N-S III as N-S VII—see the *Shadowrun* rules book, page 147. But follow the exceptions which are listed below.

- Its Power number is 4 rather than 6.
- It does not work on skin contact, only upon inhalation—which means that air filters add their rating to the number of Body dice used for a Resistance check.
- Characters who fail to resist are affected for only 2D6 turns, rather than an hour.)

VARIANT SHOTGUN RULES

When a high-velocity object impacts with a body, the kinetic energy alone can cause death by an effect known as hydrostatic shock. Shotguns are designed to maximize this transference of kinetic energy. Rather than propelling a single slug that might punch right through a target (carrying much of the kinetic energy away), most shotgun shells propel many pieces of shot which individually have less chance of penetration. Less penetration means a higher percentage of kinetic energy transferred, and multiple pieces hitting means a high total energy when they are taken collectively.

Factor with this the fact that a shotgun burst spreads as it progresses from the barrel, and the result is that at long ranges a shotgun burst can hit many targets, doing less damage to each, while at short ranges it will hit fewer targets but do more damage. Armor can help—in fact, armor is more effective in stopping the spread-out kinetic energy of a shotgun blast than the focused energy of a bullet. But even with armor, the sound of a shotgun being readied at short range ought to be a truly frightening experience.

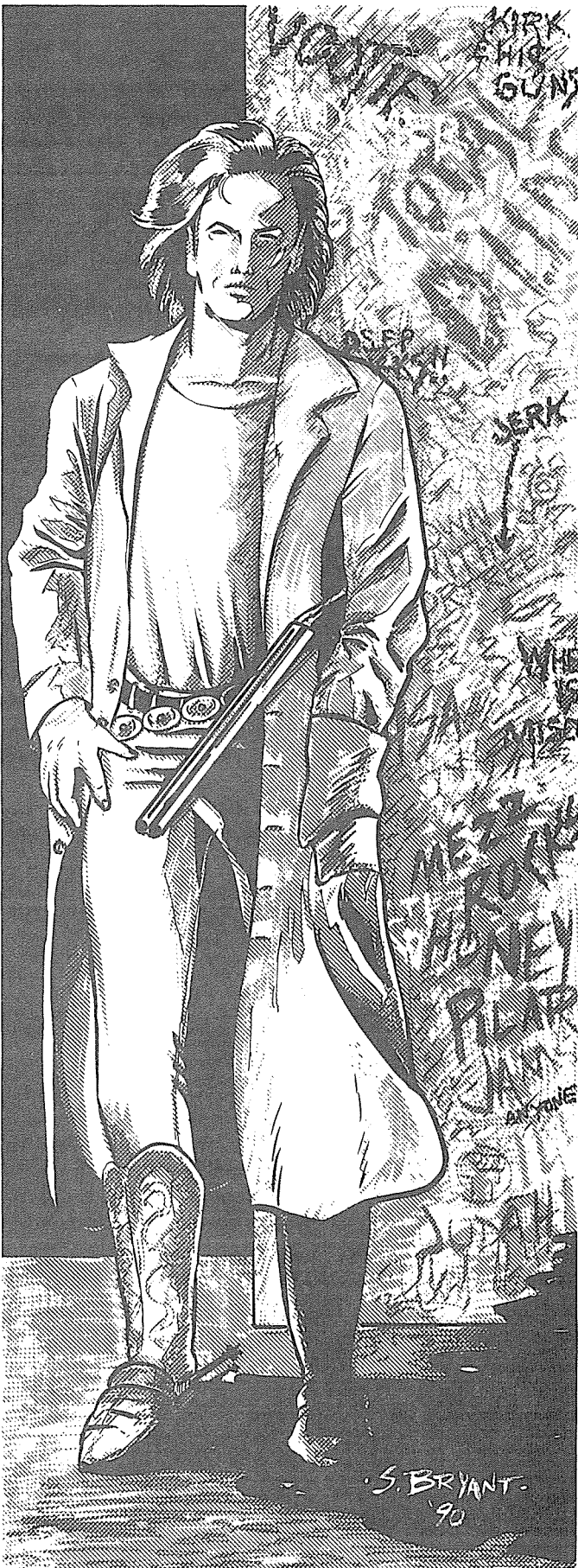
It is true that in *Shadowrun*'s fire combat rules, shorter ranges mean lower Target Numbers, which tends to mean more successes, which in turn means a higher damage. But this is the case with all firearms in the game, and it does not really convey the special effects of the burst cone a shotgun creates. It is for simplicity's sake that the *Shadowrun* rules treat shotguns the same as other firearms, but if you don't mind just a little more complexity, the rule modifications given here can make shotguns more the powerful close-assault weapons they ought to be.

Range	Damage Multiplier	Number of Figures	Secondary Effects
Point blank	x4	Primary	—
Short	x3	Primary	—
Medium	x2	Secondary	-2 Power
Long	x2	2 secondaries	-2 Power, -1 Wound
Extreme	x1	3 secondaries	-2 Power, -1 Wound

In the chart, a new range, "Point Blank," has been added for use with shotguns. Point Blank range is considered to be half a shotgun's Short range. Damage is given in terms of a multiplier, which means that the firer rolls that many times for damage, for each target, *using the standard damage code for each roll*. For instance, a character hitting at Short range with a Defiance T-250 would roll three times with a damage code of 3M3. The victim applies armor, Body, and Dodge dice to resist each of the three rolls.

The term "Secondaries" on the chart indicates figures standing in a square adjacent to the primary target. They are, then, secondary targets. If two secondaries are indicated, for example, it means that the shotgun user can chose two figures adjacent to the primary target who will take part of the effects of the blast. Note that all secondaries have to be adjacent to the primary target. In other words, if you want to hit three targets standing side by side, you have to aim at the middle figure as your primary. Also, figures in front have to be hit before figures in back. For example, if the three targets mentioned above were standing in a row, one behind another, the first target must be the primary and the figure directly behind could be a secondary—the third figure cannot be hit because it is not adjacent to the primary target.

Where reductions to Power and Wound category are indi-



SHADOWRUN

cated, they apply only to secondary targets, not to the primary. Finally, because these rules make shotguns much more effective for close combat, it is suggested that shotgun ammunition cost ¥50 per 10 shots, rather than the normal ¥20. (Shotgun ammo is more expensive in reality than are other types of ammunition).

VARIANT ARMOR RULES

When your Kevlar vest stops a bullet, you might be grateful, but you won't be happy. Even with armor, intercepting a bullet is a decidedly uncomfortable experience. Armor prevents a round from piercing your skin, but the round's kinetic energy has to go somewhere. Armor simply spreads it out a bit. The result is something like being hit on bare skin by a really fast hardball: You get some serious bruising, and possibly a broken rib or two.

Armor in *Shadowrun* counts as automatic success in reducing damage, which means that if your armor stops a hit, your character feels nothing at all. This concession to simplicity makes for fast and furious action in combat. But a few slight variations in the armor rules can more reasonably reflect the real effects of armor, at the price of only a slight increase in complexity.

The first, and major, variation is to count armor successes versus ballistic damage *after* those for Body and Dodge rolls. If the total Resistance successes of Body, Dodge, and armor are insufficient to reduce damage to nothing, then your character takes damage as per the normal rules. If Body and Dodge successes are enough to reduce ballistic damage to nothing, without the help of armor, then the shot missed or barely grazed your character, who suffers no effects at all. If, however, Body and Dodge successes alone were insufficient to completely

avoid damage, but the addition of armor successes reduces damage to nothing, then your character suffers a Stun hit one stage below the damage level that the armor stopped.

For example, imagine that Bobby Blackjack is wearing a lined coat and has been fired at by a character with an Ingram Valiant, who only scores one success. The damage code is 5S3. If Bobby rolls nine 5s for Body and Dodge, the shot misses him entirely. If he rolls no successes, his armor's ballistic rating of 4 will reduce the damage to a Moderate wound. But if he rolled five successes for Body and Dodge, he'd need four more successes to reduce the damage to nothing—successes provided by his armor. Under the official rules, he'd suffer no damage at all. Under these variant rules, the damage was Moderate before armor successes were taken into account, so Bobby takes a Light Stun hit. If he'd rolled six to eight successes for Body and Dodge, the damage would have been reduced to Light before armor was taken into account, and reducing that one level would mean he'd suffer no Stun at all.

A second variant method for handling armor would be to roll for it, rather than count it as automatic successes. That is, Bobby's lined coat would give him four more dice to roll versus damage, not four guaranteed successes. Similarly, the coat would give him two dice to roll versus impact damage, rather than two automatic successes. Note that this makes weapons with high Power numbers somewhat more deadly than under the standard rules.

Shadowrun referees and players should be advised that the use of these variant armor rules will tend to make combat, particularly a gun battle, an even more serious proposition than it is under the standard rules. The danger knob is turned up one more notch. But isn't that what shadowrunning is all about? Ω

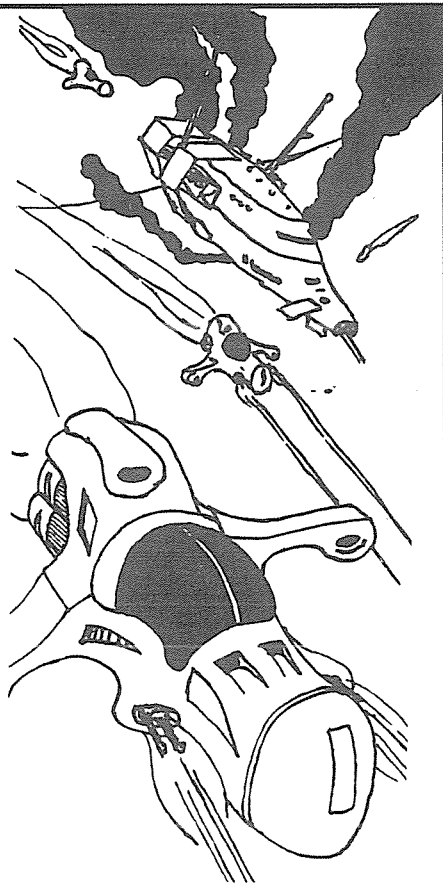
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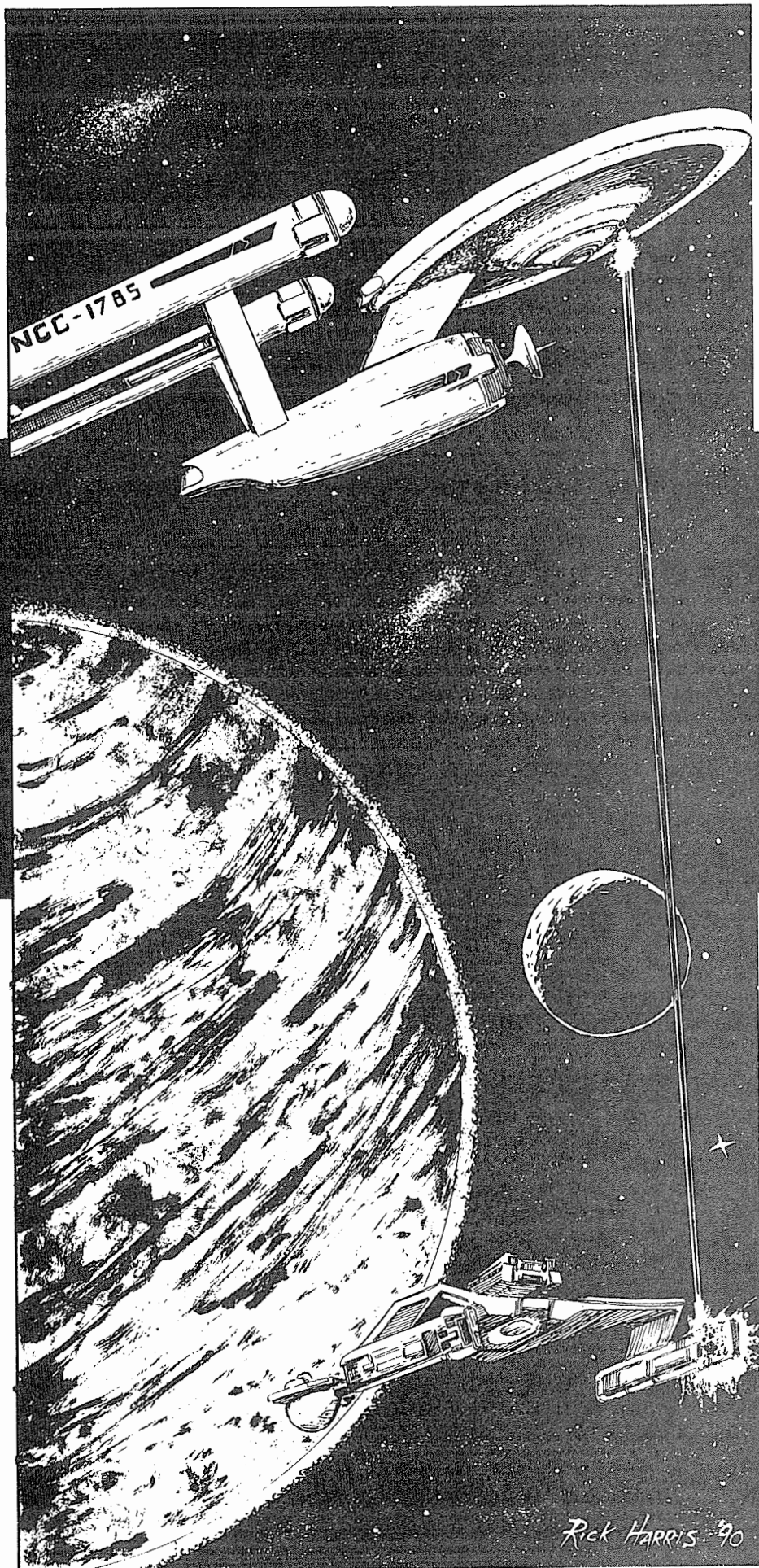
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Michael J. O'Brien II



