OCTOBER 1981 NUMBER 44

THE SPACE GAMER

THE MAGAZINE OF ADVENTURE GAMING

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SPECIAL SECTION:
ARMORED COMBAT
FOR
TRAVELLER

SPI'S "UNIVERSE" REVIEWED

THE URANIUM DRAGON:
RADIATION RULES FOR
ROLE-PLAYING GAMES

T-REX COMPANY REPORT

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GUIDE

NEW S-F SCENARIO
FOR *KILLER*

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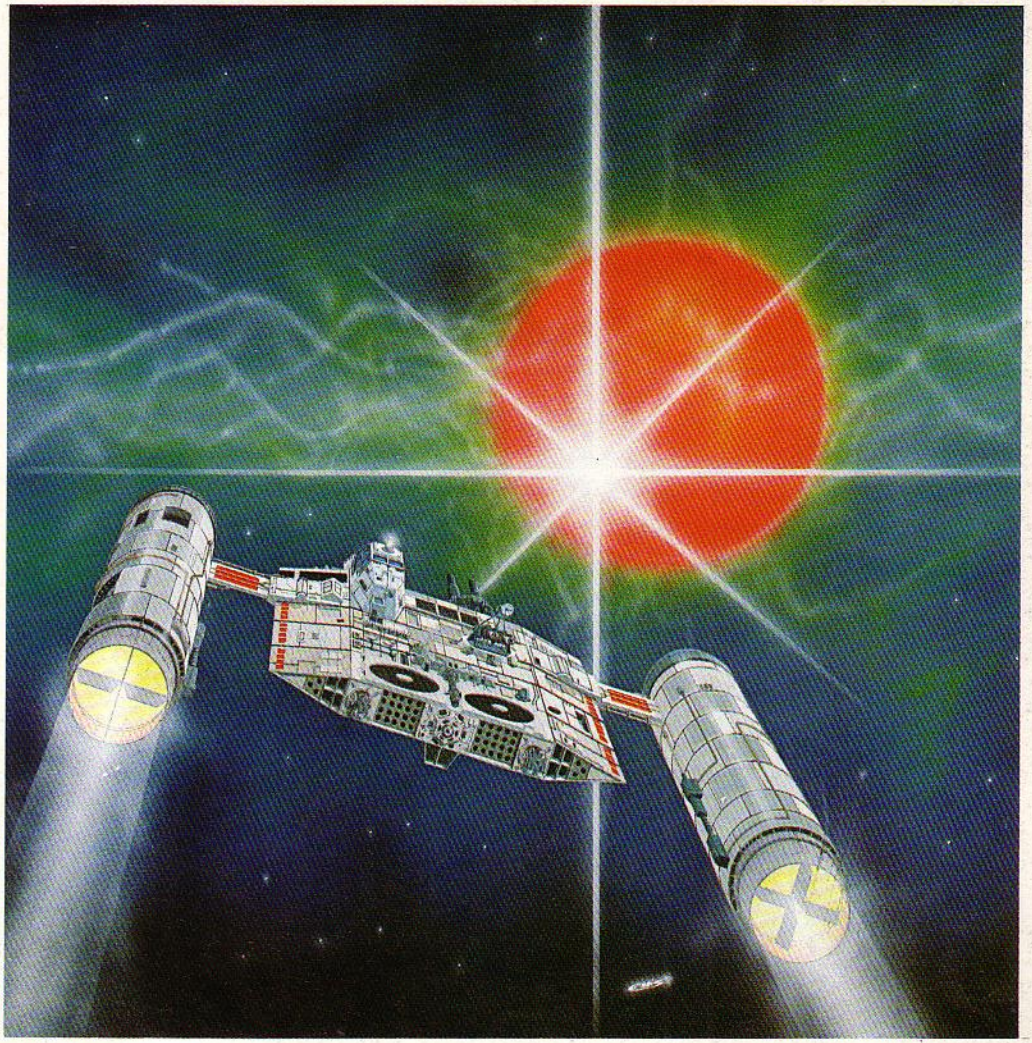
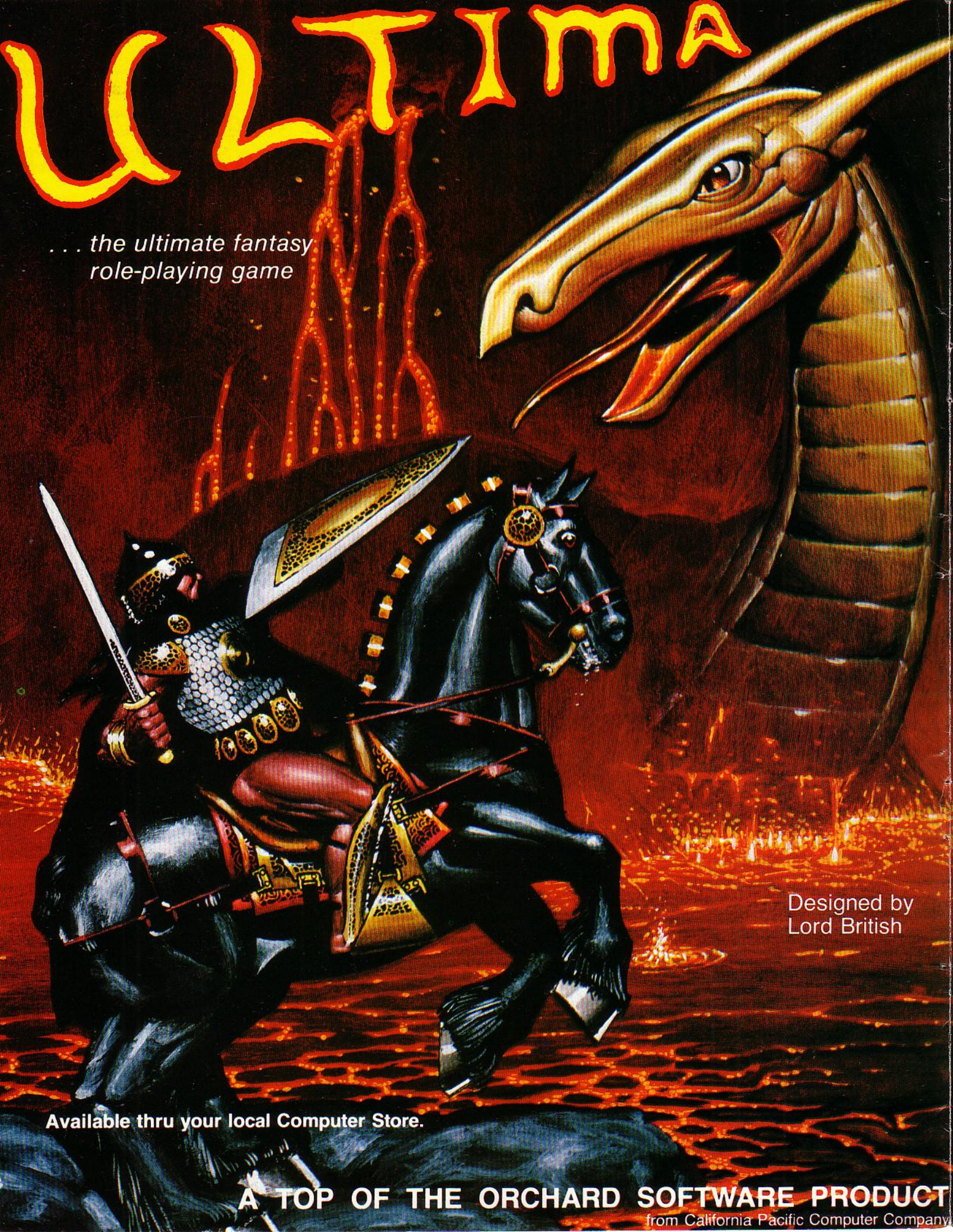
8 PAGES OF REVIEWS

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THE SPACE GAMER

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Publishers may wish to write for a copy of our Recommended Artists list.

In This Issue

The center of this issue is a pull-out section (for those of you who pull your magazines apart) containing detailed rules for designing, buying, and using AFVs (armored fighting vehicles) in *Traveller*. This piece is a real *tour de force*; the amount of detail it offers may well be more than many gamers will want, but there it is! We've also included a guide to miniatures companies producing vehicles suitable for S-F battles.

Our featured review covers SPI's new SFRPG, *Universe*. Greg Costikyan, a free-lance designer who has worked on several SPI projects, explains what he thinks is good and bad about this new competition for *Traveller*.

For the fantasy side, we have two articles: Lewis Pulsipher's views on fantasy demography, or why there *isn't* an 8th-level wizard around every corner . . . and a discourse on radiation sources and effects in role-playing games.

Rounding it out, you'll find a new science-fiction scenario for *Killer*; a guide for first-time computer buyers; a new sort of contest; and the usual batch of capsules, news, and letters. Enjoy.

— *Steve Jackson*

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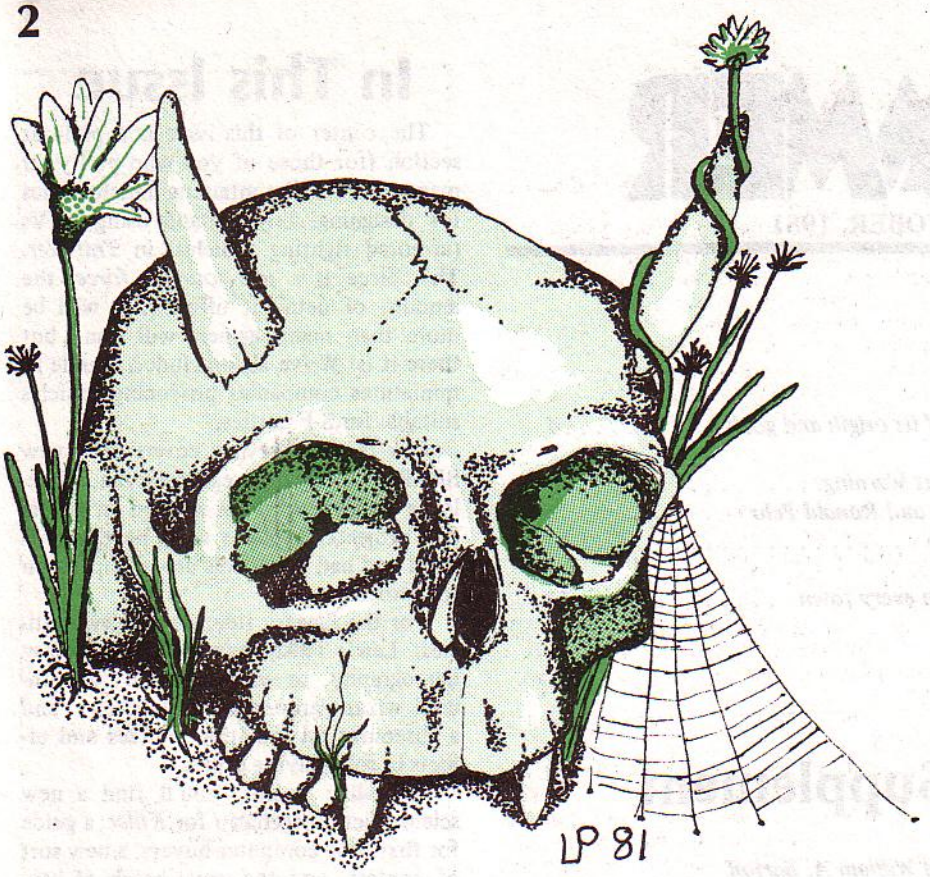


Where We're Going

"By the end of August, our move should be substantially complete." Did I really say that? Here it is early September, and we are no farther along on our move than we were last month. In fact, we're partially unpacked again! It's hard to do business when all your records are crated up and stacked against the wall. I could bore you with tales of the iniquities of real-estate agents and title companies, but whenever I tell the story I get red in the face and start banging my head against the wall. Suffice it to say that we have now been solemnly assured three times that arrangements were complete – and each time another worm popped out of the woodwork. I am now offering no predictions about when we move, or even to where.

Car Wars

This continues to be a big seller. (It has been brought to our attention that a Dallas company is actually *building* cars with gun ports and armor plate. It's hard for science fiction to keep ahead of reality these days.) Anyway, I have now seen *good* masters on several auto and cycle miniatures, and more are on the way. It's possible that we'll be in production by the end of the year, and – for those of you that see us at conventions – pre-production models should be in circulation very shortly. I'm taking some of the masters to WorldCon to show off, but that'll be over by the time you read this.

As for supplements: we're working on two. One will be a large arena, with rules for some new weapons and vehicle types as a bonus. The other will be a programmed adventure: you build your car, load up on supplies and ammo, and try to drive from one city to another, dealing with the hazards you find in between.

Cardboard Heroes

The three sets of fantasy Heroes are coming along, though the release date is likely to be very late September or early October unless Denis and Paul surprise me with a hatful of art next week. However, everything I've seen looks absolutely beautiful, and GDW has given approval for all Paul's initial human-type sketches. (Aliens will be in a later set.)

I've gotten several inquiries lately asking if I was or was not the same Steve Jackson that did this, that, or the other. Well, yes and no.