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TACTICAL CONCEPTS

In order to successfully use tactics, it is a good idea to understand *why* they work as well as *how*.

The power of starships lies in the fact that they can affect things through a distance or *range*. Range is the measure of distance through which a starship can have an effect on something or, conversely, be affected by something. Star Fleet measures general tactical range in terms of the longest ranged weapon known, the FH-11 phaser cannon. Zero to 9000 kilometers is considered short range; 9000 to 18,000 kilometers is medium range; 18,000 to 24,000 kilometers is long range; and anything over 24,000 kilometers is extended range. This general tactical range scale is referred to in terms of tactical movement and is the benchmark against which all other tactical ranges are measured.

Each weapon has its own range, and comparisons between them are relative. For example, an FP-4 photon torpedo is considered a long-range torpedo but is only a medium-range weapon when compared to the benchmark range of the FH-11 phaser.

Furthermore, a ship's firing accuracy at different ranges varies with each weapon it uses. Star Fleet has combined the ranges and accuracies of all known weapons into 25 standard targeting profiles, or *firing charts*. Each weapon has its own set of important targeting ranges according to its firing chart.

A weapon's maximum effective range or, more simply, *maximum range*, is the longest distance the weapon may fire

through with at least a 10% chance of hitting.

Perhaps even more important than maximum range is a weapon's *critical range*, the longest distance which the weapon can fire through with 50% accuracy (in other words, the range at which the weapon's chance of hitting is at least equal to its chance of missing).

Finally, the *optimum range* is the longest distance the weapon can fire through with the greatest possible accuracy. Most weapons have an accuracy close to 100% (or "autohit," as tacticians like to call it) within their optimum ranges.

Targeting profiles are so important because a vessel's effective *firepower* depends directly on the accuracy of its weapons. Spaceships attack with *salvos*, or groups of shots fired within the same time period (note that even a single shot is considered a salvo if no other weapons fire at the same target at the same time). Usually, except at autohit ranges, some of the shots fired in a salvo may not hit their target. Since the weapons that miss have no effect on their target, the effective power of a salvo depends only on the weapons that hit. It thus follows that the greater the accuracy of the weapons, the greater the number of hits in a salvo and, consequently, the greater the effective firepower of the ship will be.

To illustrate this point, consider a Klingon *D-7m* and a *Mark I Reliant* cruiser. Although the maximum ranges and levels of raw firepower are identical, the *Reliant's* phasers are more accurate, so its phaser salvos should generally be more effective than the Klingon's disruptor salvos.

Of course, this comparison brings up another important issue—weapon concentration. The Klingon *D-7m* has its four disruptor cannons individually mounted, giving it four separate, medium-power shots. The *Reliant's* four phaser cannons are in two banks, giving it two high-power shots. The diffused firepower of the *D-7m* gives it a better chance of damaging multiple systems on an enemy's ship, while the *Reliant's* concentrated weapons are more likely to cripple an enemy with a direct hit. Against heavily shielded opponents (factor 15 or higher) the *Reliant* has an advantage—its concentrated, "shield-busting" phaser shots need only one hit

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to do damage, while the diffused firepower of the *D-7m* must score at least two hits out of four shots. At long range, the odds of scoring two hits in the same salvo drop off greatly.

BASIC TACTICS

Besides using its weapons to affect things through a distance, a ship can also change its position through tactical movement. This is usually done to increase or decrease the range to a target or to maneuver to an angle where a ship can bear on a weak shield or avoid enemy fire. In any case, tactical movement is more effective at short ranges than at long ranges simply because there is less distance to cover to achieve the desired effect.

Advance

The advance is one of the most basic tactics. As the name implies, the advance involves distributing power among movement, weapons, and shields so that a ship can close the distance to its target at a moderate rate while maintaining a credible weapons salvo. This tactic is generally used by Star Fleet, the Klingon Empire, and the Romulan Star Empire to set a ship up in a position for a more potent offensive tactic like a rush or "stand and deliver."

Retreat

The retreat, as the name implies, is the reverse of the advance. Primarily a defensive tactic, the retreat is usually used to reduce the effectiveness of an opponent's weapons by increasing the distance they have to fire through. A retreat, unlike a strategic withdrawal, is not necessarily an attempt to disengage from combat and may even be used as part of an offensive strategy like the hit-and-run strategy.

Both Star Fleet and the Romulan Empire frequently make use of the retreat as a tactic since both are concerned with reducing unnecessary damage to their ships. The Klingon Empire does not often use this tactic because its ships are more powerful at

close ranges, and the retreat is a somewhat unglamorous (but not shameful) tactic. As students of Star Fleet tactics, you are strongly encouraged to familiarize yourself with the retreat since it has proven to be very effective as a part of a larger combat strategy.

Stand and Deliver

Stand and deliver is one of the oldest and simplest battle tactics, and is very effective. The basic method is to hold position, keeping minimal power in the maneuver systems and powering the shields as needed. The majority of the vessel's power is then kept free for high-power weapons salvos.

Stand and deliver serves well as both an offensive and defensive tactic. As an offensive tactic, stand and deliver allows an attacking ship to deliver potent strikes to a target within critical range. When used defensively, its strength lies in the fact that the attacker must divert weapons power into maneuver systems and therefore will generally have a less potent weapons salvo than the defender's full-power salvo.

While stand and deliver is a very useful tactic, it does have its weaknesses (which are generally known to the major starfaring races). The main problem is that stand and deliver creates its weapons strength by weakening movement and deflector systems. Therefore, a ship may be outmaneuvered by a faster vessel which, say, moves to attack an underpowered shield. Stand and deliver also often becomes a death trap when used to defend against multiple attackers since it gives the attackers the opportunity to do just what they want—surround the defender and ravage it at close range. Stand and deliver is generally not effective against an opponent when one is at a great accuracy disadvantage since the advantage of increased raw weapon power is often negated by the lower accuracy. Finally, if two ships employ stand and deliver against each other, especially at short range, both will usually take heavy damage before one is defeated.

Captains of the Klingon Empire consider stand and deliver to be a very courageous tactic and frequently use it at all ranges. The Romulan Star Empire does not use it as much, primarily because most of its ships have weaker

firepower than those of the other major starfaring races. Star Fleet favors this tactic highly, but its use at close range is often discouraged to minimize the damage that will be absorbed.

Rush

The rush is considered to be one of the most potent and flexible offensive tactics. It is also one of the most risky. The basic concept behind the rush is to close the distance to a target quickly, thereby increasing the effectiveness of the weapons salvo. The rush is generally executed at short to medium range because most maneuver systems require far too much power to yield the speed needed at long range.

In order for a rush to be effective, a ship must be able to close the desired distance (usually to optimum range) and fire—without giving the defender a chance to cripple the attacking vessel before it can unleash its salvo. Thus, a rush generally requires about *three times* the maneuver power of an advance in order to close the same distance in one-third the time. Obviously, this drastically reduces the power available to the weapons systems. However, it usually leaves enough maneuver power for a follow-up tactic.

You may have already deduced that ships equipped with photon torpedoes have a significant advantage when rushing that other ships lack. This is because a torpedo requires relatively little energy to fire, and rushing ships so equipped will need less weapons power to fire an effective salvo. In fact, ships with photon torpedoes are able to execute a special form of the rush called the *missiler's rush* where beam weapons are given little or no power, and the torpedoes supply almost all the firepower of a ship's salvo.

What makes a rush (and all its variants) so dangerous is that it is very unpredictable and flexible. If a captain decides to prepare a defense against a rush, he will need to divert more weapon power into shielding and/or maneuver systems. This can put the defender at a significant disadvantage if the attacker was not planning to execute a rush after all. A rush can be used simply as an attack or as a means to an end which enables a ship to swiftly move into a strategic position while still doing significant damage to an opponent. A

clever attacker may hold back and trick his opponent into firing a weaker, longer-ranged salvo before rushing the then-defenseless ship. The rush and its variants can turn close-range combat into a tricky tactical guessing game.

The Klingon Empire frequently uses the rush and all its variants. The Klingons consider the rush to be a bold and clever tactic, and the success of it often reflects highly on the captain. The Romulans do not use the rush as often, except with plasma bolt weaponry (since both the firepower and the accuracy of plasma bolts increase greatly at close range). As a student of Star Fleet tactics, you should be thoroughly familiar with the rush in order to defend against it and use it when necessary.

Flank Rush

The flank rush is a variant of the basic forward rush. Like the name implies, the flank rush involves rushing at an opponent's side (flank) and firing side weapons at the opponent. This tactic is usually used when the defender's flank shields are underpowered. This tactic is also often used as a follow-up to a forward rush. The Klingons and the Romulans have not been known to make flank rushes often except as lead-in or follow-up tactics. Star Fleet captains often favor it because flank rushes frequently leave an enemy's warp drives exposed, permitting the Star Fleet vessel to weaken an enemy's power systems with minimal loss of life.

Reverse Rush

The reverse rush is actually a rather new tactic. Originally developed by the Klingons, the reverse rush enables a ship to use its defensive aft firing weapons in an offensive manner by "rushing" straight past an opponent and firing aft weapons into the enemy's usually underprotected stern. The defense against the reverse rush is simple. Strengthening the aft shielding and arming the aft weapons for a counterattack will often suffice. However, this action draws energy from the ship's other systems and thus weakens its defenses against other attacks.

The Klingons remain the primary users of the reverse rush, and it is considered a tactic of great cunning among their warriors. While originally developed as an offensive tactic, it can

also be used for an aggressive defense. Star Fleet has thus adapted the use of the reverse rush to its own vessels, and it remains a favorite of many captains and tacticians, particularly Andorian ones. The Romulans have not been known to use the reverse rush frequently, probably because they prefer the use of the cloaking device to accomplish the same end.

Enforced Extension

The enforced extension is a highly effective (under certain circumstances), purely defensive tactic since it relegates any vessel using it to a completely reactionary role.

Any ship using an enforced extension must have a significant accuracy advantage at long range, and it must be able to penetrate an attacker's shields and do it damage with one shot of any given weapon fired.

The enforced extension is a kind of combination of stand and deliver, plus the retreat. The idea is for the defender to place an ample amount of power into maneuver systems in order to keep an attacker at long range while taking advantage of its own superior accuracy. By doing this, the defender can minimize

the amount of damage received while slowly wearing down an attacker with its "shieldbuster" shots.

The enforced extension generally does not do a great deal of damage to an attacker, but over a period of time it can weaken the attacker enough to make it vulnerable to a coup de grace offensive tactic or force it to break off its attack.

The enforced extension generally works best at a range where a vessel's weapons are at 20% to 30% accuracy, and against an opponent without concentrated firepower.

The basic weakness of the enforced extension is that it is a purely reactionary tactic. As such, a ship using it may not be able to compensate for an unexpected tactic like a high-speed rush.

The Klingon Empire has rarely been known to use the enforced extension. Klingon ships are generally unfit for it since they have diffused firepower and generally inferior long-range accuracies compared to their Federation and Romulan counterparts. Furthermore, most Klingons consider the purely defensive enforced extension to be an extremely cowardly tactic and will usually only use it as a show of contempt

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for a weak enemy. When faced with this tactic, Klingon captains will often choose to "bite the bullet" and simply charge the extended ship at full speed, with mixed results.

Intelligence reports show that the Romulans do not seem to use this tactic. It is possible that they may not have developed it yet.

Since Star Fleet is primarily a defensive organization in terms of military power, the enforced extension is one of the most useful tactics available to Federation captains. Furthermore, since the Federation possesses the most sophisticated weaponry of the major starfaring races and concentrates the phaser power of its ships into banks, Star Fleet ships are especially well suited for its use. However, since the actual implementation of the enforced extension is often tricky, you are encouraged to practice it thoroughly in simulation. Ω

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Oral Ultrahygienic Clinic of Health (O.U.C.H.)

A DOA Sector Adventure Setting for Paranoia

Merle M. Rasmussen

FIRST IMPRESSION

Plate glass walls and a plate glass door separate this service location from the common walkway. Visible through the glass on the front of a glass brick reception desk are brilliant white letters spelling out the words "Pearly Gates, Oral Ultrahygienic Clinic of Health. No appointment necessary."

Sitting behind the crystalline desk is a white-haired woman in a red uniform. Beyond the desk is a white-carpeted waiting room filled with about 45 average citizens of various clearances. They all appear to be patiently waiting in padded chairs. All patients are either smiling while reading magazines or carrying on pleasant conversations. Light, cheerful music is playing, and you feel good just stepping up to the reception desk.

REAL PHYSICAL DESCRIPTION

The reception desk and waiting room are surrounded by glass walls. At the reception desk is a computer terminal for making dental appointments and three control knobs. One knob is marked "lights" and controls the brightness of the waiting room. One knob is marked "music" and controls the volume of the music in the waiting room. One knob is unmarked and controls the flow of nitrous oxide (laughing gas) secretly piped into the waiting area underneath the carpet and chairs.

Behind the waiting area is a single stainless steel door in a white wall. On the wall on either side of the central door are charts showing how to brush the teeth, tongue, and gums. One chart shows the name and position of all the teeth. The door opens into a hallway connecting six dental operating rooms. The walls are constructed of glass brick and the white-carpeted hallway is lit from above.

Only dark shapes can be seen through the distorting glass brick. Pleasant music comes from silver speaker plates on the ceiling.

ALPHA COMPLEX MUNICIPAL CODE

Oral Ultrahygienic Clinics of Health provide citizens with quality dental and oral/maxillary care to ensure good health and an attractive appearance. No appointment is necessary, although appointments are automatically scheduled every six monthcycles.

THE REAL SCOOP

O.U.C.H. is where you go to get rotten teeth yanked from receding gums with a minimum of anesthetic in the shortest amount of time. The quick service is due to a shortage of trained dentists and properly programmed docbots. The computer also desires to get citizens back to work as soon as possible.

"Why would anyone ever go to such a place?" you might ask. Well, thanks to the intoxicating and anesthetic effect of nitrous oxide, all the suffering citizen has to do is step inside the glass walls to begin feeling better. After a few good whiffs of laughing gas, the rotten bicuspid can be twisted from their roots by a feebly trained pliers operator. Most tooth quacks think they are real dentists—most also don't have the knowledge of a Model IV docbot. After being given a few stitches and a handful of painkiller tablets, the laughing patient can be sent to work as quickly as possible.

NPCS

The only minor nonplayer characters one can meet here are ordinary citizens with infrared to ultraviolet clearances. For every nine infrared citizens there are eight red citizens, seven orange, six yellow, five green, four blue, three indigo, two violet, and one occasional ultraviolet. All citizens are usually under the influence of laughing gas and think everything a person says is hilarious.

One unarmed scrubot and two jackobots are assigned to O.U.C.H. Jackobot (Model 340) has a drill. Jackobot (Model 330) has a hammer.

The following major NPCs might be encountered in an adventure involving O.U.C.H.

Silvia-R-DOA-1, Receptionist

Description: White haired and pleasant to citizens, with meticulously well manicured and extremely sharp fingernails.

Service Group: Production, Logistics, and Commissary Service Group (PLC)

Arms and Armor: Sharpened fingernails

Secret Society: Romantic, 2nd degree

Mutant Power: Charm

Relevant Skills: Button pushing, name taking, people pleasing.

Background: Silvia is not immune to nitrous oxide, but she sits near the glass doors, where her brain gets additional

oxygen. She despises Frank-Y-ANK-1 because she wanted to be a dentist but didn't have the stomach for it.

Frank-Y-ANK-1, Dentist

Description: Middle-aged, perfectly straight black hair, perfectly straight teeth.

Service Group: Production, Logistics, and Commissary Service Group (PLC)

Arms and Armor: Laserdrill (LD15), skill 16; Electrostructure (ES5), skill 18.

Secret Society: Death Leopard, 3rd Degree

Mutant Power: Superior Endurance

Relevant Skills: Medical Skill Level 5

Background: Frank is ordinarily a rude, crude, partially trained tooth puller with a penchant for laughing gas and dancing to canned music.

Tinsel Teeth, Model IV Docbot, Dentist

Description: Humanoid except for two extra arms ending in dental tools instead of fingers. Stainless steel teeth.

Security Clearance: Green

Arms and Armor: Laserdrill (LD15), skill 18; Electrostructure (ES5), skill 20; Plate armor

Relevant Skills: Medical skill level 6

Background: Tinsel Teeth is the real dentist at O.U.C.H. Tinsel Teeth is unaffected by the gas which floods the atmosphere throughout O.U.C.H.

WHAT HAPPENS HERE

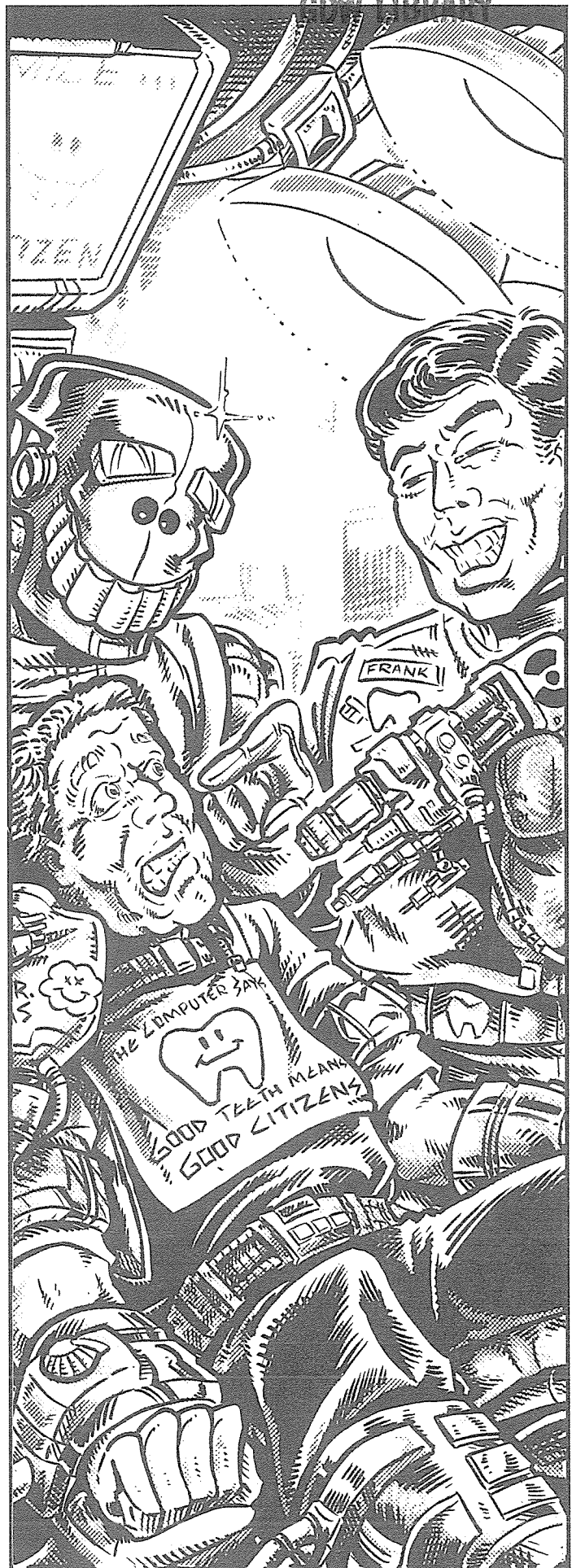
Citizens with dental pain or a computer-scheduled appointment report to the O.U.C.H. receptionist. She checks the citizen's dental records and asks the citizen to please have a seat in the waiting room. After a short wait, the citizen's name is called, and he is escorted to an operating room where a team of oral surgeons and docbot assistants using the most advanced dental technology and techniques perform oral miracles in the briefest amount of time, all absolutely without pain.

WHAT REALLY HAPPENS HERE

This adventure/episode works well with one Troubleshooter at a time.

After you approach the reception disk, Silvia-R-DOA-1 smiles and says, "Welcome to Pearly Gates, your local Oral Ultrahygienic Clinic of Health. What is your name?" She checks your name on her computer terminal. She is friendly and will answer any dental or appointment questions you might have. After determining whether or not you need to see the dentist immediately, she will ask you to wait in the adjoining area. Here is an assortment of amusing magazines to choose from. Occasionally, a laughing citizen exits from a door in the back of the waiting area, and a dentist escorts another patient through the door into a back room. You begin to realize this is one of the friendliest and funniest waiting rooms you've ever been in. The other citizens look funny. The floors, walls, and ceiling look funny. The music sounds funny. Everything you say is funny. Even the air smells a little funny.

You lose track of the passage of time. Other patients are



called ahead of you. Everything is quite amusing.

The colorless, odorless gas (nitrous oxide) in the waiting room should inebriate a team of troubleshooters while visiting O.U.C.H. and for 30 minutes or less after leaving. The pure, unmixed gas is deadly in five minutes.

The actual length of time citizens have to wait and their scheduled examination and operating time is dependent on their security clearance. Infrared citizens must wait until they can be squeezed in between higher clearance level citizens. Infrared citizens are also usually treated by a human in the shortest amount of time possible, even before additional anesthetic can take effect. Ultraviolet citizens have virtually no waiting, and their allotted examination and operating time is as long as necessary. Ultraviolet citizens are treated by both a human and a docbot working as a team. The higher one's clearance is, the better and less painful dental care he receives.

A TRIP TO O.U.C.H.