First (for those of you who are new to the scene): Yes, I'm the same one who did a number of games for Metagaming . . . and no, I am no longer connected with them.

Second: Yes, I'm the person who designed the "Star Cluster" PBM game for the Buchanan Company. As of now, that game is just getting off the ground; the first turns of the first game were mailed a couple of weeks ago.

Third: Yes, I'm also the one who did the World Generation book that SPI has announced . . . and no, I don't know when it'll be available, or even what it will sell for. But mercy me, it is a LONG so-and-so. I understand they're considering putting it in hard covers, it's so big.

Fourth: No, I'm NOT the Steve Jackson whose name keeps turning up on British games. That Steve has red hair, is a couple of inches taller than I am, and works for Games Workshop in London. He's a very nice fellow, and quite knowledgeable; we meet at conventions occasionally and argue about which one of us should change his name to Mortimer.

– Steve Jackson

NEXT ISSUE

November will be a special computer issue, with a company report from Automated Simulations, publisher of the award-winning game TEMPLE OF APSHAI. There will also be an article on winning strategy for STARWEB, and a featured review of ROBOTWAR.

In addition, we will have designer's notes for CAR WARS, our updated Writer's and Artist's Guide, some suggestions for reviewers, and the winners of the glossary contest.

GAME MASTER

GAME MASTER exists to answer questions on your favorite games. If you have a rules question or play problem, send it in. Questions to be answered will be chosen on the basis of general interest. They will be first referred to the game publisher or designer. If no response is received, GAME MASTER will offer its own interpretation of the rule. Sorry – no individual replies are possible.

The Air Eaters Strike Back

(1) In the Terran counter mix there is a single space unit marked FR 3 which is not mentioned in the rules. What is it?

(2) Should the Alien Crawler unit be marked with a 1 instead of a U since it may only move one hex per turn on a planet?

(3) The first sentence in rule 22.4 refers to a planet with a "destroyed" base on it. Was this supposed to be a deployed base?

(4) If the Alien player has a Mothership orbiting a converted planet with a base on it, may he roll twice for Novaship production?

(5) Rule 23.0 states that the Space Colony may be destroyed by space combat but it does not appear as a target in the space combat results tables. What target column should be used, or is the Space Colony destroyed by any Alien attack?

(6) The Set-up and Initial Control section 33.1 seems to be missing some details. What is the correct three-player set-up?

(7) Is the initial force in 34.1 correct? It gives the Alien players the equivalent of 15 units including three Novaships, while rule 16.2 specifies 14 units and a maximum of two Novaships.

(8) There are two abbreviations on the space combat table that don't correspond to any units: Firing unit WS and target unit TRF. What are they supposed to stand for?

Eric B. Paperman

Keith Gross, designer of the game, replies:

1. The "FR" counter should be a "CA," a cruiser.

2. Yes.

3. Yes.

4. Yes.

5. The column for LN/ESC/TR/TRF/CORV should be used.

6. Rule 33.1 is missing some lines. It should read, "Terran units are set up normally (see 4.1). The Earth player controls the units and IUs on Earth. The Space Fleet player controls the seven Corvettes orbiting Mercury, Earth, and Mars. The Mining Consortium player controls the units on Mars, the Corvette orbiting Jupiter and all IUs not on Earth."

7. Yes, 34.1 is correct. It supercedes 16.2 when the Aliens are split between two players.

8. "WS" should be deleted from the Space Combat table. "TRF" should be "ITR" (Improved Transport).

Following is the errata sheet that I just sent to Metagaming:

Errata for THE AIR-EATERS STRIKE BACK

Box:

The back states that the game has a "17 x 22 map, 360 play counters, rules and data sheets." Actually, it has a 22 x 27 map and 240 counters. (You aren't missing a countersheet.)

Counters:

1. The one Terran "FR" counter should be a "CA," a cruiser.

2. The two Motherships should be identified as 1 and 2, so that players will know which holding box is for which MS counter.

3. In games with more than one Terran player, players may have difficulty telling which counters belong to which players, since the counters have no IDs or shading. This problem can be solved by writing on the backs of the counters.

Rules:

1. The Space Colony is missing from the Space Combat Results Table. It should be in the same column (target type) as the ESC, LN, TR, etc. (unshielded units). It cannot fire, only be fired upon.

2. Rule 6.10, second to last sentence, should read, "Passenger units may not end the movement phase on a lander," not "... any planet."

3. Rule 22.3: "TWICW" should be "TWICE."

4. Rule 22.4: In the first sentence, "destroyed base" should be "deployed base."

5. Rule 33.1 is missing some lines. It should read, "Terran units are set up normally (see 4.1). The Earth player controls the units and IUs on Earth. The Space Fleet player controls the seven Corvettes orbiting Mercury, Earth, and Mars. The Mining Consortium player controls the units on Mars, the Corvette orbiting Jupiter and all IUs not on Earth."

6. Rule 4.1: Add: "One CORV is placed in Mercury's In Orbit box."

– Keith Gross

Kung Fu 2100

If a Terminator killed a Jelly that had a staff, could the Terminator pick up the staff and use it later?

Brian Anderson

The Terminators listed in the game do not possess weapon abilities, so they could not use a staff. (Note that a fist or kick is better than a weapon blow, anyway.) If you wanted to create a Terminator with a weapon ability, you could. However, if he started with a staff ability, he would have his own staff, and would not really need to pick up another one unless you added some rules for broken weapons. As is, weapons don't break; fighters do!

– Steve Jackson

Raid on Iran

Why must all remaining Iranian militants be set up in buildings 1-5, if there aren't any hostages there?

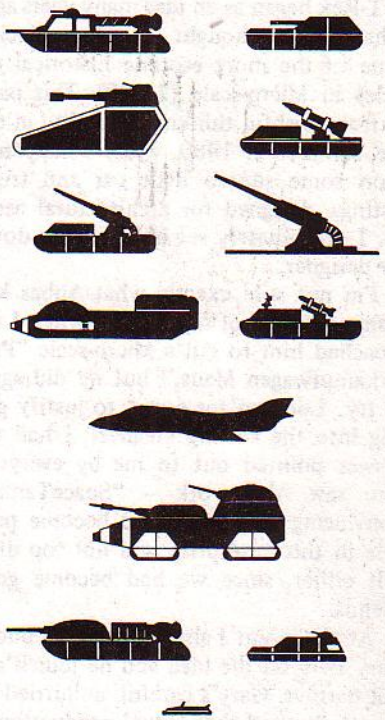
Jeff Kowall

Buildings 1-5 are "barracks" for the militants . . .the militants there are asleep when the raid begins.

– Steve Jackson

Star Johansen Miniatures

STAR ARMOUR 1/300 scale



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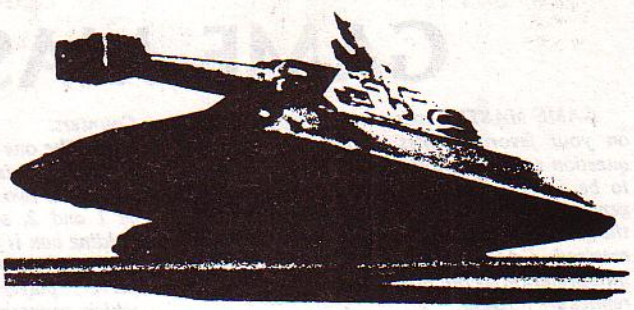
COMPANY REPORT:

T-REX



T-Rex began as an idea many years ago. I had often thought about producing some of the more esoteric historical vehicles in Micro-scale (1/285). This passed from wishful thinking to reality in the late summer of 1980, when I happened upon some superb little car and truck castings, designed for architectural models. I immediately set out to track down the designer.

I'm not sure exactly what Abbas Mobasher thought of my project when I approached him to cut a Micro-scale "Panzerkampfwagen Maus," but he did agree to try. Looking for a way to justify getting into the casting business, I had the answer pointed out to me by everyone who saw Ab's work – "SpaceTanks." Convincing Ab we should become partners in this enterprise was not too difficult either, since we had become good friends.

At this point I also sold my old buddy Gary Berg on the idea and he joined as a full partner. Gary's careful, unhurried approach insured that actual production of our tanks would receive the painstaking attention to quality control deserved by the masters Ab was meticulously machining.

Meanwhile, friends in the gaming business had repeatedly advised me to contact Scott Bizar of Fantasy Games Unlimited regarding a possible tie in with *Space Opera/Space Marines*. Scott offered us the proverbial "deal we couldn't refuse." As our projected line fit perfectly into the parameters of the new *Space Opera* supplement, we were licensed to produce the official miniatures for *Ground and Air Equipment*.

Thus it was with a great amount of pride and satisfaction that we finally released the AZURIACH IMPERIUM, and this was just the beginning. We have since begun releasing the TERRAN UNION and will complete this line before Christmas, with the Spectre StarFighter and the massive Continental Siege Unit. The CSU, now in the advanced stage of design, may well be the most impressive piece of Micro-scale armor ever produced. We will soon be publishing our first boxed game, complete with miniatures. It will be set in the universe of *Space Opera*. Release is scheduled for November.

Before going on, I must add a plug about quality. If our miniatures somehow look cleaner and crisper than what you're used to seeing, there are reasons. Our masters are cut from solid brass – not wax. Ab uses a specially modified pantograph and large scale Plexiglas masters to transfer the final design from technical drawing to metal. This process is very time consuming; it requires a considerable investment in equipment, and tremendous amount of skill and experience. To transfer the extraordinary detail and precision to the finished product we use one of the finest white metal alloys available . . . 30% tin. All of this adds up to a lot of extra time and expense, but we think the end more than justifies the means.

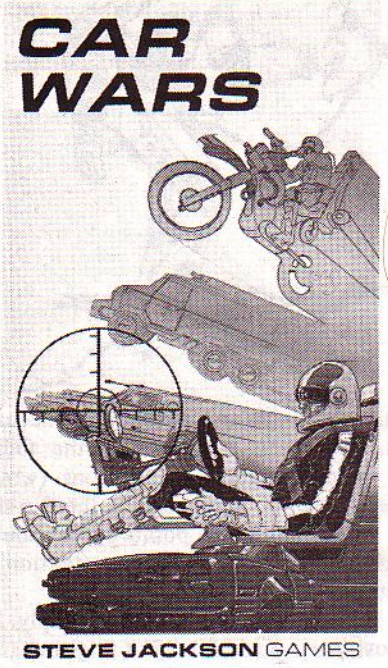
Projected

While *Ground and Air Equipment* promises to dominate our design and production capabilities for some time to come, it is by no means the only project in the works. Our historical AFV line, begun with the "Maus," will be expanded to include various prototype, experimental and design vehicles. While most of the tanks under consideration never set tread on a real battlefield, they should be great fun on the wargames table. Just over the horizon, preliminary plans have been made to use T-Rex miniatures in an upcoming film project; and under consideration is a major company commitment to computer gaming.

– John Rankin
T-Rex, Inc.

STEVE JACKSON GAMES

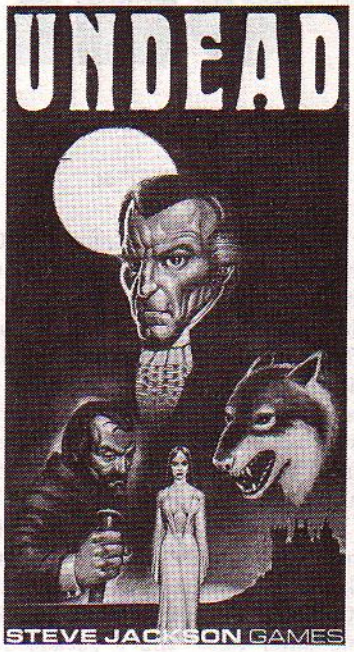
Now . . . three new games from the designer of OGRE, G.E.V., RAID ON IRAN, and THE FANTASY TRIP. More of the best values in gaming . . . at the lowest prices. And a new book that belongs in every serious game-player's library. Read on . . .



Ever want to blow away the car that cut you off from the freeway . . . drop a few spikes to discourage a tailgater . . . take on a cycle gang with the twin .50-cals under your hood? Now you can.

In CAR WARS, players design freeway combat vehicles, with weapons, armor, and even body style. Then they take them out on the roads of the future – to come home 'aces,' or crash and burn.

Designed by Chad Irby and Steve Jackson. Includes 24-page rulebook, road grids, and FULL-COLOR counters (drawn by Loubet) for cars, cycles, wreckage, etc. Any number can play. $3.00 in stores, or $3.50 by mail from SJ Games.



UNDEAD! A role-playing game inspired by Bram Stoker's classic *Dracula.* The vampire Count has come to London to spread death and terror. Moving on a map of the city, the vampire player tries to conceal his coffins and find new victims. His heroic pursuers search for his hiding places and try to alert the city. When the players meet, they battle – until the vampire flees, or one side is destroyed. For two or more players, with or without a referee. Designed by Steve Jackson. Components include *full-color* counters and city map; 24-page rulebook, and combat maps. $3.00 in your hobby shop, or $3.50 by mail direct.