Eventually Frank-Y-ANK-1, a dentist dressed in a yellow uniform, waltzes into the waiting room in time to the recorded music, points directly at a character, and snidely asks the receptionist, "Hey, Saliva, does *it* have an appointment?" The disgruntled receptionist smartly replies, "You'll have to ask *it* yourself. I'm on break." She spins away in her swivel chair and begins filing her 10 perfect nails into sharp points. Frank-Y-ANK-1 turns on the character he indicates and grins evilly from ear to ear. "So you've come in for some routine dental work, eh? Come into my tonsorial parlor. I'll make you glad you've come to me. Walk this way." He dances away in time to the music down a long hallway connected to the waiting area. Suggest to the character that he thinks it would be funny to follow Frank-Y-ANK-1 down the hallway by dancing like him.

The Long Glass Hallway: As a character leaves the waiting area and steps into a glass brick walled hallway, the door slams shut behind him; he then hears a heavy, metallic bolting sound. Frank-Y-ANK-1 leads the character down a long hallway past three pairs of closed, very humorous, stainless steel doors.

The First Pair of Doors: At the first pair of doors can be heard loud drilling to the left and hammering to the right.

Room 1: This office is being remodelled. No dental equipment is in this room. If the door is opened, a jackobot (Model 340) can be seen drilling into the ceiling preparing to hang a light fixture.

Room 2: This office is being remodelled. No dental equipment is in this room. If the door is opened, a jackobot (Model 330) can be seen hammering a decorative trim onto the far blank wall.

Second Pair of Doors: At the second pair of doors can be heard a thumping sound to the left and muffled hysterical laughter to the right.

Room 3: If the door to the left is forced open, a freed scrubot will rush out and bounce against whoever opened the door and the hallway doors with the same thumping sound. Its job is to clean the floors of all rooms and the hallway of O.U.C.H., but it has been trapped behind a door which jackobot (Model 330) mistakenly hammered shut. The room is stocked with dental supplies and equipment surrounding an empty central operating couch.

Room 4: If the door on the right is opened, a patient wrapped in a white coverlet is found being administered laughing gas by a Mark IV docbot (Medical skill level 6, security clearance Green). The patient doesn't want to leave the chair or quit breathing nitrous oxide. The docbot is planning to drill and fill two bad molars. This room is stocked with dental supplies and equipment surrounding a central operating couch.

Last Pair of Doors: At the last pair of doors no sound comes from behind either door; however, a red, sweet-smelling, sticky fluid is seeping out from underneath the door on the left.

Room 5: If the door is opened, a spilled jar of illegal strawberry preserves is found beside a slice of bread. Further investigation will reveal a dirty plate, an unused table knife, a half-empty glass of fermenting milk, and a rotting orange rind. These all appear to be the remnants of a partially eaten lunch long neglected by the scrubot who was or is still trapped in another room along this hallway. This room is an unused dental facility, complete with an operating couch surrounded by supplies and equipment.

Room 6: At the last door on the right the dentist steps forward, grasps the knob, and swings the door open for a PC to enter. "Entre vous," he politely insists, sweeping his free hand in an arc toward the open portal. In the center of the

Treatment Times and Quality

<i>Security Clearance</i>	<i>Waiting Time</i>	<i>Scheduled Examination and Operating Time</i>	<i>Dentist</i>
Infrared	As long as necessary	As short as possible	Human
Red	7×1D10 minutes	1D10 minutes	Human
Orange	6×1D10 minutes	2×1D10 minutes	Human
Yellow	5×1D10 minutes	3×1D10 minutes	Human or docbot
Green	4×1D10 minutes	4×1D10 minutes	Human or docbot
Blue	3×1D10 minutes	5×1D10 minutes	Human or docbot
Indigo	2×1D10 minutes	6×1D10 minutes	Human of docbot
Violet	1D10 minutes	7×1D10 minutes	Human or docbot
Ultraviolet	None	As long as necessary	Human or docbot

glass brick office is a black vinyl padded operating couch surrounded by chrome-plated equipment. Along one white wall is a set of shelves, a countertop sink, and a set of drawers.

Under normal circumstances, a character sits down in the operating couch and Frank-Y-ANK-1 asks, "Are you comfortable? How about a little music." He turns a dial near the door and the lights dim.

"Oops, silly me. Wrong switch," he apologizes twisting another knob. The volume of the recorded music increases and Frank-Y steps up behind the couch. "There, how does that sound? Are you comfortable?" No matter what a character's response is, Frank-Y-ANK-1 presses a switch on the back of the chair and synthe-fur-lined metal cuffs immediately wrap both a character's wrists and ankles, rendering him fairly motionless.

"Wouldn't want you to slip out of that chair now would we?" he asks stepping toward the office door. He swings the door shut, and any PC in the room can hear a bolt slide and click into place. Frank-Y steps over to a set of drawers and pulls it open. Inside, reflecting bright light from the ceiling fixtures, is a collection of polished tools. A character can see pliers, saws, chisels, hammers, forceps, and scalpels glinting in the light. Frank-Y selects a pair of stainless steel retractors and steps up behind you to pry your mouth wide open.

"Now let's see those pearly whites of yours. Please open your mouth as wide as you possibly can. Is that the widest you can do? Relax, maybe I can help." His help is in direct proportion to your willingness to let him examine your teeth. He will reach for a small dental mirror and place it, pliers, and a dental pick into the character's mouth. He then walks over to the wall and removes a black vinyl gas mask from the second drawer.

"I'll have to use a little gas." He approaches the chair adjusting the headstraps on the mask. He connects a clear flexible tube on the front of the mask to an outlet beside the small sink to the PC's left. As he turns a small dial, the PC can hear the soft sizzle of gas rushing out of the nosepiece. Frank-Y-ANK-1 holds the mask to his own face and inhales, eyes closed. A drunken smile curls across his face as the nitrous oxide affects his nervous system.

"Mmm," he moans with pleasure, "That's good stuff! I don't know how I'd make it through a day without it." He chuckles and then begins to laugh in the mask.

"Pardon me just a moment, ha, I need to see if, hee hee, this mask is working, har har har!" he cackles as the invisible laughing gas fills his nostrils.

"Would you like a hit? Bonk!" he snorts, waving the evil-looking mask. He then straps the mask over his head and begins to dance clumsily to the overheard music.

"Wo-wo-Would you like to dance, bubbles?" he asks as he moves behind the chair. If the character answers "yes," he touches the switch on the back of the chair unfastening the metal cuffs. If the PC says "no" or doesn't answer, he tilts the chair back until his patient's head is lower than his feet.

"I just love, love, love, this song. Don't you bubbles" Yuk, yuk." He reaches for a laserdrill and approaches with it. If the PC is still in the chair, he accidentally drills into the padding between the character's feet. If the PC is not in the chair, he staggers toward the character with the laserdrill glowing.

"Oopsy," he stammers, "this would really hurt without, ow, ow, ow, a little gas for the trip home." If the player character is still in the chair, Frank-Y accidentally trips the switch to release the ankle cuffs as he tilts the chair back to the sitting position. If the character is not in the chair, it becomes readily apparent that this madman is about to put a hole through some part of him.

The door can be unlocked from the inside, and escape from the dentist is now possible. The PC can attempt to remove the gas mask from Frank-Y if he wishes; otherwise, he will soon pass out from an overdose of nitrous oxide. Without any oxygen, nitrous oxide can be lethal.

"So-so-Sorry you have to leave," he shouts after you. "Remember to arrange a six-monthcycle appointment with my receptionist on the way out, har, har, har." The door at the end of the hallway can also be unbolted from the inside, or the character can try to escape into one of the rooms along the long, glass hallway. Everyone in the waiting area seems oblivious to anyone leaving the dentist's office.

Silvia-R-DOA-1, spotting the character emerging from the hallway calls out, "Done so soon? You must have very healthy teeth and gums. Can I schedule your next six-monthcycle appointment for you?" Regardless of what a character says, she will call after him, "The computer will send a reminder to you a week before your next visit. Thank you for visiting Pearly Gates."

TYPICAL EXCITING THINGS THAT REALLY HAPPEN HERE

On rare occasions tiny little holes do appear in citizens when they fail to sit quietly while their teeth are being drilled. Sometimes the wrong teeth are pulled, and the citizen must return to have the correct teeth removed. Rarely, all of a citizen's teeth have been removed, and he will be issued one-size-fits-all dentures.

Seldom, if ever, does a citizen accidentally reveal a hidden mutation or membership in a secret society while getting a simple dental examination. Perhaps some misunderstanding on the part of the citizen being examined by a dentist makes a citizen reveal truths not revealed during inquisition or debriefing. Perhaps a little nitrous oxide loosens anyone's tongue just a bit. Perhaps the effect of the gas will last for a while after the citizen leaves the dentist's office.

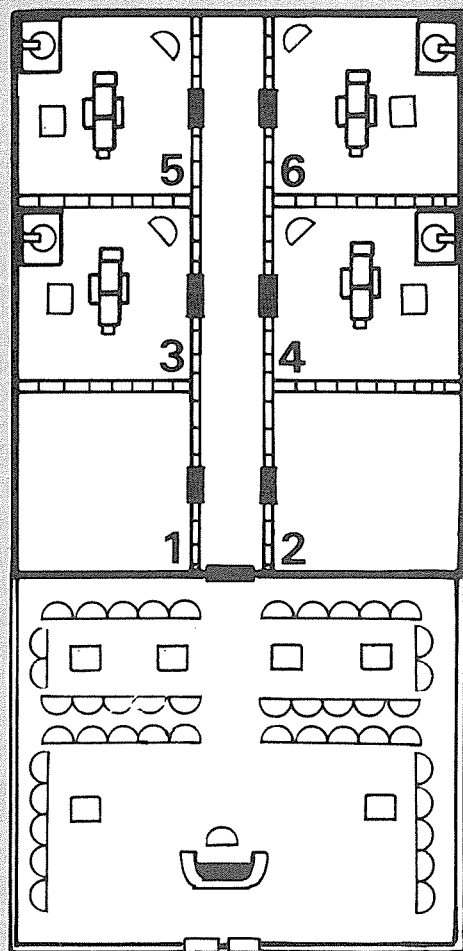
BRIEF SCENARIO HOOKS

The following ideas may suggest adventures involving O.U.C.H.

- Some good citizen, while visiting O.U.C.H., reported the spilled red fluid. Further investigation by Internal Security and consultation with the High Programmers identified the substance as strawberry preserves. The jar of strawberry preserves could only have come from outside DOA sector. Someone obviously has connections with traitors and com-

PARANOIA
PARANOIA

O.U.C.H.



Key

- Solid wall
- Plate glass
- Glass brick
- Padded chairs
- Reception desk
- Magazine table
- Countertop sink
- Operating couch
- Stainless steel door
- Plate glass door
- 5 feet (1.5 meters)

mies of the Outdoors. Members of the Sierra Club, and the Romantics secret societies are suspected. Even more devious in the eyes of the dentist Frank-Y-ANK-1 is the fact that consuming strawberry preserves can lead to tooth decay.

● Internal Security has staked out Pearly Gates and turned one of the O.U.C.H. operating rooms into an interrogation center. Unfortunately for the average citizen with a toothache, the pain has just begun. This is a great way for Internal Security to get some answers without revealing its true and devious purposes to passersby. It is even possible for Internal Security to call certain citizens in for questioning by telling the computer that these citizens are long overdue for a visit to O.U.C.H. The computer orders the citizen to report for a dental checkup—the citizen is then given the opportunity to serve the computer by being truthful while getting his teeth cleaned.