KILLER

The controversial game that's being played across the country! KILLER is a "live" game. Each player tries to knock off one (or all) of the others, by fair means or foul. Usually foul. Waterguns or dart-guns replace pistols; an exploding balloon becomes a bomb, and so on. This is the first published set of rules for doing your friends in . . . without hurting them. Includes scenario suggestions; dozens of weapon simulators; and hints on keeping your game safe, legal, and not TOO mind-boggling to the rest of the world! KILLER is not for everybody – but if you want to test your reflexes and ingenuity in a way no paper game ever will, then this just may be for you.

Rulebook written by Steve Jackson. $5.00 in stores, or $5.50 by mail direct.

GAME DESIGN: Theory and Practice

Everything you ever wanted to ask about game design (but didn't know where to start). This authoritative book covers the field from both the theoretical/mathematical viewpoint and the practical angle. The general theory and history of wargaming lead into a detailed nuts-and-bolts discussion of combat, terrain, mapping and movement, component design, professional playtesting techniques, and more. A special chapter covers role-playing game design.

GAME DESIGN is co-authored by two authorities in the field. Nick Schuessler is publisher of the iconoclastic *Journal of WWII Wargaming* and has taught a University of Texas-sponsored course in wargame design. Steve Jackson is designer and/or publisher of several best-selling games. Whether you're interested in "simulation," "playability," or both, this book covers what you need to know. Much of this material originally appeared in *The Space Gamer*, but has been extensively revised and updated, with new material added (including a full bibliography).

An invaluable aid for the professional or semi-professional designer . . . for the serious hobbyist who wants to revise his favorite game . . . for the Game Master building a fantasy world . . . or as a play aid for the gamer looking for background material and strategy hints.

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Featured Review:

UNIVERSE

by Greg Costikyan

UNIVERSE is an excellent RPG from the standpoint of role-playing as it stood three years ago. From the standpoint of the state-of-the-art, it lacks something. The cover of the gamesmasters' guide proclaims it to be a "comprehensive presentation of the state-of-the-art science fiction role-playing system." It is not. It is dated; moreover, in important respects, it is scientifically inaccurate.

UNIVERSE consists of a "Gamesmasters' Guide" and an "Adventure Guide." The adventure guide is fluff. It consists of a list of monsters and NPCs, encounter rules, and a packaged adventure. The adventure is reasonably well done, and is accompanied by attractive four-color planetary maps. The monsters are fairly imaginative, but, unlike *Traveller*'s, are not generated by any logical system. The lack of illustrations is unfortunate. Despite the fact that it's relatively well put together, the adventure guide is a pointless waste of space and money. Monsters are not a necessary part of any reasonable SFRP; players may occasionally run into an alien beastie, but encounters with monsters will rarely be an important part of a science fiction expedition. The NPCs are not much use either; there aren't enough of them to provide real variability, and there doesn't seem any real reason to use them. The packaged adventure is useful if only as an example of what a UNIVERSE adventure should look like but, given what else is left out of the game, the space it takes up could better have been filled by more useful information.

The gamesmasters' guide is the meat of the game. It is pretty well written and organized, and the interior graphics are good. There are two major criticisms; there isn't enough to it to justify the price tag or the claim to be "state of the art;" and much of it is inaccurate or awkward. The gamesmasters' guide is divided into six main parts: character generation; skills; robots and equipment; combat and encounters; world generation; and space travel.

Characters

Character generation is the most sophisticated and well thought out portion of the game, albeit flawed. The system differs significantly from other systems, enough to avoid direct comparison with *Traveller*. Generating a character takes less time in UNIVERSE than in *Traveller* (a plus), and produces similar results for less effort. It's also a lot less fun than *Traveller*'s. It relies more on tables than on raw die rolls. Characteristics, for example, are not generated by die rolls, but by rolls followed by modifications and reference to a table. This is typical of SPI systems in general, but is somewhat awkward in practice. On the whole, the character generation system is adequate but nothing special.

The skills system has both good points and bad. Its best point is the fact that each skill is explained in depth, with specific rules provided for how the skill is used. The two major problems are the experience point system and the somewhat idiosyncratic division of skills.

The experience point cost to advance a level in a skill increases linearly – one point to increase from first to second level, two from second to third, and so forth. The benefit from a level is a factor of the square of the level – one for first level, four for second, nine for third, and so forth. A simple numerical analysis shows that benefit is therefore essentially a linear function of cost. It would have been far simpler to make benefit a direct function of experience points invested and save the fuss and bother of unnecessary calculation.

Some of the skill categories make little sense. As a planetary geologist, I wonder about the distinction between "geologist" and "planetologist." If anything, geology should be considered a subset of planetology, along with planetary astronomy, oceanography, and atmospheric science.

Similar peculiarities abound. For example, "energy tech" is a skill seemingly compounded of electrical engineering, fluid dynamics and automobile mechanics. Economics is defined as the ability to predict market fluctuations (would that it were!). Diplomacy is the flip-side of streetwise. Minor points all, no doubt, but evidence of inadequate attention to detail.

Robots are handled far too simply. No provision is made for robot player characters, though sufficiently advanced robots are deemed not only sapient but actually capable of "creative thought" – something even the artificial intelligence nuts would be cautious about claiming. Disappointingly, the laws of robots are missing – surely not for copyright reasons, since the laws have passed into general use. Equipment is comprehensively covered, though technological advance is depicted as a simple linear projection of current capability into the future, a la *Traveller*.

Worlds

The real disappointment of UNIVERSE is the world generation system, something which was touted to me as unique and innovative. It is not. It is unrealistic, unsatisfying, time-consuming, and overly random. Planetary generation takes no cognizance of the different type of planets we know to exist – silicate "terrestrial" planets, asteroids of various types, icy bodies like the Jovian moons, and the great gas giants. Instead, all planets are "tolerable," "earthlike," or "hostile."

The terrain generation system, too, is enough to make any geologist cringe in horror. Essentially, a planet is divided into a number of "environs." The game master rolls randomly on a table to determine the nature of the terrain in each environ. Naturally, the terrain is influenced by the presence of an atmosphere and

hydrosphere and the overall temperature of the planet – but nonetheless the table is capable of producing absurdities, such as planets which have heavy craters in some areas, forests in others, and an ice belt at the equator.

The emphasis on terrain generation seems an unnecessary holdover from fantasy RPGs; a science fiction character is more likely to be interested in the demographics of a planet – which parts of the planet are civilized, locations of cities and major economic installations, and the way to the nearest spaceport – rather than physical characteristics.

That's about all there is to the game. This is a problem; the game master will have to be innovative indeed to run a decent UNIVERSE campaign. Other RPGs include rules for what a campaign is supposed to be about, at least on a rudimentary level; the reader of D&D will get the idea that the game is about dungeon-crawling; the purchaser of *Traveller* will figure that the thing to do is run a trading company or start a mercenary unit. Admittedly neither game does much to point a GM in the direction he should go, but UNIVERSE evinces no such direction; it is a game that cries out for a trading system, a system to organize adventures, social rules for the Federation, systems for setting up social organizations, first contact, local politics – anything at all to get players into an adventure.

Appraisal

If I may speak in general terms, there are six facets of a role-playing game a reviewer should address: the quality of development and design; the clarity of the rules and ease of reference; the degree of realism; the solidity of the basic systems; the game's point of view; and how well it lends itself to use in continuing campaign.

1. UNIVERSE is well designed and developed by general standards of the role-playing genre, but by SPI standards it is not up to snuff. There are a number of oddities – such as the idiosyncracies of the skills system and the absurdities produced by planetary generation – that should have been worked out in development. I suspect the game was rushed: UNIVERSE could use a great deal more material, and it appears as if no time was available to design such.

2. The rules are extremely well written, and the SPI case numbering system allows for easy access and reference. The only complaint on this score is the lack of an index, but then few RPGs include indices.

3. The game suffers greatly on the score of realism. Historical games are realistic if they simulate historical events accurately; a science fiction game is accurate if the science it contains is correct. The science in UNIVERSE is inaccurate on several scores; UNIVERSE is unrealistic.

4. UNIVERSE's basic systems – character generation, skills, combat, interstellar travel – are reasonably solid. They work. They are not, however, terribly imaginative.

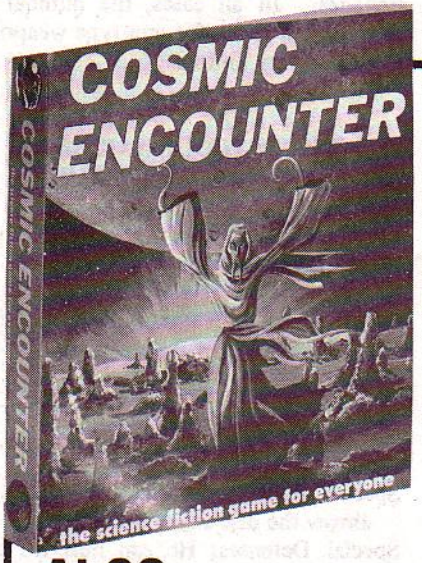
5. *Traveller* has a definite point of view; it takes place in a grand human Empire which spans the stars and is in slow decay. It concentrates on combat, both man-to-man and ship-to-ship; combat and trade are the primary endeavors in which the players take part.

UNIVERSE has only the faint glimmerings of a point of view; it takes place in a universe in which man has only recently discovered the star drive, and is expanding into near-solar space. However, the endeavors which the players are supposed to concentrate on are not made clear. It has a background (though a meager one), but no concentration on certain aspects of life in the science fictional universe. UNIVERSE suffers from the lack.

6. For much the same reasons, UNIVERSE has problems on the score of continuity. It contains little other than the basic rules systems. SPI intends to remedy this lack through the publication of a number of supplements – they're currently working on two: *Galactic Trader*, a trading system to be published separately as a science fiction boardgame, but which will be completely compatible with UNIVERSE; and *Aliens*, which will include three complete alien races with rules for playing alien characters and complete historical and cultural backgrounds. Though this is a hopeful sign, it is unfortunate that no such material was included in the original game.

On balance, UNIVERSE has some good points which *Traveller* does not, and vice versa; but UNIVERSE is no advance on the state-of-the-art. It is certainly not a bad game in comparison to other SFRPGs on the market, but neither does it offer anything fresh. There's little reason for anyone to abandon an ongoing *Traveller* or *Space Opera* campaign to play UNIVERSE. I was rather disappointed with the game; on the other hand, the basic set is probably worth the $10 it costs.

UNIVERSE (SPI); $10.00. Designed by John Butterfield and Gerry Klug. Two 8½" x 11" booklets, 96 pages total. (Boxed edition also available; price $20.00). 2 or more players; playing time indefinite. Published 1981.



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KILLER

This scenario was supplied by Robert Von Gruenigen (also known as the Uncontrollable Dungeon Master). Bob, creator of ***Death and Destruction*** *and* ***Time Tunnels****, reports that his local wargame club had a lot of fun with this one. Remember . . . the best attack is* ***Without Warning!***

I feel my pulse quickening. I have been told that the mission I am on now will be the most dangerous one of my career. I'm hunting . . . an *alien*.

My Green Beret training covered many weapons, but not this odd-shaped dart pistol. The darts contain a lethal poison which will kill on contact. Loading the gun can be very tricky and hazardous to my health.

There is the water shed, where the alien is supposedly hiding his victims. And there he is! Did he see me as I sidestepped behind the shed? Am I losing my nerve? I had no idea that his appearance would frighten me like that. I had better move now or I may never be able to.

His back is toward me now and he has something in his hand. As I aim my dart pistol at him I yell "die alien" and I pull the trigger. He hits the ground, but is he dead? I had better kick the body over to make sure.

What is that pulsating thing on his wrist? It's alive! It is injecting five long needles into the flesh of his hand . . .

AREA USED

An outside area with trees and buildings is preferable.

THE GAME

There can be five or more players. There will be as many rounds as there are players. Each player will be the alien in one round. The alien is attacked the first time by one player. If the alien survives, he is attacked again by the next player. If he survives that, he is attacked by the next two players. Here is an example of play using five players:

SCORING

Each alien keeps track of the number of humans he has killed. A player's score can range from 0 to 4; the alien with the highest score wins, and ties are possible. If there are more than five players, more attacks can be made to avoid ties.

WEAPONS

Each human has a dart gun with three darts. Because of the poison, anyone it hits is killed instantly.

The alien has ten disc-shaped parasites (poker chips). It uses these by throwing them. If it hits a limb, it is a wound and a hit to the body is a kill. A parasite may be recovered after use, if the alien survives.

OPTIONAL RULE

At the GM's option, humans may use other military-type weapons, such as grenades. In all cases, the number of weapons (or shots for gun-type weapons) should be very limited.