● Once in a great while the nitrous oxide takes control of Silvia-R-DOA-1, and she accidentally floods the waiting room with a large dose of laughing gas. When the glass doors are opened, the gas escapes into the surrounding corridors of DOA sector and affects all citizens in the surrounding areas for various lengths of time. These citizens think Internal Security is funny when it comes to investigate the outbursts

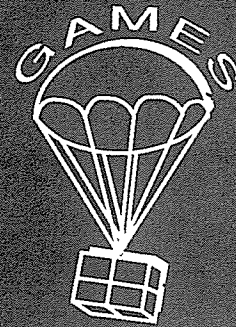
of ludicrous behavior. Internal Security suspects Silvia-R-DOA-1 or someone else of being a member of the Death Leopard secret society. Gassed citizens think it's funny when armed Internal Security forces begin firing randomly at inanimate objects and other citizens. They think it's funny when red fluid comes spurting out of big holes in their own shoulders and there is no pain. Zap! Zap! Zap! Bleed! Bleed! Bleed!

● Laughing gas can also escape into surrounding areas if the plate glass walls of the waiting area are shattered or if a secret society, such as Death Leopard, pipes the gas from the office into surrounding areas.

● Members of the secret society Corpore Metal have recently become more active. They have been known to sneak into service areas like O.U.C.H. and free the robots working there. Jackobots taken outside the service area are often immediately reprogrammed and become secret members of Corpore Metal.

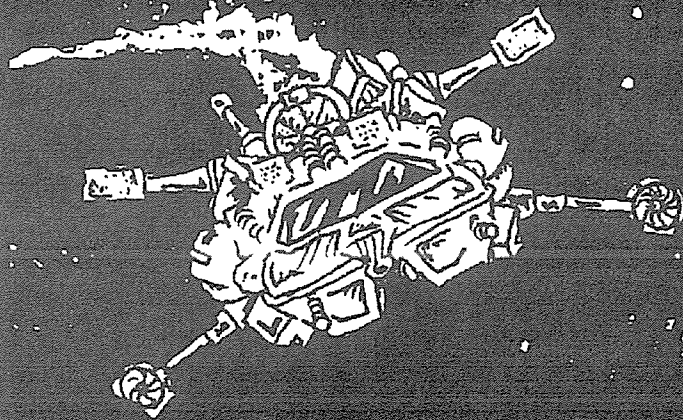
A freed scrubot will continue to clean the area it is released into. Unfortunately, if Tinsel Teeth is released into a public area, it will attempt to examine and repair the teeth of every human it meets. One type of Troubleshooter mission might be to investigate the robot disappearances and return any stray robots to O.U.C.H. Ω

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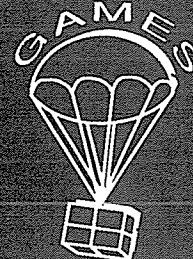


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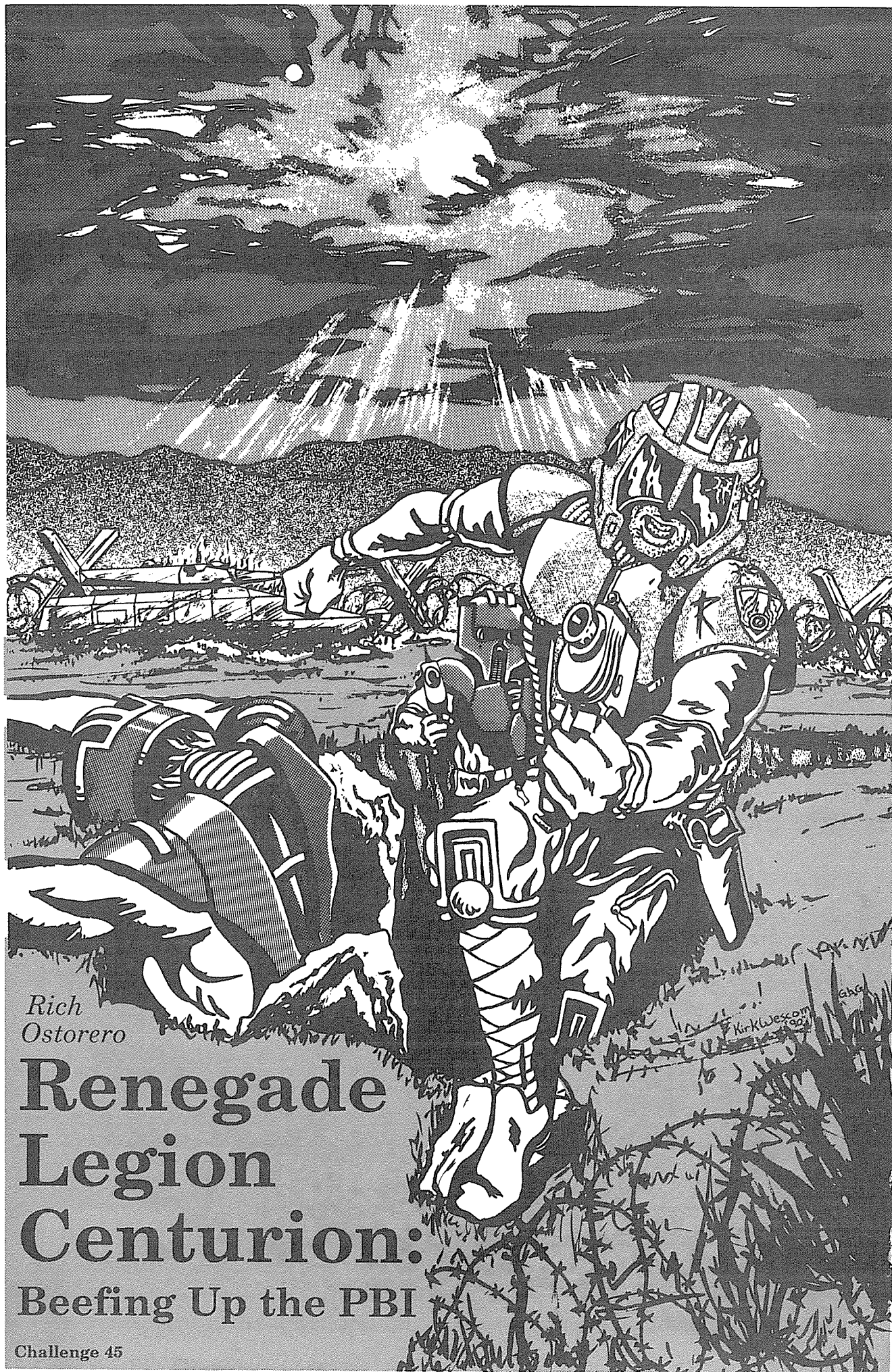


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Rich
Ostorero

Renegade Legion Centurion: Beefing Up the PBI

Science-fiction wargames often seem to worship vehicular firepower and treat the infantrymen with deadly contempt.

My theory is that it all started with *Ogre*. A killer tank with a cybernetic brain "munched panzers like popcorn" and squashed power armor infantry like a semi-truck smashes a 'possum. Pedestrians in *Car Wars* also get little respect from the driving class despite the vast improvements in ped firepower. *BattleTech* MechWarriors get the glory, and the infantry are little more than casualty boxes to check off a platoon roster.

Renegade Legion: Centurion is no different. *Centurion* focuses on grav AFVs. Infantry are once again a secondary force. *Centurion* vehicles have dedicated AP lasers (à la *Ogre*) so they can fire at the PBI (infantry) whenever the main armament is occupied dealing with real threats. When HELL (artillery-fired tacnukes) rounds are factored into this mix, the PBI of *Centurion* have a bad time of it.

The following optional rules will beef up the PBI in *Renegade Legion: Centurion*.

INFANTRY TVLG RELOADS

Any APC can carry in its infantry compartment up to four extra TVLG missiles per infantry squad carried inside the vehicle. Any vehicle may carry up to four extra missiles per squad of infantry mounted outside the vehicle in external stores bustle racks. A squad can still carry only four missiles into battle; the extra ones are reloads for the squad's launchers. An infantry squad may reload its missile launchers whenever it spends one entire turn in the same hex as a grounded APC that possesses reload missiles. Since the reloads are the small man-pack version of the TVLG (which lacks an indirect fire capability) and reloading a vehicular launcher is likely to take more time than any vehicle can spare in the heat of battle, the extra missiles cannot be used to reload a vehicular TVLG launcher.

There is one major problem with reloads: They are ammunition. For any infantry compartment hit on a vehicle that carries reload TVLG, roll 1D10. A roll of 10—(the number of compartment

boxes destroyed+4) or greater will result in an ammo explosion. Apply the Ammo Explodes damage result to the vehicle immediately. For bustle rack missiles, a turret hit will set off the missiles on a roll of 2×the number of missiles carried externally or less, causing an explosion. This explosion occurs outside the vehicle, so roll for a damage column and apply TVLG damage in the normal way for the number of missiles in the bustle rack. TVLG reloads cost one scenario point per set of four missiles.

TROOP QUALITY AND CLOSE COMBAT

Centurion allows for three troop quality grades: Green, Regular, and Elite. Troop quality is purchased by century (company) of nine vehicles or squads; a grav tank century cannot have one Green platoon, one Regular platoon, and one Elite platoon and still be an Elite unit. The following optional troop quality revisions are broken up by type.

Green: Green troops suffer the column shift penalty per the *Centurion* troop quality rules, but are bought at one-half scenario point cost. Green infantry squads may not pick their target's armor facing during close assault attacks.

Regular: Regulars behave exactly per normal *Centurion* rules and have the listed scenario point value.

Elite: Elite troops cost double the listed scenario point cost and allow the damage column shift benefit per *Centurion*. Elite infantry can also pick the target armor facing and column in which its attack will land in a close combat attack.

In a grav or mechanized infantry unit, the APCs and the infantry squads must be the same quality level.

MEDIUM MORTAR SQUADS

A medium mortar is a crew-served heavy weapon that fills the firepower gap between infantry light mortars and grav artillery. The unit consists of eight bounce infantrymen, one mortar tube, and piles of assorted ammunition. The medium mortar fires smaller versions of the rocket artillery rounds fired by grav howitzers. With non-HELL munitions, the mortar may fire directly at targets up to 20 hexes away as long as a line of sight exists between mortar and target.

RENEGADE LEGION

The mortar may fire indirectly from ranges of five to 25 hexes. In a direct fire role, HELL rounds have a minimum range of five hexes. Mortars hit their target hexes in direct fire using the Basic Fire Chart, and use a flat 6 to hit for indirect fire. Like all infantry weapons, medium mortars have a 360-degree firing arc.

Ammunition

Like their bigger cousins in the grav artillery, medium mortars use a variety of ammunition.

HELL Round: All units and terrain (except mines) in the unfortunate hex get a saving roll of 5 or less. Targets that fail this roll suffer the usual consequences of being in a detonation hex of an artillery HELL round. Mines are always cleared by any HELL round.

GLAD Round: This round does damage using a 100mm HEAP round template. Otherwise, the round behaves exactly like an artillery GLAD munition.

ADM Round: Scatters its mines in a single hex. Otherwise, it is the same as the standard artillery version.

AMR Round: Clears mines from a single hex without the adverse ecological impact of a HELL round. These are nice if your troops are near the minefield being cleared.

HAFE Round: Units and terrain in hexes hit by a mortar HAFE get a saving roll of 5 or less. Units that save avoid a HAFE shower. Those who fail the save take artillery HAFE damage as in the normal *Centurion* rules.

The medium mortar sounds devastating when compared to the standard infantry light mortar, right? Well, here's the bad news. A medium mortar squad has two MP instead of three. The minimum number of men needed to serve a medium mortar is five.

In other words, lose four men from that squad, and Mr. M. Mortar fires no more. The speed, crewing, and minimum range problems are severe limitations on this weapon. Medium mortars are usually issued to units that lack grav artillery support. Ω

CHALLENGE *Reviews*

First off this issue, Lester W. Smith gives us an in-depth review of the *Aliens* boardgame. Then Julia Martin takes a look at a good series of generic role-playing aids and a fun play-by-mail game.

Aliens

Aliens™ Twentieth Century Fox Film Corp.

Rules and Game Design ©Leading Edge Games.

Primary Design: Barry Nakazono.

Writing and Design: David McKenzie.