THE "WITHOUT WARNING" ALIEN IN D&D TERMS

Frequency: Very Rare
Number Appearing: 1
AC: 8
Move: 12"
Hit Dice: 2
In Lair: 15%
Treasure: A
No. Of Attacks: 1
Damage/Attack: 1d4 (hand)
Special Attack: Surprises on 1-3, can throw the disc-shaped parasites.
Special Defenses: He can heal his own wounds simply by touching them.
Magic Resistance: Standard
Intelligence: Exceptionally Intelligent
Alignment: Neutral
Size: M
Psionic Ability: None

THE DISC-SHAPED PARASITE

Frequency: Very Rare
Number Appearing: 1-10
AC: 6
Move: 24 when thrown
Hit Dice: 1d4
In Lair: 100%
Treasure: None
No. of Attacks: 1
Damage/Attack: teeth 1d2, extendable needles 1d6. Note: it cannot attack through armor.
Special Attack: Surprises on 1-3
Special Defenses: Because the extendable needles fasten themselves in the flesh, it is very difficult to pull the parasite off. A strength of 15 or higher would be needed to remove a dead or live one.
Magic Resistance: Standard
Intelligence: 1
Alignment: Neutral
Size: S (slightly smaller than a human hand)
Psionic Ability: None

The DM may wish to give the alien some specific motivation other than the simple desire to kill dungeon-delvers. However, this motivation will not necessarily be comprehensible to humans!

	Player 1 is Alien	Player 2 is Alien	Player 3 is Alien	Player 4 is Alien	Player 5 is Alien
1st Attacker	1 vs. 5	2 vs. 1	3 vs. 1	4 vs. 1	5 vs. 1
2nd Attacker	1 vs. 2	2 vs. 5	3 vs. 2	4 vs. 2	5 vs. 2
3rd Attackers	1 vs. 3 & 4	2 vs. 3 & 4	3 vs. 4 & 5	4 vs. 3 & 5	5 vs. 3 & 4

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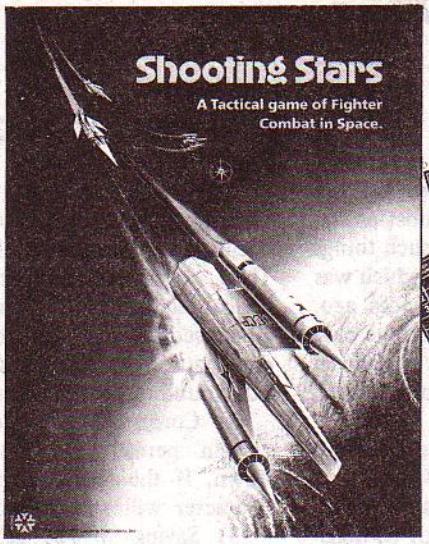

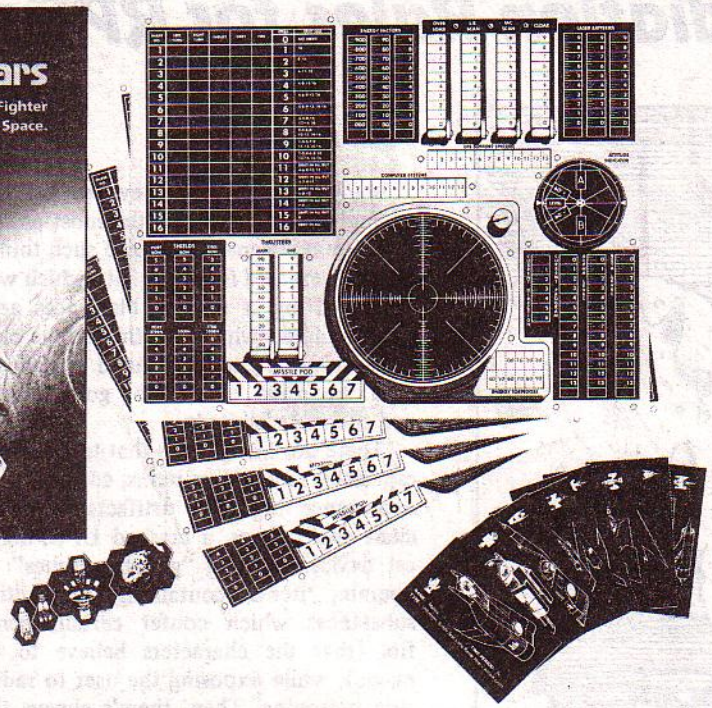

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Number of Players: Two to Four

Average Playing Time: Thirty minutes to three hours depending on scenario.

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Beware the Uranium Dragon!

Radiation Rules for RPGs

by Kevin and Ronald Pehr

Many fantasy game devotees eschew technology but some of the most enjoyable fantasy scenarios involve such things as explorers in a forgotten city which was destroyed by a nuclear blast ages ago, future soldiers who come through ye olde time warp, or finding a hand grenade in with the usual treasure of gold, jewels, and enchanted swords.

There are many ways that technology, especially radioactive items, can make an appearance in D&D: artifacts from ancient civilizations, a crashed UFO, magical devices needing "glowing stones" to operate, items containing radioactive substances which confer certain benefits (that the characters believe to be magic), while exposing the user to radiation poisoning. Then, there's always the Uranium Dragon; glows in the dark and breathes gamma rays!

Radiation has different effects, and different types may produce different symptoms. For game purposes, allow that all radiation from all sources available produces similar symptoms which vary only with dosage received. Radiation dosage is quantified as RADs (Radiation Absorbed Dosage). Powerful radioactive objects produce more RADs in a shorter time; effects are always cumulative. There are three major types of trauma which occur when someone is exposed to radiation:

Hematological damage destroys blood cells and causes fatigue, bleeding, and susceptibility to infection.

1) Increase in bleeding and breakdown of body tissues means that extra damage occurs from any other injury suffered. Thus, a character receiving 20% hematological damage applies that percentage to all subsequent injuries: a hit doing 10 pts. damage does +2 damage since 2 is 20% of 10. Round up all fractions.

2) Constitution is diminished by a certain percentage. Round percentages down. If the result is less than one the character will still lose one CON point.

3) Saving throws against poison or death are increased by the indicated percentage, with a minimum increase of one.

4) Healing time is retarded by the indicated percentage.

Gastrointestinal damage (GI) causes intractable nausea, vomiting, and diarrhea. GI effects occur whenever the affected character does anything besides resting quietly, the sudden onset of nausea making activites other than falling down in pain impossible. Roll for the indicated percentage of GI effects whenever a character attempts to do something, or on an hourly basis.

Central Nervous System (CNS) damage occurs after massive radiation exposure. Barring magical or divine intervention, or technological decontamination procedures, the character will die.

The following chart of percentage effects of radiation assumes a human. Larger creatures need proportionally more radiation to produce the indicated effects.

Radiation Sources

Obviously, the larger the object, the more radiation it can emit. Nuclear power sources are well-shielded, but presuming the devices have been tampered with, the shielding has been cracked, or characters find a part from a broken machine, the following might apply:

A wristwatch or flashlight battery would emit 1 RAD per hour.

A raygun or radio would emit 5 RADs per hour.

Power mining tools, an emergency survival generator, or a Moon-rover type vehicle would emit 100 RADs per hour.

A tank or land speedster would emit 400 RADs per hour, an aircraft 1000, and a UFO 5000.

The blast from an atomic pistol would cause 2-12 points of normal damage plus exposing the victim to 200 RADs, an atomic rifle causes twice as much damage and radiation, a vehicle mounted weapon four times as much.

Every breath of the Uranium Dragon does 10 RADs per hit point of the Dragon. Range and size of the radiation beam is as for a lightning-type breath weapon.

	Hematological Effects*		GI Effects		CNS Effects
RADs	*% effect*	*Days to onset*	*% Chance*	*Days to onset*	
400	10%	8	None	–	None
600	20%	6	None	–	None
800	30%	4	5%	5	None
1000	40%	3	10%	4	None
1400	50%	3	15%	3	None
1800	60%	3	20%	2	None
2200	70%	3	25%	2	**
2600	70%	3	25%	2	Die in 1 week
3000	70%	2	30%	1	Die in 3 days
6000	70%	Immediate	50%	Immediate	Die in 1 day

*Percentages given are not *chance* of damage but *amount*. Any character receiving a given dosage of radiation will take the damage shown.

**There is a 5% chance of death each time GI effects are suffered.

Number of RADs taken are minimum amounts to suffer the indicated percentages; that is, 990 RADs uses the line for 800, not 1000. However, dosages are cumulative. Two exposures of 400 RADs within 8 days will give the effects of 800 RADs for the second dose.

Characters who survive radiation poisoning may recover from its effects. Reduce the percentage effects by 100 RADs/day, after the onset of all symptoms. For example: a character receives 600 RADs. Six days later he will be stricken with hematological damage – the 20% being added to damage, saving throws, healing time, and subtracted from CON. On the seventh day, treat him as suffering 500 RADs (10% hematological damage), on the eight day 400 RADs (10% hematological damage), on the ninth day 300 RADs (no damage).

In addition to the above chart, players who own the *Advanced D&D Dungeon Masters Guide* (DMG) may apply the disease effects from the table on DMG p. 14. If the percentage chance of hematological damage is rolled from the chart in this article, roll on the DMG table for diseases affecting blood and blood-forming organs. Use the percentage chance of GI effects from the above chart as the chance of a gastrointestinal disease, then roll on that section of the DMG table. DMG disease effects are in *addition* to those described in this article.

Maximum age of a character, as determined by the formulae given in the DMG, pp. 12-15, should be reduced by 1 year for each 100 RADs absorbed. This simulates the aging effect and increased chance of developing cancer.

There is no "Save v. Radiation." However, there might be saves against whatever caused the exposure. For instance: a character setting off automated weapons in a long extinct technological center might be allowed save v. death ray to avoid being hit by the ray guns, or a save v. breath might be allowed to avoid the possibility of falling through rotten floorboards, into a pit of lethal nuclear wastes.

Due to its unfamiliar nature (to the D&D characters), radiation is not as susceptible to magical curing as most other forms of damage. The clerical spells, Purify Food & Water and Slow Poison, will have no effect, either on an individual or a contaminated object. Cure Wounds spells, of any strength, are useless against direct radiation damage – although when a character receives extra damage from a normal wound as a result of hematological effects, that damage can be cured. Remove Curse and Dispel Evil cannot affect radiation. Referees may allow Cure Disease and/or Neutralize Poisons to overcome 100 RADs per level of the cleric casting the spell.

A character who dies from radiation may be revived by Raise Dead; however, only 100 RADs per level of the cleric casting the spell are dissipated. If this would still result in the character having a lethal amount of radiation, the Raise Dead should not be performed until the RADs in the body have decreased naturally, at the rate of 100 RADs/day. The Resurrection Spell revives a character slain by radiation, automatically dissipating all effects.

The only Magic-User spells which can counter radiation are the Wish and Limited Wish. Since Reincarnation gives the character a totally new body, this can be done for one who died from radiation.

How much radiation a character may be exposed to will depend on the general amount of destruction present in the referee's campaign. For example, if you have a city which was destroyed by atomic bombs – and which has explorable dungeons beneath – and characters are low-level, the radioactive ruins might expose them to 25 RADs/hour, while if the characters are high-level and the referee habitually makes their lives dangerous, the ruins might emit 200 RADs/hour.

The sun hangs low on the horizon illuminating the ruins of civilization with a bloody light. Is it the sunset of the earth or the sunrise of a brave new world? You can decide as you boldly stride the rubble strewn streets of the

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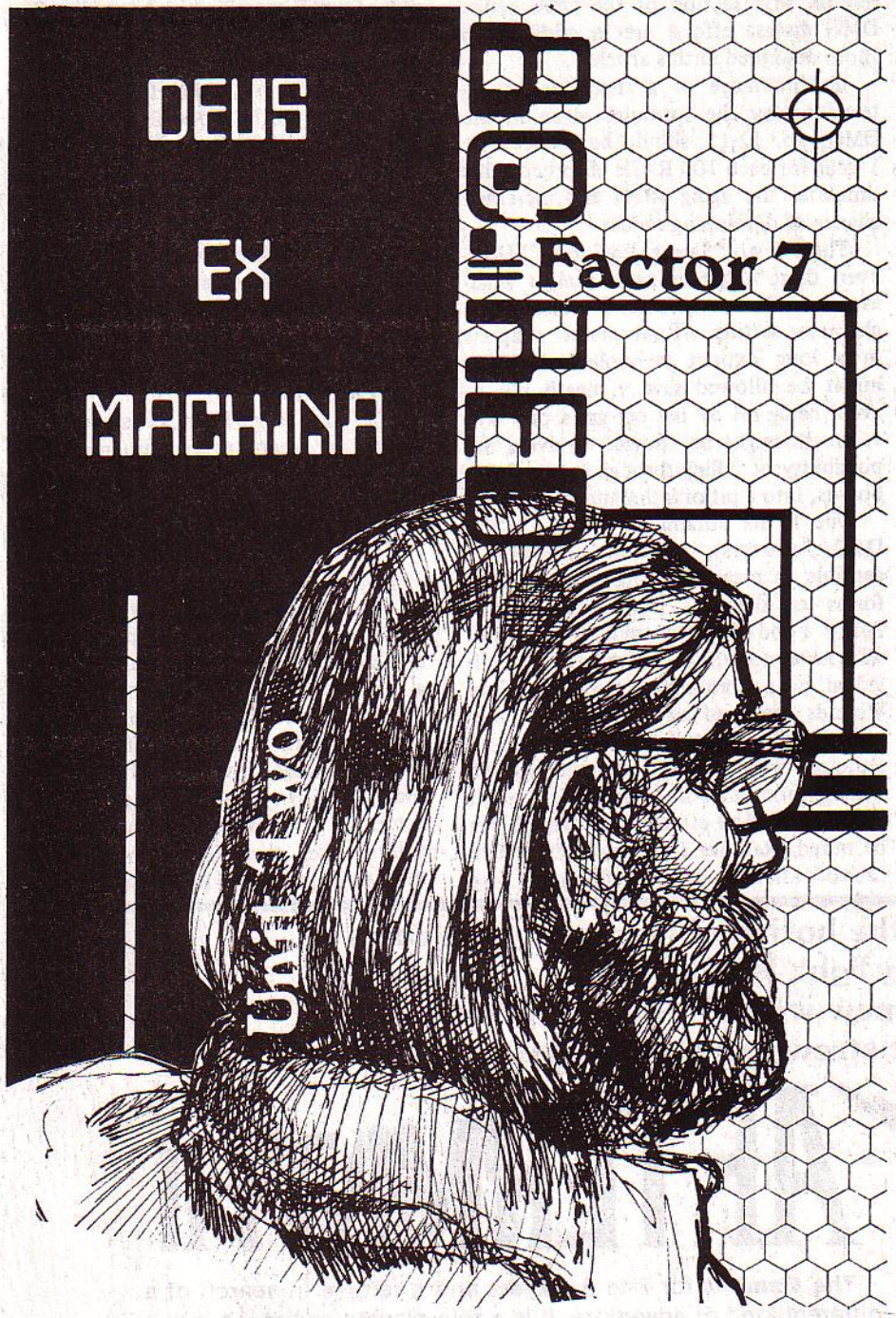

SELECTING A COMPUTER

This month's column is by John Strohm, a professional programmer.

* * *

"Which personal computer should I buy?"

"Well, what do you want to do with it?"

"Personal accounting . . . word processing . . . GAMES!"

At every convention, you'll hear this conversation over and over again between the gamer who already has a computer and his friend who knows he wants one – but doesn't know where to start. Fortunately, although there are literally dozens of small computers on the market, the logical choices narrow down to only three or four brands (the selection of peripherals is entirely up to you and depends on your exact needs). We'll cover the simpler peripherals first, and then talk about brand names.

First off, to do word processing, you will need to buy the basic machine, *and* memory expansion, *and* a disk drive (preferably two) *and* a good printer. The basic machine isn't bad. The disks will hurt a little, and a good printer will hurt a *LOT*. Personal accounting is not nearly as demanding, but you will still want a printer, and most of the available software really would prefer to talk to disks. Besides you'll want the disk drives and printer eventually anyway. For gaming, on the other hand, you can do reasonably well with just an entry-level machine . . . maybe with one extra disk drive.

The most common entry-level machines are the Tandy TRS-80 Model III, the Apple II Plus, the Atari 800, and the TI-99/4. All come standard with 16,384 bytes of programmable memory (16K RAM is the technical term), a keyboard, BASIC language built-in, and a cassette recorder interface. All but one must be connected to a video monitor, or to a television set through an RF modulator (the TRS-80 is the exception). All have some graphics capability, and all are expandable.

TRS-80 Model III

The TRS-80 Model III is an enclosed unit, containing keyboard, video display, and computer, and it connects to almost any cassette recorder. The unit uses a Z-80 processor with 16K RAM and runs Tandy's Level II Basic. The display is black and white: 16 lines by 64 characters text, 128 x 48 dots graphics. There is no provision for sound effects, although several programs get sound effects through the cassette interface. The Model III contains provision for internal expansion (as opposed to extra cabinets and cable nightmares) to 48K RAM and two minifloppy drives.

The design is based upon the original TRS-80 design, and many of the original shortcomings are still there. My biggest complaints are with the keyboard layout and the strange screen size (I grew up with 24 x 80 and a full ASCII keyboard). The Model III is advertised as upward compatible from the Model I, meaning that programs which run on the Model I will run on the Model III. In actual fact, it's not quite so easy. The compatibility covers the keyboard and display: the Model III can read Model I tapes, but not write them. Transporting disk-based programs is somewhere between difficult and nearly impossible: the Model III (standard from Tandy) cannot write a diskette to be read by a

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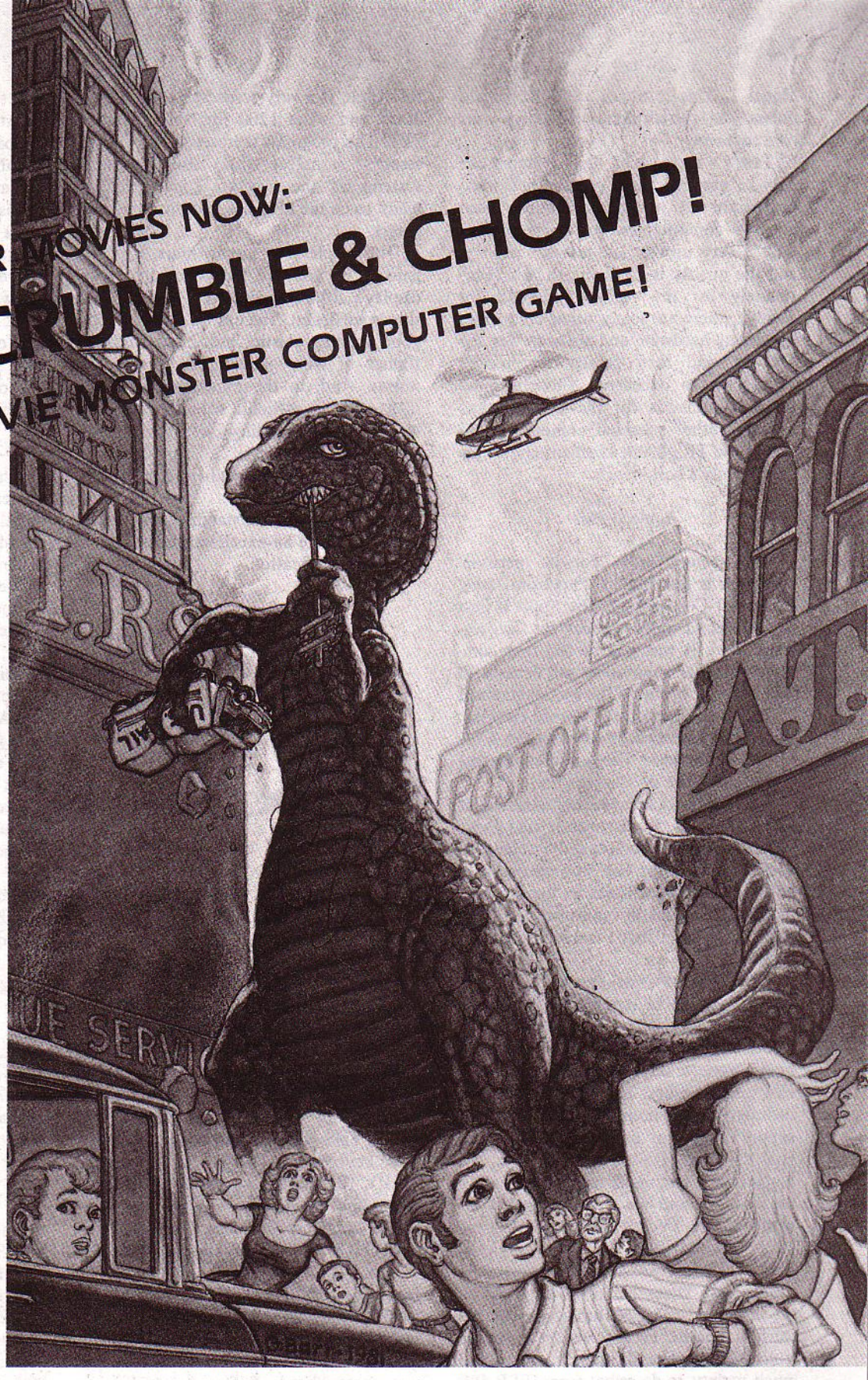

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EPYX

Model I. This is not a serious problem unless you contemplate marketing your own software.

Tandy's support of their systems can only be described as abysmal. Their salespeople are not trained in computers, even at their computer centers. They market only a very meager amount of software, and the quality is mediocre to poor. Fortunately for the rest of us (and for Tandy), there are many other companies marketing hardware and software for the TRS-80, and *their* quality is typically very good to excellent. There is more software available for the TRS-80 than for any other personal computer. This makes the TRS-80 an excellent choice despite Tandy's best efforts.

Apple II Plus

The second most popular personal computer is the Apple II Plus from Apple Computer Corporation. The Apple II Plus is the second most popular for two reasons. First, it was one of the first complete personal computers out. Second, it was and still is one of the best-engineered units on the market. *(Personal opinion: the Apple II Plus is second to the TRS-80 ONLY because Tandy has marketing like nobody else in the business.)*

The Apple II Plus is the brainchild of Steve Wozniak. Rumor has it that Steve Wozniak was once employed by Hewlett-Packard, and I for one find this easy to believe: the Apple II shows the absolute dedication to quality and unswerving attention to detail that I associate with HP products.

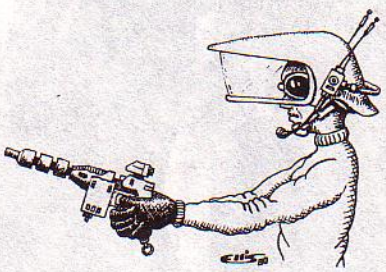
All adjectives aside, the Apple II is an excellent piece of equipment. The basic unit uses an MOS Technology 6502 processor, and comes with *16K* RAM, keyboard, cassette interface *and* provision for two game paddles. The Apple II does not include a video monitor: you must either supply your own or use a color TV set and RF modulator. Color? Oh, yes, the Apple does *vivid* color graphics. (You can use a black and white set, though.) Because of the TV set, the Apple only has 24 x 40 text display.

The Apple II provides eight expansion connectors. These connectors are inside the case, and the case has room for expansion boards. Peripherals are available from both Apple and others in almost too much variety to describe: from IEEE-488 interfaces (for industrial control) through lower-case and 80-column boards (for word processing) to concert-quality music generation boards.

Software is also easily available; a recent survey showed some 5000 different programs available for the TRS-80, with the Apple II a very respectable second at 3000, and some 1200 for Commodore's PET. The programs themselves are widely assorted in nature, from heavy business systems all the way to *Zork* (said by many to be the ultimate "adventure" program).

The Apple II is not without its problems. I do *not* like the 40 column text display, although in many applications this is sufficient. The case is an extremely good quality plastic, but I keep having flashes of worry about RFI (electronic noise). And, in the minor-detail-department, 'D' is difficult to tell from 'O', leading to the standing joke: "Akalabeth, world of Ooooom . . ." (Apologies to Lord British *et al*: Akalabeth is an excellent game.)

The above notwithstanding, the Apple II would make an excellent choice for almost any application.



T. I. 99/4

On the subject of the Texas Instruments 99/4, *FORGET IT.* This machine is a Grade AAA *loser.* It is a perfect example of how to start with an excellent idea and screw it up from one end to the other.

The TI-99/4 uses the most advanced processor of any personal computer: a 16-bit TMS 9908. That doesn't save it. The keyboard feels like a calculator (bad!). The display is 16 lines by 32 characters/line. The display *can* do low-resolution graphics. Since the 99/4 uses the TMS 9918 video chip, you should be able to do high-resolution graphics, but in fact, you can't. The video itself is extremely unstable: the colors shift sickeningly as you watch the display. Peripherals that have been advertised by TI have not materialized. Software which was promised *simply isn't there.*

Atari 400 and 800

Atari is best known for their excellent video arcade games. They also build a personal computer, the Atari 800. (In point of fact, they build two: the Atari 400 and the Atari 800. The Atari 400 uses a mat keyboard and is considerably less expandable than the 800, but otherwise they are essentially identical.) The Atari 800 uses a 6502 processor, and, as usual, comes standard with 16K RAM and a cassette recorder interface.

The first thing I noticed about this unit was the physical package. The case is plastic. Immediately inside the plastic is a cage of cast aluminum, and all of the cover plates are lined with sheet metal. Someone told the designer about RFI, and he must have said something like, "Not from MY machine!" The case is safety-interlocked: open a cover plate and the system switches off. [This is an excellent feature: it makes it impossible to pull something out without powering the system off (one of the easy ways to fry digital hardware).]

The Atari display, like the Apple II, is 24 lines by 40 characters/line text, and high-resolution graphics: 320 x 192. Again, the limit comes from the TV set: a typical TV cannot display 80 or 60 character lines without some smearing. The Atari 800 keyboard is excellent: it *feels* good. The display itself was very clear and easily readable. The machine chirps the speaker every time a key is pressed, which bothered me at first, but I got used to it.