Complete boxed boardgame. 32-page rule book, four-page rules summary, three 8½×11" color card and counter sheets, plastic stands, 17×34" color map, one 10-sided die.

You peer around the dim interior of the reactor room with a horrid sense of déjà vu. Oddly shaped stalactites and stalagmites encrust the room's machinery, throwing back eerie echoes of your footsteps, overlaid with the trickling

sound of tainted water. Somewhere in the dark there is a scrabbling, as of pebbles falling. Sgt. Apone curses softly.

Then to your left, a marine screams—it sounds like Hudson—and simultaneously a fanged, black horror rears up before you. You open fire, and it drops, spraying acid blood on your legs. You scream in agony and fall. Then Apone gets an arm under you and begins dragging you toward the door, his flamethrower whooshing at dancing black shapes. Without warning, another alien drops from the ceiling in front of you, cutting off retreat.

Welcome to the *Aliens* boardgame.

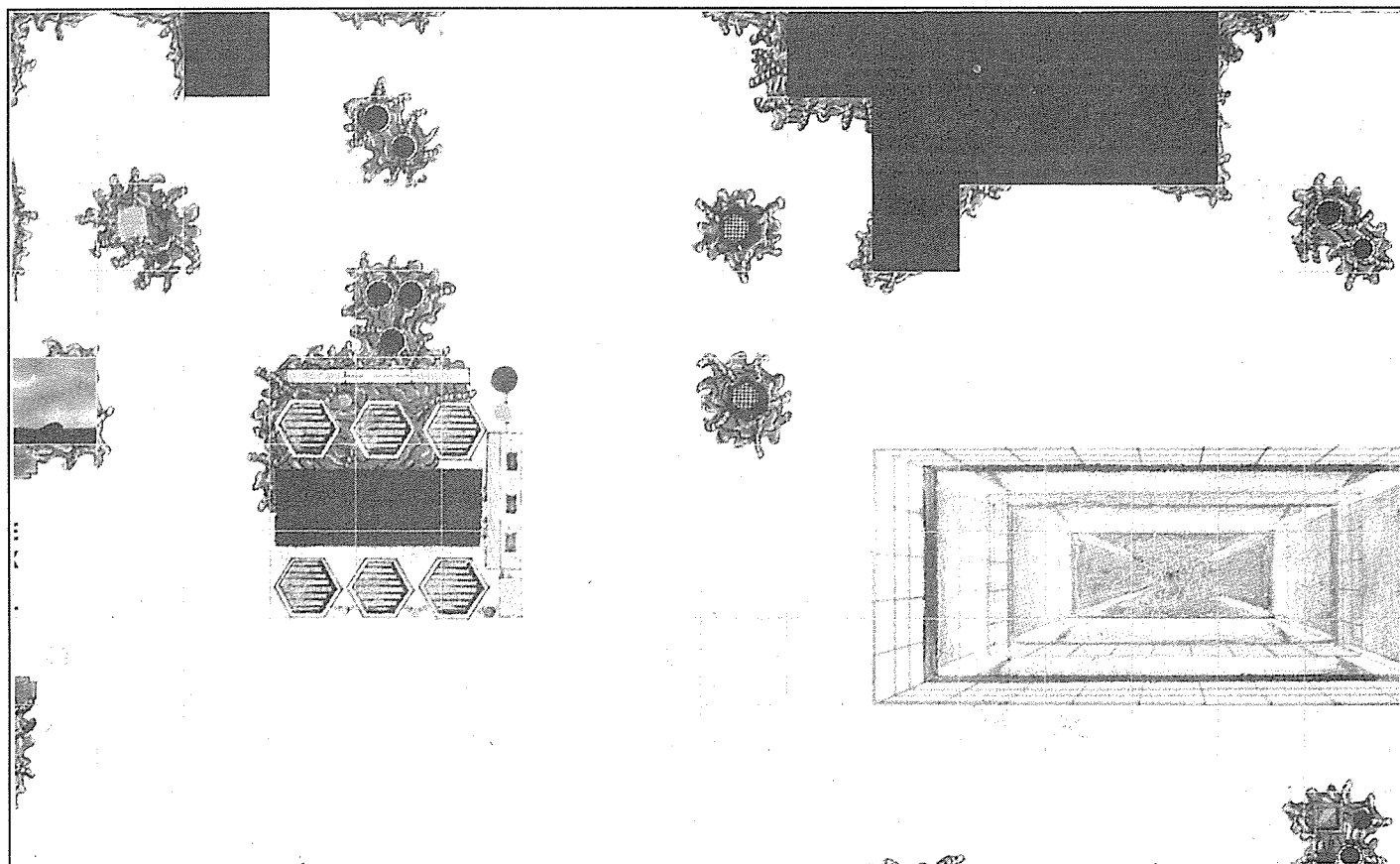
Almost three years ago, Leading Edge Games published in *Gateways* magazine a boardgame scenario replicating the battle beneath the reactor core that took place in the movie *Aliens*. Since that time, Leading Edge has been refining that scenario, testing it at conventions, developing it into a larger boardgame that recreates the action and mood of the movie. The result is the *Aliens* boardgame, a boxed set that

allows players to take the part of characters from the movie in three different scenarios. The game reflects well the care that has gone into its creation.

PHYSICAL DESCRIPTION

The box front is stark black with the blue *Aliens* logo familiar to viewers of the movie. Inside are three plastic-coated sheets of counters, character cards, and charts, all bearing color photos from the film. (Players will notice that while photos for most characters are clear and dramatic, the photo for Ripley is merely a silhouette. Rumor is that Sigourney Weaver's agent wanted an exorbitant sum for use of his client's photo.) Each character counter carries a color-coded band with the character's name, making it easy to match the counters with the cards during play. Plastic stands are provided to hold the counters upright. Like the counters, the cards also carry character photos. Essential statistics for each character's abilities and weapons are listed as well.

Finally, a larger card contains on its front side statistics for various alien



incarnations, an acid spray table, and a grenade table. On the back is the small map for scenario three, together with the tables necessary to play that scenario.

The map (paper) is actually a large sheet that contains two individual maps, one of the reactor room for scenario one, and another of the operations and control room, airlock, and ducts for scenario two. A turn chart for each scenario runs down one side of the combined map. All intervening space is covered by a montage of scenes from the movie. The visual effect of the color counters and cards against this map is very appealing.

Next is a four-page summation of the rules and the setup for the reactor room scenario. Play can begin immediately, with players referring to the larger rule book for clarification. That larger book contains nine pages of basic rules, 13 pages of scenario layouts and special rules, and two pages of optional rules.

Finally, the game contains a 10-sided die, the only one needed for play.

FLOW OF PLAY

One of the most evident results of the time Leading Edge has spent refining this game is that the rules have been boiled down to a bare minimum (much simpler than those in the *Gateways* article, for example, which was in itself a simplification of Leading Edge's standard combat system as found in *Phoenix Command* and *Living Steel*). But not only are the rules straightforward, the fact that the basic rules are condensed on the summary sheet and that all other information necessary for play can be easily found on the map and cards translates into a smooth, fast-paced game.

In *Aliens*, all players take the part of the marines; the aliens appear randomly and simply move toward the nearest targets. This means that the game plays virtually the same solitaire as it does with a full complement of players (up to nine). I must admit that solitaire games normally tend to feel lifeless and mechanical to me, but *Aliens* proved to be a welcome exception. I found myself thoroughly enjoying the game whether I played it solitaire or with friends.

Turn sequence in *Aliens* is basically as follows:

1. *Aliens* on the map move to engage marines.
2. New aliens appear on the map.

3. *Aliens* engaged with marines conduct melee attacks.

4. Any conscious marines who are not grabbed by aliens take actions such as moving and/or firing weapons. The more actions you spend aiming before firing, the better your chances of hitting, and if you hit, the target is destroyed. The aliens have the advantage of moving about twice as fast as most marines; their melee abilities are devastating; and if you blast one within one space of a marine, the acid may splash the marine. Basically, you win a scenario by exiting the board while losing a minimal number of marines in the process.

SCENARIOS

The first scenario, set in the reactor room, is straightforward, providing new players with the best opportunity to learn the game and have a great time doing so. The marines begin the scenario about two-thirds of the way across the board from the only exit and must battle their way through aliens that can appear on any side or even, in some cases, right in the middle of the humans. The scenario is designed in such a way that novice players face fewer aliens than more experienced ones, which allows the game to get tougher as you learn.

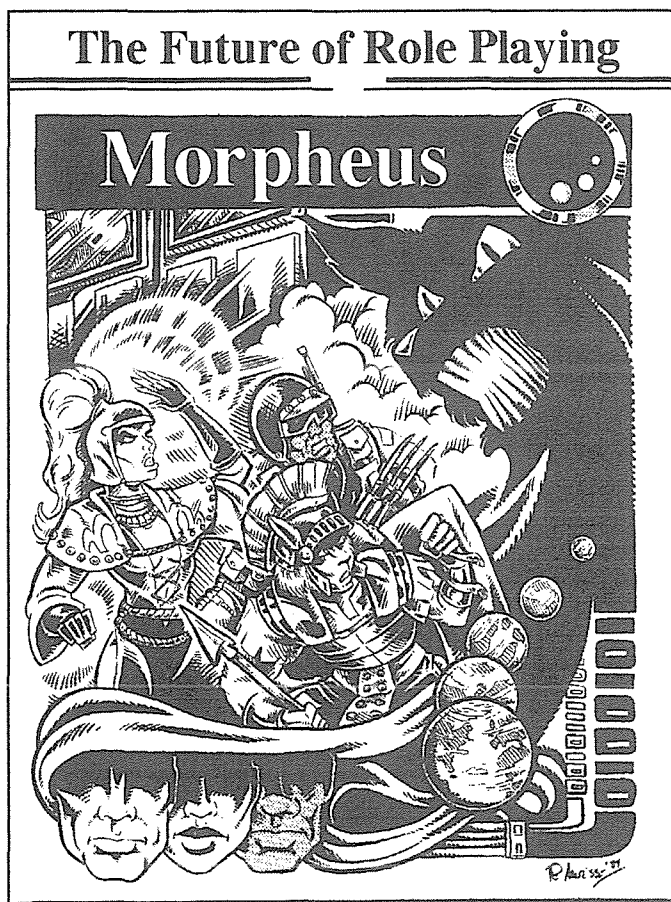
Scenario two involves Burke's locking the marines and Newt into the operations center as aliens burst through the ceiling and floor, then the marines escaping through the colony's air ducts. A few extra rules are added in this scenario for determining Burke and Newt's actions. Also, the operations center is so much smaller than the reactor room that the aliens that appear are right on top of the marines almost before they know it. More ali-

ens appear per turn than in the first scenario, as well, and it is easy to lose the scenario before ever exiting the operations room. The result is that the scenario takes a little more expertise to survive, and it seems considerably more tense.

Finally, scenario three involves the duel between Ripley, in a cargo loader, and the alien queen. With only two counters and a very small map, this scenario is perhaps the least exciting of the three. It plays more like an abstract strategy game than as a role-playing combat scenario. Nonetheless, it is worth at least a few times of playing, and it provides a sense of closure to the game as a whole when Ripley tumbles the alien queen into the ship's air lock prior to jettisoning her into space.

ADDITIONAL RULES

After mastering the basic rules, players can choose among a few others for added complexity. The first such is the Bonus Bug rule, which states that whenever a 0 is rolled for alien placement, an extra alien appears. A series of 0s can really give players a turn for the worse. Next, there is a rule for sweeping fire with machineguns, fol-



lowed by another for hand grenades to supplement those for the grenade launchers available in the Operations and Air Ducts scenario. (Both types of grenades are deadlier to marines than to aliens, of course, and if players are not careful with using these weapons, they will end up with only a few dead aliens and a roomful of incapacitated marines.) Each scenario mentions extra optional rules to be used as well, many of which are quite entertaining.

QUIRKS

The rules do have a few quirks. Marines can fire through intervening marine and alien figures, but not through terrain obstacles. Also, it costs a marine nothing to carry one incapacitated comrade. Some players might think these rules unrealistic, but they keep play moving quickly while allowing marines to accomplish their mission.

A more interesting quirk involves the game's contents, however. Counters and statistics are included for Bishop, Ferro, Spunkmeyer, facehugger aliens, and fires, but there are no scenarios or rules for using them. Likewise, many of the characters who *are* used in the game have stats for weapons that they cannot use in these scenarios. Leading Edge's explanation is that they will soon release an expansion set with new scenarios and another full map, and it was cheaper to include the extra counters and stats in the original game than to waste space on the counter sheets and have to print new ones for the expansion kit. The company states that it is not its intention to manipulate its customers into buying the expansion kit. Nonetheless, after looking over the extra counters, I find myself itching to buy it. I guess I don't feel too manipulated, though.

PROBLEMS

One irritating problem is that the prongs of the plastic stands are spaced too widely to hold the thin, slick counters. I solved this by scavenging extra stands from West End's *Assault on Hoth* and *Battle for Endor*, games that contain the snuggest plastic stands I've encountered to date. Of course, this means that my *Aliens* counters have white bases now instead of black, but at least they stay in place. On the positive side, Leading Edge designed the

counters with a blank space at the bottom and name spaces at the tops, so the stands do not cover up information.

There are a few more minor problems as well. First, the text concerning Burke's actions in the second scenario is somewhat confusing. It states that Burke will hang around for two turns after closing the air lock door, during which time the marines can plead with him to open the door, if they have not begun to work at cutting it open. But according to the turn sequence on the map, Burke reaches and seals the air lock door on turn four; none of the other marines can even head for the door until turn seven; and Burke doesn't leave the door until turn 11. As there doesn't seem to be any way to resolve the text and map, it seems to work best to follow the map, not allowing the marines to beg Burke until someone actually reaches the door. This will give you one to three turns in which Burke might repent his treachery, rather than the rigid two turns stated in the rules.

Second, also in the Operations and Air Ducts scenario, a number of aliens appear late in the game but seem to have no chance of catching the marines at all unless the marines do so poorly that they haven't escaped before reaching the end of the turn chart. Yet if the marines do that poorly, there are no rules for how to keep track of further turns. In my own play, the marines have always escaped before I run out of chart, but this makes the placement of the extra aliens seem a little silly. This problem does not make the scenario any less satisfying; it just seems a waste of time to place aliens that can never reach you.

Finally, in the third scenario, if "adjacent" is taken to mean diagonally as well as vertically or horizontally, (as would seem the case from the other scenarios), and if the alien queen is played as being as intelligent as she ought to be, it is easy to block Ripley into spaces between the alien and the air lock, where she cannot use her retreat option. This is a minor point, but one that takes some of the movement out of an already extremely static scenario. (I suggest having Grab results allow Ripley to shove the queen back a space, to add some more movement into the scenario while taking some of the tedium out of the frequently occurring Grab.) As well, it seems to me not overly difficult to

include rules for the queen's dragging Ripley into the air lock, and Ripley's crawling out and keying the outer door, rather than simply ending the scenario when the queen is first dropped into the air lock. These last are minor complaints, but the game has no major ones.

SUMMATION

Priced at \$21.95, this game is a real bargain, and I'm willing to bet that the expansion kit, at \$10.95, will be a bargain as well. (Leading Edge also plans to release an *Aliens* role-playing game in the spring of 1990.) There are hours and hours of fun to be had in playing these scenarios, and unlike games that have to be relearned nearly from scratch if you lapse in playing them for a few weeks, *Aliens* is easy enough to learn, and therefore relearn, regardless of how long it has been since you last played. If you liked the movie, you are certain to enjoy this game, again and again.

This is Your World

The Classic World. \$6.95.

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Charibdes Hall. \$7.00.

Dark Dungeon I. \$5.95.

By Steven R. Hess.

The Inland Town. \$7.95.

By Steven Hess, Lawrence Steller, and Sandy Hess.

The Castle of Entropy. \$7.00.

By Lawrence Steller.

This Is Your World™ series by Creative Cartography Ideas.

Keyed maps and brief location descriptions for fantasy and non-fantasy campaigns.

Gamers, especially referees, often complain about modules or scenarios for several reasons. Frequent complaints are that a set storyline constrains their creativity too much or that the designers spend too much time putting words in the referee's mouth and not enough time giving really useful information. The *This Is Your World™* series of products from Creative Cartography Ideas is ideal for referees who feel this way. This series produces utilitarian keyed maps with brief room and building descriptions for gamers to convert to fit their own campaigns. The maps provide concrete locations for

places that might only be names in a campaign. I have found that they also have an inspirational value—looking at maps often gives me ideas about people who would live in places like this, things that might happen here, and why this place looks like it does. Rather than limiting a referee's creativity, these maps are engineered to facilitate it.

PRESENTATION

The *This Is Your World* products are each somewhat different, but each consists of a map drawn as an overhead view, with terrain markings and a brief key. Sometimes included is a brief description of buildings or rooms, or a special bonus for the referee's convenience, such as the small-size reproduction of the world map of *The Classic World*, or the floor plan of the inn included with the village plan in *The Inland Town*. The large maps are printed on sturdy, thick paper with brown or black ink. The smaller ones are often printed on a sort of marbled-looking paper, so that they slightly resemble old manuscripts or scrolls. The cartography is good, but not outstanding. It's a good deal better than most gamers (including me) can generate on their own, but not as good as the cartography of major gaming companies.

EVALUATION

I like these products because they do two helpful things for me as a referee: They help inspire me, and they save me time. It is nice to have detailed maps for an adventure that you want to run your players through, but making them can create almost unreasonable demands on a person's time. I usually end up either making up the map as I go along, leading to inconsistencies and bizarre features only appropriate to my immediate fancies, or making do with hastily drawn, sketchy, or vague maps which omit important considerations like scale.

All of the *This is Your World* products are generic enough that you can use them for locations which are just about anywhere in your campaign.

They're all suitable for fantasy campaigns, and many of them are equally usable for science-fiction and other types of role-playing adventures. For example, *Charibdes Hall* works as a manor house equally well in a fantasy campaign, or as the country home of a

wealthy Victorian in **Space: 1889**, or as the home of a reclusive millionaire in a *Cyberpunk* campaign (all you have to do is add security systems).

My favorite map in the line is *The Classic World*, Creative Cartography Ideas' flagship product. It presents a map with no set scale which you can use for a world, a continent, or an island, depending on your needs and inclinations. If you've always wanted to design a campaign world but could never really get started because of a lingering dissatisfaction with any world maps you attempted, this product is up your alley.

The prices on some of these products are a little high for what you get because the company is small and doesn't have access to the price breaks that printing in volume creates. I think I have gotten my money's worth in ideas alone from every product I've purchased from this company, but others might feel differently. You may want to look over a friend's copy or look inside the package before you buy.

Continental Rails

Graaf Simulations.

Game Design:
John and Laurie
Van De Graaf.

Rules: \$3.00
Turn Fees: \$4.00/
turn Game Entry:
\$12.00 (rules,
setup, first three
turns).

Play-by-mail
game (lasts no
more than 25
turns).

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bilt or J. Pierpont Morgan, or carve your own name amongst those of the great robber barons? Try your hand at *Continental Rails*, Graaf Simulation's game of the growth of railroads in America during the 19th century.

GAME PLAY

Play in *Continental Rails* revolves around several phases. Every turn you can borrow money or repay some of any debt you have run up. Next you have a chance to bid on private companies—privately owned railroads you can buy (if you bid high enough). If you acquire a private company you can use it to add to your own railroad line; merge it into another company to acquire a higher percentage of stock; or take the private company public, becoming its president.

Each turn you also play the stock market, acquiring shares of railroads you wish to control or you think will be profitable investments. And you dump shares of railroads which may be about to enter a downswing, or try to drive your opponents into bankruptcy. Next, you decide which railroads you will try to run (be president of) in the next game turn—you can merge two railroads you are president of which connect. You have

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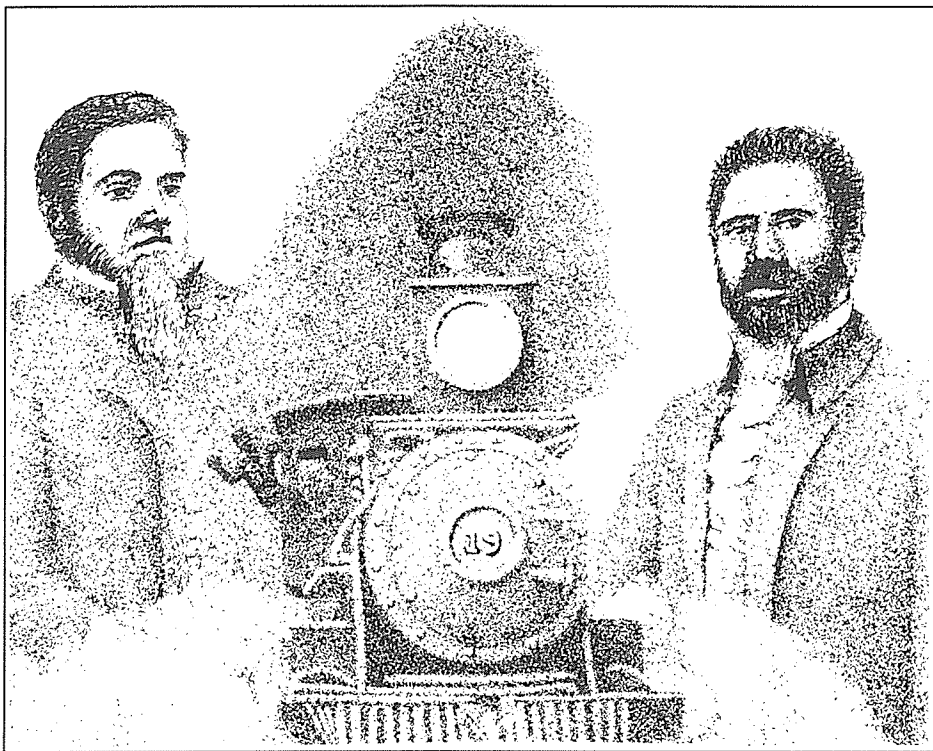
Books and character sheets will go to the wayside as real experience simulators take over. Vast computers with the power to project a reality straight into your mind will have the ability to make your dreams come true. Literally.

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an opportunity to spy on one of your rivals. Finally, as president of up to two public railroads, you control your railroads' actions for the next turn, loaning them money if they need funding. You can allocate funds for repayment of ongoing debt, capital improvement, and political influence. And you decide which right-of-way to bid for, and set the new dividend rate for owners of your companies' stocks (among other things).

GAME STRATEGIES

The game seems to run in phases. At first, your goal is to acquire control of a public company or quickly purchase a private one with potential to go public so you can quickly begin building. Your goals then become to build a line which connects with both Chicago and the Gulf of Mexico, while connecting through as many of the other important game regions as possible. At the same time, you need to build your stock portfolio, keeping it well rounded and acquiring as many directorships in other railroads as possible. Don't forget to watch your back for possible sneak take-overs, too.

After the civil war, the theater of the game moves from the east coast to the west, with all players trying to reach the west coast as swiftly as possible. The ultimate goal is to control a railroad system which goes coast to coast. The stock market and interplayer diplomacy become very important during this

phase of the game, and strategies can become very subtle and convoluted. In this phase of the game, most stocks go through boom and bust cycles as players build stock prices up and up through successive buy orders, only to sell when they think the price has peaked or the stock becomes cornered. This can wreak havoc with your plans as your net worth is high one turn, only to plunge sharply the next as several other players sell your stocks the next. Your credit line is then cut back proportionately, and suddenly your plans for the next turn need a major revision as your buying power has been cut to the bone.