The Atari's biggest (and probably only) drawback at this point is that it is too new: there is not very much software available for it YET. I confidently expect this to change, and it may be doing so already. I certainly couldn't find anything wrong with the hardware, except for that pesky 24 x 40 display.

FLASH! IBM has just announced their personal computer. Prices are steep but (pending more information) possibly not all **that** *steep. This is one to look hard at, and keep an eye on.*

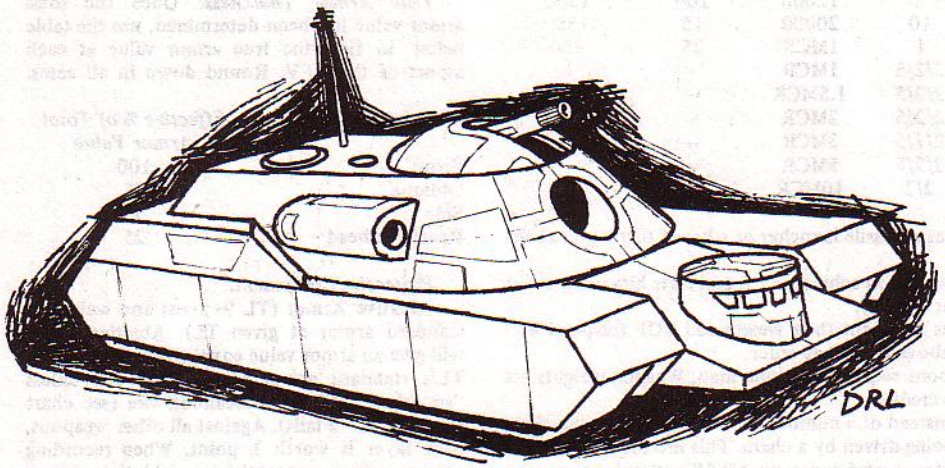
Recommendations

The best overall choice is probably the TRS-80 Model III, because of the amount of software available. Admittedly, it has no color, and only limited graphics, but you can do a lot with *just* letters and numbers.

Second choice would be the Apple II Plus, again because of the amount of software available. To me, the graphics here don't quite overcome the TV set limits.

If you don't mind the lack of available software, and plan instead on writing your own, the Atari 800 is also an excellent bet. This one will get better as more software comes out.

ARMORED FIGHTING VEHICLES IN TRAVELLER



by Donald Gallagher and William Barton

Rules for designing, purchasing, and using tanks, hovercraft, and other armored fighting vehicles in the universe of *Traveller*

Sources of miniature tanks, robots, and other futuristic vehicles suitable for use with these rules include:

Citadel (Box 12352, Cincinnati, OH 45212)
Grenadier (Box 305, Springfield, PA 19064)
Johansen Miniatures (56 Snow Crystal Rd., Naugatuck, CT 06770)
Martian Metals (Box 778, Cedar Park, TX 78613)
Superior Models (Box 99, Claymont, DE 19703)
T-Rex (3618 Dexter, Ft. Worth, TX 76107)

A good source of modern and historical armor miniatures suitable for conversion as science fiction vehicles:

GHQ (2634 Bryant Ave. South, Minneapolis, MN 55408)

Check at your local hobby shop, or write to the manufacturers for more information.

Armored fighting vehicles (AFVs) are the backbone of most high-tech ground forces. AFVs can range in sophistication from the early TL-6 tracklayers through the TL-9 air-cushion hovertank, up to the TL-15 suborbital gunships. Prices will rise sharply as sophistication increases. Since no standard designs currently exist, AFVs must be designed using a procedure similar to that used to design a starship.

DESIGN CHECKLIST.

1. Determine mission for which AFV is intended.
2. Determine following characteristics:
   - A. Vehicle size category;
   - B. Suspension/propulsion system;
   - C. Main weapon;
   - D. Secondary weapon(s);
   - E. Armor and/or protective gear;
   - F. Fire control computer;
   - G. Size of power plant;
   - H. Sensors, communications gear and any special modifications;
   - I. Crew;
   - J. Vehicle movement rate (based on size, suspension, and terrain).
3. Determine final weight and cost of all components; revise as needed.
4. Record final specifications and cost of vehicle.

Charts presented later will contain the specific data needed to work through this checklist.

CHART I: SIZE CATEGORY.

These size categories serve to give a general indication of the AFV's intended role in combat, as well as to help determine the vehicle's speed with various types of suspension and propulsion systems in different terrain. All AFVs must fit into one of the size categories given. All weights are given in metric tons.

Light (5-20 tons) Hull cost = 1000 CR/ton
Light Medium (21-40 tons)
Heavy Medium (41-60 tons)
Heavy (61-100 tons)
Very Heavy (101-150 tons)
Super Heavy (151-200 tons)

CHART II: SUSPENSION/PROPULSION SYSTEMS.

The types of supension listed here are those used for AFVs at various TLs from 6 to 15. Under each system is listed its TL of introduction, cost per ton, percentage of AFV weight required to utilize the system, and any restrictions on the use of the system. In addition to the tonnage needed for the system itself, an appropriate sized power plant must be provided (see chart VII).

Wheels (TL 6+): requires tonnage equal to 15% of total weight. No vehicles of category Heavy or larger may use wheels. Cost = 1000 CR/ton.

Tracks (TL 6+): requires tonnage equal to 20% of total weight. No vehicles of category Very Heavy or larger may use tracks. Cost = 1500 CR/ton.

Air Cushion (TL 9+): requires tonnage equal to 30% of total weight. Cost = 2000 CR/ton.

Anti-Gravity (TL 10+): requires tonnage equal to 10% of total weight. Cost = 2500 CR/ton.

MAIN WEAPONS CHART

Weapon	*TL*	*Weight*	*ROF*	*Cost*	*Ammo Wt.*	*Ammo Cost*
Light Turret Gun	6+	1	8	5000	6	50
Medium Turret Gun	6+	2	6	10000	15	75
Heavy Turret Gun	6+	2.5	4	20000	20	100
HVAP Smoothbore	7+	3	4	30000	20	150
Gun/Missile Launcher	7+	3	–	35000	–	–
Missile Launcher	7+	1	1	10000	20	1000
* Anti-Armor Chain Gun	8+	.5	2	12000	100	1500
Mass Driver Gun	12+	10	10	20000	15	35
* Laser/Autocannon	9+	2	1	1MCR	25	250
* Plasma A Gun	10+	4/2/.5	2/2/5	1MCR	–	–
* Plasma B Gun	11+	4/2/.5	2/2/5	1.5MCR	–	–
* Plasma C Gun	12+	4/2/.5	2/2/5	2MCR	–	–
* Fusion X Gun	12+	4/2/.5	2/2/5	3MCR	–	–
* Fusion Y Gun	13+	4/2/.5	2/2/5	5MCR	–	–
* Fusion Z Gun	14+	4/2	2/2	10MCR	–	–

Notes: Gun/Missile Launcher may be used either as a missile launcher or a heavy turret gun at the firer's option.

Laser/Autocannon are mounted coaxially. If autocannon achieves a hit and laser hits same target in that round, ignore 1 layer of target's ablative armor (if any).

Multiple numbers under the high energy weapons represent their weight and ROF (respectively) at the TL of introduction, 1 TL above it, and 2 TLs above it, in that order.

Most weapons require 2-man crews; starred weapons require only one man. Weapon weights are given in metric tons; ammo weight, mkg. Costs are in credits.

A chain gun is an evolution of the autocannon. Instead of a number of rotating barrels, the chain gun uses a number of fixed barrels with the action being driven by a chain. This increases the rate of fire and the size of the projectiles thrown. Chain guns are used today on AH-1S antitank helicopters (30mm), A-10A attack planes (also 30mm), and on the M-2 infantry fighting vehicles (25mm). The weapons fire depleted uranium rounds that give these small-caliber weapons very great lethality against armored vehicles. The major drawback is their high consumption of ammunition (which the weapons chart reflects).

CHART III: MAIN WEAPONS.

This chart will list the weapons available for use as the vehicle's major source of firepower. Only one main weapon may be mounted; it is assumed that this weapon is carried in a fully rotating turret unless the AFV is constructed using nonturreted configuration (see chart VIII).

CHART IV: SECONDARY ARMAMENT.

Option 1: Up to 2 of the following, in any combination, may be mounted on the AFV's turret, assuming that adequate crewmen are provided: Light Machinegun, RAM Auto-Grenade Launcher (pintle-mounted), PGMP-14 or FGMP-15.

Option 2: Up to 2 of the following, in any combination, may be placed in a secondary turret (weighing 1 ton per weapon installed and requiring 1 crewman; power plant tonnage must also be provided): Autocannon, VRF Gauss Gun, RAM Auto-Grenade Launcher.

Option 3: Vehicles mounting either a Laser/Autocannon or an Anti-Armor Chain Gun as main armament may carry up to 2 fixed-round tac missiles (ie., one missile *only* in each; weight and price as the standard missile launcher) in lieu of any secondary weapons.

Notes: Vehicles of categories Very Heavy and Super Heavy may take both Options 1 and 2, if desired, due to their immense size. Weapons taken under Option 1 can be specified as internally-operated; this will increase the cost by 1000 CR per weapon so specified. They may still be fired while unbuttoned, but the gunner will receive no armor protection while doing so.

See *Mercenary* for cost and weight of secondary weapons.

CHART V: ARMOR AND PROTECTIVE EQUIPMENT.

This chart is divided into two sections (as the heading implies). Protective gear is explained item by item. To armor a vehicle, the designer will decide how many layers of armor will be fitted. Each layer of armor is rated for the amount of armor points it is worth and the percentage of the AFV's total weight that one layer will take up. The AFV's total armor factor is obtained by adding up the points of armor that each layer provides.

In the case of armor sloping, these options represent more advanced slope designs that effectively increase the AFV's resistance to damage. Effective weight represents the amount of interior space lost due to the armor layout; cost is calculated from the base cost of the armor installed. The effect of sloping is to add a set number of points to the armor value of each layer of armor carried. True armor thickness is a representation of the real thickness of armor at various points on the vehicle (the total value represents the value of armor on the most heavily protected parts of the AFV – its front plate and turret front; the table for true value will show the real thickness of armor at other points on the vehicle).

The maximum number of layers of armor an AFV may carry is equal to its TL.

Advanced Armor Sloping (TL 7+): Adds 2 points to the armor factor of each layer installed (excepting ablative armor). Effective weight = 5% of total vehicle weight (regardless of number of layers of armor); cost = 25% of cost of armor installed.

Very Advanced Armor Sloping (TL 8+): Adds 3 points to the armor factor of each layer installed (excepting ablative armor). Effective weight = 10% of total vehicle weight (regardless of number of layers of armor); cost = 50% of cost of armor installed.

True Armor Thickness: Once the total armor value has been determined, use the table below to find the true armor value at each aspect of the AFV. Round down in all cases.

Target Aspect	*Effective % of Total Armor Value*
Front	100
Oblique	75
Side	50
Rear/Overhead	25

Protective Equipment:

Ablative Armor (TL 9+; cost and weight as standard armor at given TL). Ablative armor will give an armor value equal to twice the given TL's standard armor against laser fire unless "scrubbed off" by autocannon fire (see chart III notes for details). Against all other weapons, each layer is worth 1 point. When recording armor values, parenthesize ablative armor points to avoid confusion with standard armor points.

Anti-Laser Aerosol Ejectors (TL 6+; monochromatic spray available at TL 9+, prismatic spray at TL 10+; cost = 2500 CR + 10 per spray round). If monochromatic spray is used, no TL 8 lasers may designate, TL 9 lasers lose 50% of their penetration value, and TL 10+ lasers are unaffected. If prismatic spray is used, all lasers are ineffective. One spray round will protect the vehicle for 4 full turns if stationary or 1 turn if moving. Weight = 50 Kg. At TLs 6-8, this item is used as a smoke discharger (cost = same; weight 1 Kg. per round carried, to a maximum of 10). Smoke rounds are affixed to the AFV and fired via wires leading into the hull. They are simple fixed-round cannisters, and thus don't need a launching device.

Anti-Laser Reflective Paint (TL 12+; cost = 1500 CR per ton of AFV so painted). Lasers are ineffective against a vehicle so painted.

Directional Mine Strips (TL 12+; each strip installed will weigh 1% of total AFV weight; cost = 2000 CR per ton installed, 500 CR to reload 1 strip. Fire control computer MK. 4 or better required for use). All projectiles fired at the vehicle excepting those fired by chain guns or autocannon, or infantry small arms) receive a negative DM of [number of strips fired + (computer factor-4)] when rolling to hit. Hostile infantry coming within 500 meters of a vehicle so equipped will be attacked with the equivalent of a RAM HE grenade (per man, up to a maximum of 1 squad per strip fired) for each strip fired. The vehicle commander must keep track of strips expended; they may only be fired once each.

TL Available	*Points Per Layer*	*% of Total Weight Per Layer*	*Cost Per Ton*
6, 7	6	10	10000 CR
8, 9	8	8	12000 CR
10, 11	10	5	12000 CR
12, 13	12	4	8000 CR
14, 15	12	3	5000 CR

CHART VI: FIRE CONTROL COMPUTERS.