EVALUATION

Continental Rails is a great PBM game to play as a change of pace. It doesn't require that you be interested in building an interstellar empire (favorite theme of play-by-mail games, by far) or that you build elaborate starship designs, or that you digest a lengthy rule book (its rules are only 20 pages long and are well organized). If you like the games *Rail Baron* or *Empire Builder*, you will probably love this game. There are five victory categories in *Continental Rails*. With only 15 players in every game, you have a fair shot at winning or placing well in at least one category. And, for a play-by-mail game, it is reasonable at \$4 a turn, and the rule book is a steal for \$3 (much better quality than

most play-by-mail rules by a *long shot*).

I do have a few *caveats* for new players, though. The players who play *Continental Rails*, at least at the time I am writing this, are a rather small group, many of whom have played more than one game. They already have little alliances and deals built up with each other from other games they have played together, and dealing with this type of situation can be frustrating as it sometimes feels that you are playing against power blocs rather than individuals. This game almost mandates a certain level of diplomacy, and if you are the kind of player who would rather make his moves in peace and forget about diplomacy, you're probably going to be outflanked early on. Finally, missing a turn in this game is *fatal*. If you're only a lackadaisical player and miss an occasional turn, I'd advise trying another game or being prepared to regularly pay the extra \$2 a turn for phoning in a turn rather than mailing it. Even over these *caveats*, however, I would strongly recommend *Continental Rails* as a good game and a lot of fun. Ω

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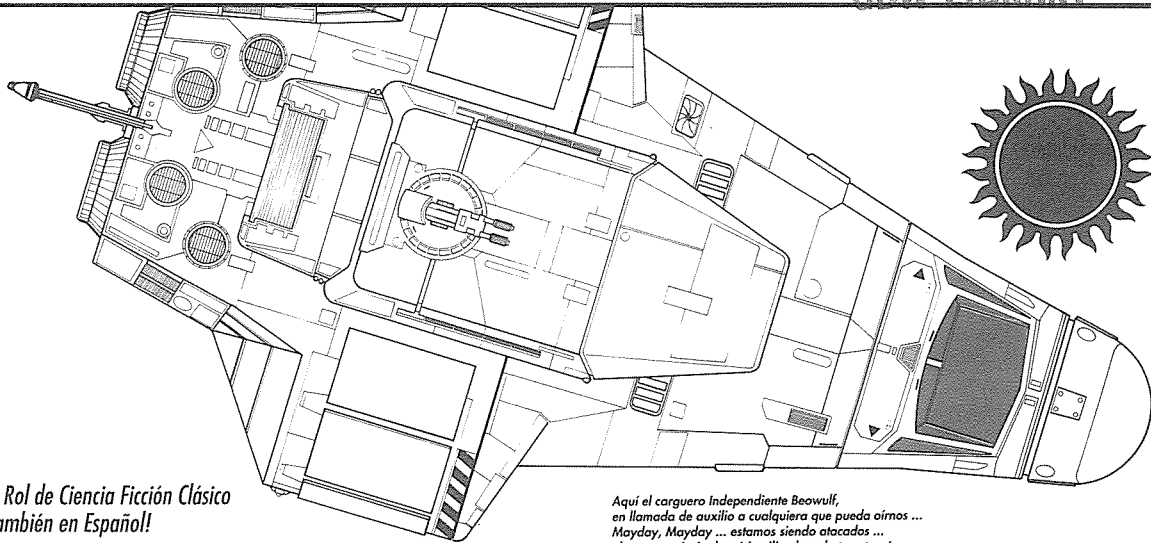
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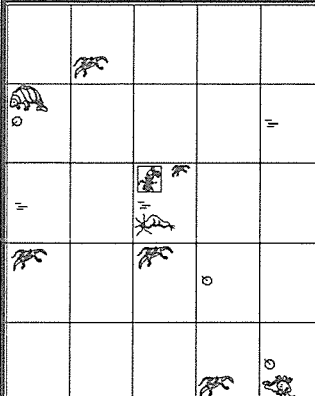
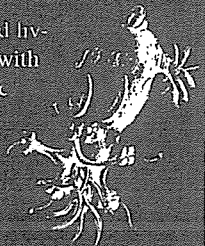


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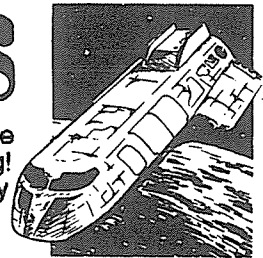
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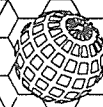
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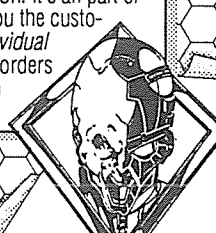
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In My Opinion

Marc W. Miller

Conventions are an important part of the adventure game hobby. They provide gamers with an opportunity to gather together and play their favorite games with new opponents.

Unfortunately, one of the most important conventions in the hobby is one most gamers will never get a chance to attend—it's the Game Manufacturers Association (GAMA) show held in Las Vegas in March.

Attendance at GAMA is restricted to manufacturers, distributors, and retailers, and the emphasis is on what is new for the coming year in the hobby. Since all the major companies (and a lot of minor companies) are there showing off what they will be publishing for the rest of the year, the advance information is flowing fast and furious.

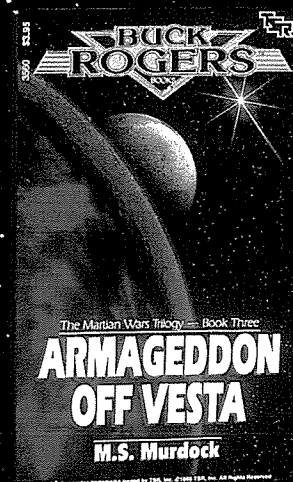
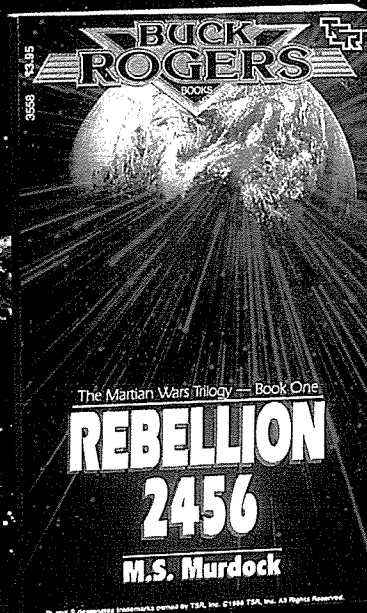
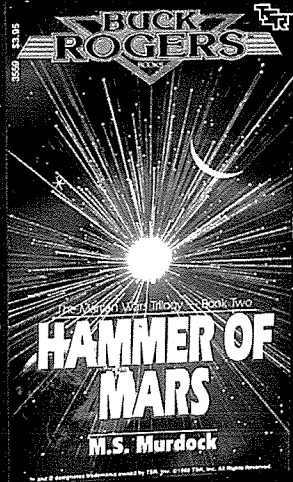
If you want to know what's coming up for your favorite system (whether it's from GDW or from someone else), you should encourage your local game store manager to attend the GAMA show in Las Vegas.

For more information, your store manager can write and ask about the 1991 GAMA show:

GAMA
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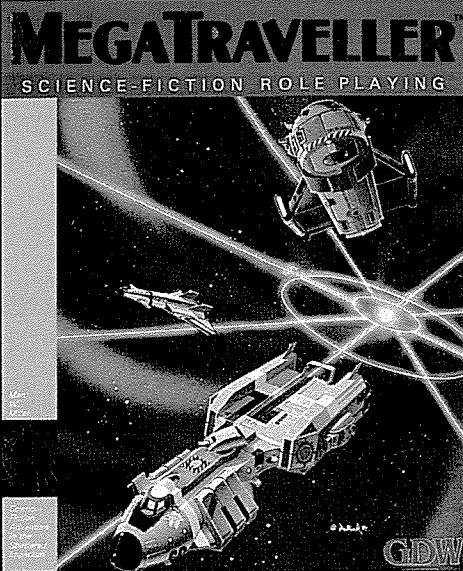
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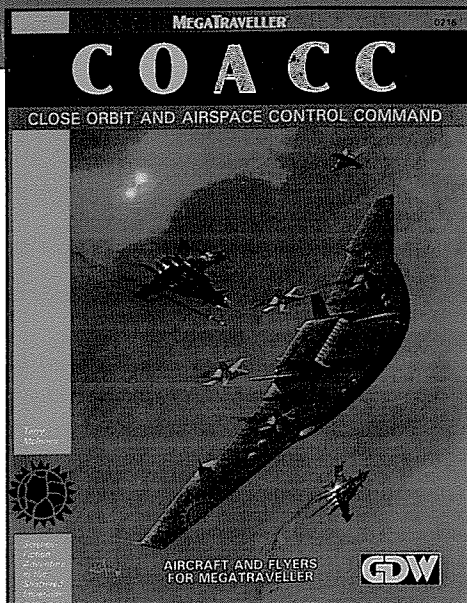
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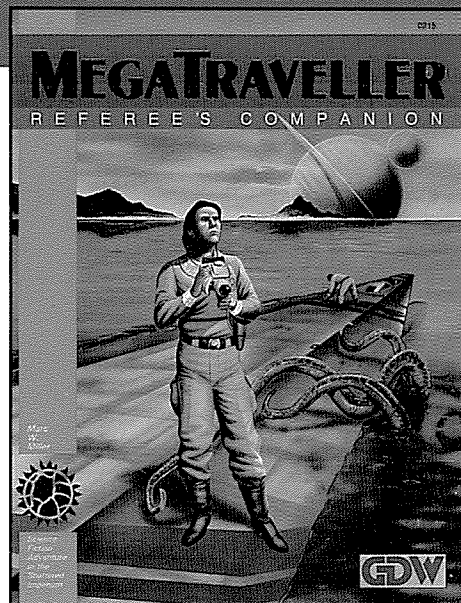
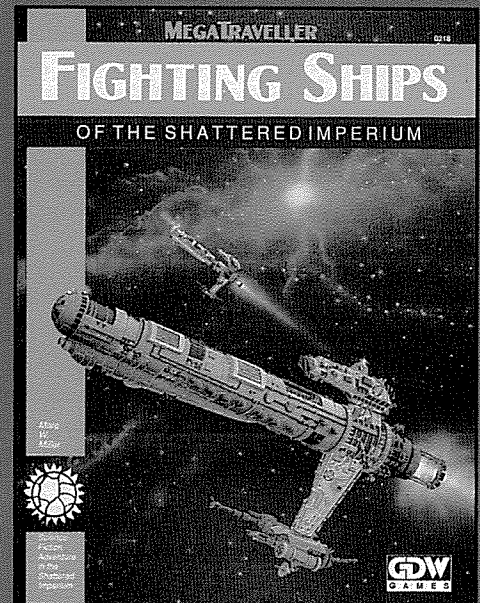
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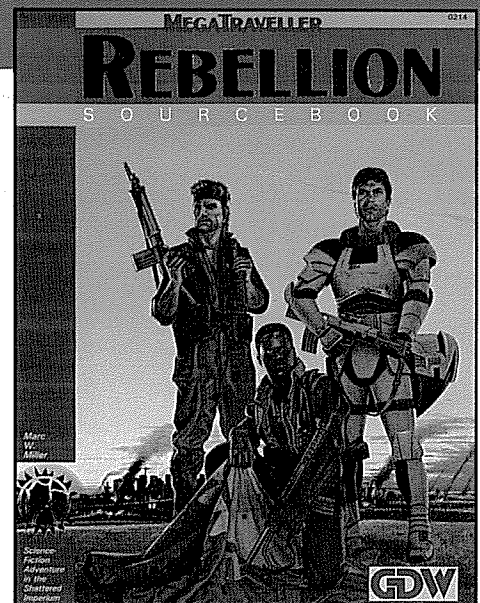
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