Vehicles of TLs 6-7 may not incorporate FC computers. It is not required to incorporate a FC computer (unless otherwise noted), but it is highly advisable to do so.

Computer Model	*TL*	*Weight*	*Price*
MK. 1	8+	1 ton	.2 MCR
MK. 2	8+	1 ton	.9 MCR
MK. 3	9+	2 tons	1.8 MCR
MK. 4	10+	2 tons	3 MCR
MK. 5	11+	3 tons	4.5 MCR
MK. 6	12+	4 tons	5.5 MCR
MK. 7	13+	5 tons	8 MCR
MK. 8	14+	6 tons	11 MCR
MK. 9	15	7 tons	20 MCR

CHART VII: VEHICLE POWER PLANTS.

To determine the required power plant tonnage, add together the amounts shown below to find the percentage of the AFV's total weight that must be allocated to the power plant. In the case of the plant tonnage needed to run the suspension/propulsion, the tonnage may be doubled to allow movement at the speed of the next lighter category. This may only be done once; in no case can less than the minimum tonnage be fitted.

System	*% of Total Weight for Power Plant*
Wheels	6
Tracks	8
Air-Cushion	10
Anti-Gravity	12
Laser/AutoCannon	2
Plasma Gun	3
Fusion Gun	4
Mass Driver Gun	4
Main Turret, Computer, Commo Gear, Sensors (all)	1
Secondary Turret	1

Power plant cost = 100000 CR/ton

CHART VIII: ADDITIONAL EQUIPMENT AND MODIFICATIONS.

As shown, Sensors are essentially of two types – surveillance and weapons-direction – although certain sensors may be used for both purposes. Modifications are fully described on the chart.

Sensors:

Passive IR (TL 6+, 2000 CR, 10 Kg)

Active IR (TL 7+, 3000 CR, 15 Kg –includes Passive IR functions.)

Light Intensification Viewer (TL 8+, 2000 CR, 10 Kg)

Laser Designator/Rangefinder (TL 8+, 5000 CR, 20 Kg)

Tactical Ladar (TL 10+, 8000 CR, 15 Kg)

Doppler Radar (TL 8+, 5000 CR, 50 Kg)

Tactical Radar (TL 9+, 10000 CR, 20 Kg)

Tactical Magnetoscope (TL 12+, 10000 CR, 20 Kg)

Echo Sounder (TL 10+, 12000 CR, 40 Kg)

Extensor Pod (TL 10+, 50 Kg. Pod can hold up to 150 Kg of sensor gear, and can be elevated to allow sensing while vehicle is in full defilade. Cost = 10000 CR + 100 CR per ton of sensor gear installed.)

Communications:

Short-Range Radio (TL 6+, 100 CR, 1 Kg-multiband version, 200 CR)

Medium-Range Radio (TL 6+, 200 CR, 2 Kg-multiband version, 400 CR)

Long-Range Radio (TL 7+, 500 CR, 4 Kg-multiband version, 1000 CR)

Counter-ECM Unit (TL 7+, 3000 CR, 2 Kg)

Laser-com Unit (TL 9+, 150000 CR, 50 Kg)

Modifications:

Atmospheric Streamlining (TL 9+, grav vehicles only; cost 100 CR per ton of vehicle. Required for suborbital flight.)

Pressurized Hull (TL 9+, grav vehicles only; 1 ton for life-support system, cost = 50000 CR, Required for suborbital flight; will serve as NBC protection.)

*NBC Shields/Overpressure System (TL 7+, cost = 20000 CR. When used in combination with NBC suits, provides protection against nuclear fallout/radiation, biological and chemical agents. Will not allow suborbital flight.)

Battle Display Unit (TL 9+; consists of a special battle computer interfaced with a map box: cost = 102500 CR, 25 Kg.)

Infantry Firing Ports (TL 7+, cost = 1000 CR per port; 5000 CR per port is in combination with NBC shields or a pressurized hull. Ports may be provided at 1 per ½ ton of crew compartment. They allow small-arms fire from within the vehicles, thus affording armor protection to the firers. If used, they will breach the pressure integrity of the vehicle.)

Non-Turreted Configuration: Normally, AFVs carry their main weapon in a fully rotating turret. At the designer's option, an AFV may be designed in a nonturreted configuration. The effects are as follows: the AFV is assumed to employ Advanced Armor Sloping at no cost or weight. Note that, in this case only, additional armor sloping may be added to this intrinsic sloping and this vehicle will receive the cumulative bonus. The main weapon is severely restricted in its arc of fire (see the combat rules for details), and such vehicles may never assume hull defilade. In all other respects, they are identical to other AFVs.

Open-Topped Vehicles: With this modification, all noncrew members may use small arms from within the vehicle without recourse to firing ports. The vehicle receives no armor value for top, and modifications involving a sealed hull may not be performed.

AA Vehicles: Aircraft or grav vehicles engaging in flight at any altitude other than NOE may only be engaged by secondary weapons fire (due to their height, the main weapon of an AFV cannot be elevated sufficiently to fire at them), unless the firing vehicle has been built as and designated an AA vehicle. Such vehicles must meet the following criteria: weight category must be Light or Light Medium, no more than 1 layer of armor (either standard or ablative) may be carried, and all secondary armament is sacrificed. In exchange, up to 4 of one of the following weapons may be carried on high-angle mountings (weight, power and TL allowing): Chain Gun, Autocannon, Laser/Autocannon, VRF Gauss Gun, Light Machine Gun, Missile Launcher, Plasma or Fusion Guns.

* This is simply a set of gas-tight gaskets for all hatches and other openings into the crew spaces. When the AFV is sealed for operations in an NBC environment, the interior pressure is slightly raised to keep gas or fallout from getting in by use of the engine compressor. Thus, there is no weight for this system, and it is useless for maintaining internal pressure against a lack of external pressure.

CHART IX: CREW.

One-half ton of space must be provided for each of the following:

Tank commander

Driver

One or two gunners for main weapon (see chart III)

One gunner for secondary weapons

Each passenger

CHART X: MOVEMENT RATES IN KPH.

To find the speed at which a vehicle travels, find the suspension system on the left; find the AFV's size category within that general heading, and cross-index this with the terrain type through which the AFV is to travel. The resulting number is the speed (in KPH) at which this type of terrain can be traversed. In the case of grav vehicles, terrain is not a factor; rather, the altitude at which the vehicle is flying is the determining factor. Note that for the purposes of the combat rules, only two altitudes are usable – NOE and Cruising (higher altitudes are only used when well out of the battle area due to air defense weapons).

MOVEMENT RATES IN KPH

		Road	*Cross-Country*	*Rough*	*Mountain*
Wheels:	Light	120	50	20	10
	All Medium	100	30	10	–
Tracks:	Light	70	50	40	30
	All Medium	50	30	30	20
	Heavy	40	20	20	10
Air Cushion:	Light	150	120	100	–
	All Medium	120	100	80	–
	Heavy	100	80	60	–
	Very/Super Heavy	100	80	60	–
		NOE	*Cruising*	*Top Speed*	*Sprint**
Anti-Gravity:	Light	150	300	500	700
	All Medium	120	250	400	600
	Heavy	100	200	350	500
	Very/Super Heavy	100	200	300	400

Terrain Equivalents:

Cross-Country: Clear, Desert, Plains, Beach, Shore.

Rough: Hills, Foothills, Woods, Forest, Jungle, Rain Forest, Marsh, Swamp.

(Terrain types are explained further in *Traveller*.)

* For every turn in which a grav vehicle sprints, it must make a roll on the malfunction table in the Logistics and Maintenance Section. For each time that the AFV fails to make the roll, it loses 10 KPH from both top speed and sprint speed. This simulates the fact that sprinting is pushing the power plant into and beyond the "never exceed" zones, and is likely to impair its performance before too long.

DESIGN EXAMPLES.

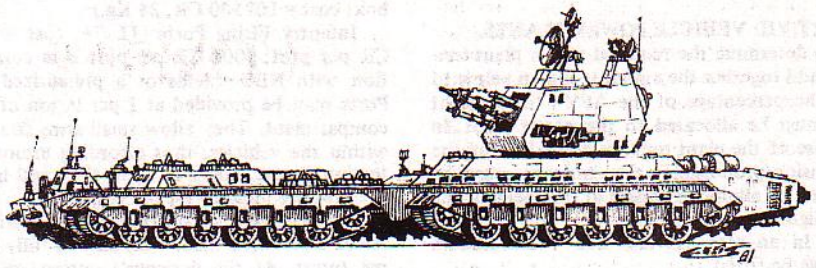
The AFVs that are described in the following pages are presented as examples of how the system works and how the data on a particular vehicle is to be recorded. With this accomplished, one can proceed to the individual combat system (immediately following this section).

M-1 ABRAMS: TL 8

WEIGHT AND CATEGORY: 53 tons, Heavy Medium (53000 CR).
SUSPENSION AND MOVEMENT CATEGORY: Tracks; Light (10.6 tons, 15900 CR).
ARMOR:
NUMBER OF LAYERS: 5 TL 8 (21.2 tons, 254400 CR).
ARMOR SLOPING: Very Advanced (5.3 tons, 127200 CR).
TRUE ARMOR THICKNESSES:
FRONT: 55
OBLIQUE: 41
SIDE: 27
TOP/REAR: 13
PROTECTIVE GEAR: Smoke Dischargers (10 Kg., 2500 CR; 10 rounds, 100 CR).
F.C. COMPUTERS: MK. 2 (1 ton, .9MCR).
WEAPONS:
MAIN: HVAP Smoothbore (3 tons, 30000 CR).
AMMO CARRIED: 40 rounds (.8 ton, 6000 CR).
SECONDARY: 2 LMG (1 on main turret; 1 internally operated. 10.5 Kg., 3500 CR).
AMMO CARRIED: 400 rounds each (20 Kg., 480 CR).
SENSORS: Laser Designator, Active IR, Light Intensification Viewer (Total: 45 Kg., 10000 CR).
COMMUNICATIONS: Medium-Range Radio (multiband), Counter-ECM Unit (4 Kg., 3400 CR).
POWER PLANT: 17% (1% for main turret, computer and sensors; 16% for suspension/propulsion – x2 power; vehicle moves at Light Tracks rate. 9.01 tons, 901000 CR).
MODIFICATIONS: NBC Shields (20000 CR).
CREW: 4 (T.C., Gunner, Loader, Driver); 2 tons crew compartment.
TOTAL COST (BEFORE PRODUCTION): 2,426,480 CR.
NOTES: Earlier version carries Heavy Turret Gun (2.5 tons, 20000 CR) and 65 rounds (1.3 tons, 6500 CR) in lieu of HVAP Smoothbore.

"KIYOSHI" Imperial Grav APC: TL 15

WEIGHT AND CATEGORY: 12 tons; Light (12000 CR).
SUSPENSION AND MOVEMENT CATEGORY: Anti-Gravity; Light (1.2 tons, 3000 CR).
ARMOR:
NUMBER OF LAYERS: 1 TL 15 (.36 tons, 1200 CR).
ARMOR SLOPING: None.
TRUE ARMOR THICKNESSES:
FRONT: 12.
OBLIQUE: 9.
SIDE: 6.
TOP/REAR: 3.
PROTECTIVE GEAR: Anti-Laser Reflective Paint (18000 CR).
F.C. COMPUTER: MK. 2 (1 ton, .9 MCR).
WEAPONS:
MAIN: Fusion Y Gun (.5 ton, 5MCR).
AMMO CARRIED: N.A.
SECONDARY: None.
SENSORS: Tac Ladar, Active IR, Light Intensification Viewer (40 Kg., 13000 CR).
COMMUNICATIONS: Long-Range Radio, Counter-ECM Unit (6 Kg., 4000 CR).
POWER PLANT: 17% (1% for main turret, computer and sensors; 12% for suspension/propulsion; 4% for Fusion Gun. 2.04 tons, 204000 CR).
MODIFICATIONS: Atmospheric Streamlining, Pressurized Hull, 10 Infantry firing ports [Total: 1 ton (life support unit), 101200 CR].
TOTAL COST (BEFORE PRODUCTION): 6,357,600 CR.
NOTES: Very light APC carried aboard Imperial battlecruisers; not intended for use under actual battle conditions.



BASIC SMALL-UNIT COMBAT RULES

SEQUENCE OF PLAY.

Play proceeds in sequential game turns. Each turn consists of a number of phases, in which one, the other, or both of the opposing forces are conducting some activity. Additionally, two interphases occur before and after the action. A detailed explanation of each phase and interphase will be given later.

SEQUENCE OUTLINE.

1: Sighting and Morale Recovery Phase.
2: Side A Movement Phase.
3: Side B Fire Phase.
4: Side B Movement Phase.
5: Side A Fire Phase.
6: Side A Artillery Phase.
7: Side B Artillery Phase.

EXPLANATION OF SEQUENCE.

PRE-BATTLE INTERPHASE: Whenever a battle is to be fought, a number of factors must be determined before the battle begins. These are:

1: Size and composition of opposing forces. This can be done by using the Abstract Battle System or through player interaction on a map.

2: Efficiency Ratings (ERs) of the troops involved. This is determined for units of platoon size or less by using the morale determinant procedure on pg. 29 of *Mercenary*. For larger units, total the manpower (or number of vehicles in a mechanized unit), and add a headquarters section equal to 10% of the number of AFVs in a mech unit, or 5% of the manpower in an infantry unit. The ER for this new higher-echelon unit is equal to the average ER of the subunits (rounding up) plus 2 points. As long as the unit is together on the same battlefield (within 10 moves or 5km of each other, whichever is less, and in radio contact) and the HQ section remains intact, the new ER is used.

3: Terrain. This will have to be laid out by the judge (if any), using the terrain-type descriptions given in *Traveller* as a guide.

4: Situation. If the players are manuevering on a map, the judge will determine the situation at contact. If the A.B.S. is used to generate the action, the opposing forces will deploy as follows: If "Own Attacking," "Own" player (note that which force is "Own" must be determined before all else) will move on-board while "Enemy" force sets up on board. If "Enemy Attacking," reverse the deployments. If "Firefight," both sides will move on-board at the same time; and, if "Surprised," the surprised side must move to within effective range of the other side's on-board position and receive a full round of unopposed fire before beginning the regular turn sequence.

5: Side determination. The Turn Sequence makes reference to Sides A and B when showing whose phase is being conducted at a given time. Side A is the attacking force in any set-piece action, with Side B defending. In a firefight action, the unit(s) having the higher ERs may choose which side it will be.

Once all this has been determined, the battle may begin. Each game turn consists of the following phases, in this order:

1: SIGHTING AND MORALE-RECOVERY PHASE: Both sides attempt to sight enemy units within their arcs of search (either visually,

electronically, or both). Any units of either side that failed their morale checks in either fire phase must now attempt to recover.

2: SIDE A MOVEMENT PHASE: All units of Side A able and willing to do so move now. All vehicle turret traversement is done now as well.

Side A Movement Phase (at end): If Side B has sighted Side A, units may "track" Side A by moving their turrets only at this time, paying the appropriate movement cost. If either side failed to sight the other in that phase, another attempt may be made at this time unless Side A did *not* move. If Side A's Target Sighting Category Key has changed due to movement and Side B had sighted Side A in the Sighting Phase, a new attempt must be made to retain sighting. If Side B loses sight of the enemy due to movement, it loses the bonus to ER for first-fire determination in its fire phase (see below). If Side B gains first-fire anyway, all Side B units must fire with a -2 to hit on first fire, -1 on second fire (after Side A has returned fire) and no further negative DMs to remaining fire (due to lost sighting) in the phase.

3: SIDE B FIRE PHASE: All units of Side B that sighted their targets and are able and willing to fire now designate their targets. First-fire is determined for each pair of engaging units by comparing ERs; since this is Side B's fire phase, all of their units receive a bonus +2 to their ERs for the purpose of first-fire determination in this phase. First-fire is automatically gained by the Side B unit if their target had not sighted them prior to their firing.

Once first-fire has been determined, calculate the ROF ratio between the firing vehicles (see the charts for a further explanation), and resolve each shot. Resolution of fires is as follows: find the weapon firing, and read across to find the range bracket that the target is presently in for that weapon. This will give the basic number that must be equaled or exceeded on 2D6 to hit the target, as well as the weapon's penetration factor at that range. The basic to-hit number may be modified by a number of factors (found on a separate chart). If a hit is achieved, subtract the armor factor of whatever aspect of the target was struck from the weapon's penetration factor; with the resulting number as a modifier, roll 2D6 on the effects chart. This will give the result, if any, of the hit on the target. If the target is not disabled or destroyed by the first-fire shot(s), it may reply at the rate calculated in the ROF ratio. This exchange will continue until one or the other of the contenders has been destroyed or disabled, or until both have fired a number of shots equal to their ROF, in which case there is no effect and play proceeds to the next phase. Note that the full ROF of a vehicle's weapon(s) may be employed, ammunition allowing, in both fire phases. Any casualties on either side may necessitate morale checks (see the charts for a further explanation).

4: SIDE B MOVEMENT PHASE: As Phase 2, but for Side B.

Side B Movement Phase (at end): Side A may "track" with turrets as above – if units have sufficient mps left. Sighting procedure as above with sides reversed.

5: SIDE A FIRE PHASE: As Phase 3, but for Side A.

6: SIDE A ARTILLERY PHASE: All calling, adjusting and firing-for-effect by Side A's artillery is done now; all anti-artillery fire by Side B is done now as well (see the charts for a further explanation).

7: SIDE B ARTILLERY PHASE: As Phase 6, but for Side B. Side A's anti-artillery fire takes place now.

POST-BATTLE INTERPHASE: Once the battle has ended, for whatever reason, both sides must account for the following:

1–Ammunition expended;
2–Casualties, bodily and/or vehicular;
3–Final morale status of all units involved.

ADVANCED COMBAT RULES

USE OF THESE RULES.

These rules are intended for use with miniatures on a terrain board. If desired, however, a square grid may be used to regulate movement. In the event that this is done, 1 square = 1 cm for scale. When moving or firing side-to-side across a square, cost is 1 mp, range is 50 m; when moving/firing diagonally into or across a square, cost is 1½ mp, range is 75 m.

CHART I-GAME SCALE.

1 turn = 30 seconds
1 cm = 50 m
5 kph/speed = 1 movement point (mp)
[50 kph = 10 mps]
1 mp = 50 m/turn

CHART II-MOVEMENT.

BASIC RATE: 1 mp = 1 cm/turn; terrain effects on movement are listed in Part 1.

TURNING:
Up to 45 degrees = No cost
46-90 degrees = -1 mp
91-135 degrees = -2 mp
136-180 degrees = -3 mp
FOR GRAV VEHICLES:
x2 cost if at 51-100 kph, x3 cost if at 101-150 kph, x4 cost if at 151+ kph.

REVERSE MOVEMENT:
½ speed after halting (lose an additional ¼ speed on turn after halting).

POP-UP (Grav and air-cushion vehicles only):
¼ of total mp to lift or drop. Vehicle may only fire ½ ROF if lifting and dropping in same round. Lifting is done in enemy's fire phase, dropping is done in immediately following movement phase after all firing is completed. If vehicle does not drop, it must move at least 1 mp in its movement phase.

SIDE-VECTORING (Grav and air-cushion vehicles only):
After halting, vehicle may side-vector at ¼ speed. Front of vehicle remains in direction that it held when maneuver was begun.

CHART III-SIGHTING.

Sighting can be of two types: visual and electronic. Visual arc of search is 45 degrees to either side of the turret centerline (turret can be traversed up to 90 degrees per movement phase, assuming it is not damaged; turret centerline must be on a facing which is an exact multiple of 45 degrees, with the front center of the hull considered 0/360 degrees). Electronic gear searches the same arc unless it is pod-mounted, in which case pod facing must be specified similarly to turret facing. The only exception to this is the echo sounder; this device will automatically detect any tunnels, underground works or the like within 100 m of the vehicle in all directions.

SIGHTING PROCEDURE:
Find the target's sighting category below; cross-index on the chart with the range to the area being surveyed to give the number that must be equaled or exceeded on 2D6 to sight the target. DMs to the roll are listed below:

TARGET SIGHTING CATEGORY KEY:
INFANTRY, NONVEHICLE-MOUNTED SUPPORT WEAPONS:
Stationary in cover = 1
Stationary in open = 3
Moving in cover = 3
Moving in open = 4

AFVs, VEHICLE-MOUNTED SUPPORT WEAPONS, ARTILLERY:
Stationary in cover = 2
Stationary in open = 4
Moving in cover/grav vehicle flying NOE in rough terrain = 4
Moving in open grav vehicle flying NOE in open = 5
Grav/air-cushion vehicle executing pop-up in last fire phase = 2

NOTE: All target sighting categories are lowered by one at night, in smoke or in poor weather conditions. Therefore, a target in category 3 is category 2 at night.

SIGHTING ROLLS DMs:
DAYLIGHT/CLEAR WEATHER:
Target fired energy weapon or TL7 Tac Missile last round = +4
Target fired last round = +2
Within 2cm of at least 2 more targets = +2
Target vehicles Very Heavy or Super Heavy = +1
Alerted to presence of enemy by friendly units that have sighted = +1
Sighting AFV unbuttoned or open-topped = 0
Buttoned-up AFV observing to front = -2

SIGHTING CHART

Sighting category of target	*0-5*	*6-10*	*11-30*	*31-60*	*61+*	*(Range in CM)*
1	6+	8+	10+	12+	–	
2	4+	6+	8+	10+	12+	
3	2+	4+	6+	8+	10+	
4	A	2+	4+	6+	8+	
5	A	A	2+	4+	6+	

Buttoned-up AFV observing to flank or rear = -4

ELECTRONIC SIGHTING (AT NIGHT, THROUGH SMOKE OR WEATHER CONDITIONS):

Using Active IR = +2 at night, +1 smoke/weather.

Using Passive IR (or Active IR in passive mode) = +1 at night or smoke/weather; +4 if enemy using Active IR.

Using Light Intensification Viewer = +2 smoke/weather; +1 at night (clear sky).

Using Tactical Magnetoscope = +4 if target is AFV or artillery; +2 if target is infantry equipped with Combat or Battle Armor; +1 for all other targets of TL 6 or above.

CHART IV-DIRECT FIRE.

SHOT RATIO:

Once first-firer has been determined, a ROF ratio must be calculated between all firing vehicles. This represents the relative speed at which shots are exchanged in a firing phase. The slower ROF is used as the divisor of the faster ROF; all fractional amounts must be moved to a later impulse. Sequential fire and return fire at the calculated rate will continue until one or the other of the contenders is destroyed or disabled, or both have fired a number of shots equal to their ROF. If the former, the victor will cease fire at the moment of target destruction/disablement unless specifically ordered otherwise – if the latter, both sides are unaffected and play proceeds to the next phase. Some examples of the shot ratio procedure follow:

A = ROF 3 (first fire)
B = ROF 5
RATIO = A1, B1; A1, B2; A1, B2.

A = ROF 10 (first fire)
B = ROF 4
RATIO = A2, B1; A3, B1; A2, B1; A3, B1.

A = ROF 1 (first fire)
B = ROF 4
RATIO = A1, B4.

A = ROF 4 (first fire)
B = ROF 1
RATIO = A2, B1; A2, B0.

TARGET ENGAGEMENT:

At TL 8+, vehicles may engage a number of targets equal to their main weapon's ROF or their F.C. computer's factor, whichever is less. Doctrine advises against it, but if multiple engagement is undertaken, the procedure is as follows: the first-firing vehicle (only!) designates its targets and the number of shots to be fired at each. The ROF ratios are calculated on the basis of this new number versus the target's full ROF. The engagement must be finished between the first-firing vehicle and each of its targets before firing at the next; any shots that were to be fired at a vehicle that is knocked out before they are fired are lost. If the first-firing vehicle itself is knocked out, any targets yet unengaged are unaffected. An example of this procedure follows:

A = ROF 10 (first fire); MK. 4, F.C. Computer
B1, B2, B3, B4 = all ROF 4
A fires 2 shots each at B1 through B3, and shots at B4 (total 4 targets)
RATIOS:
A-1, B1-2; A-1, B1-2
A-1, B2-2; A-1, B2-2
A-1, B3-2; A-1, B3-2
A-1, B4-1; A-1, B4-1; A-1, B4-1; A-1, B4-1.

DMs TO HIT:

Speed Differential between Firer and Target:
0-50 kph = 0
51-100 kph = -1
101-150 kph = -2
151+ kph = -3

F.C. Computer in use = + computer factor; if engaging in multitarget fire, divide factor by number of targets engaged (rounding down, to a minimum of +1).

Battle Display Unit in use = +2

Weapons-Direction Sensors in use:
Tac Ladar = +3 (0 if target aerosol-obscured or antilaser painted).
Laser Designator = +1 (same restrictions as above).
Tac Radar = +3 (0 if target is grounded).
Doppler Radar = +2 (same restrictions as above).

Directional Mines in use = -[number of strips fired + (computer factor-4)] against Tac Missile and direct cannon fire; useless against energy fire, "scrubbing" autocannon and chain gun fire, indirect or small arms fire.

Target Jamming (Must have ECM unit) = -3 (against Tac Missiles of TL 7-9); -2 (against Tac Missiles of TL 10-12); -1 (against Tac Missiles of TL 13-15).

Target flying NOE = -1

Target in hull defilade = -2

Target executing popup = -2

Target executing popup and dropdown = -3

Every 100m of target movement spent in LOS of firer = +1 (ignore if target is flying NOE).

EFFECTS CHARTS:

If a hit is achieved on a target, subtract the armor value of the target aspect struck from the penetration value of the firing weapon at the range of engagement. Apply this number as a DM when rolling 1D6 on the chart below. How to determine what aspect of the target has been struck is done as follows:

FRONT is struck when the vehicle's bow is seen to be longer than any other aspect of the vehicle from the firer's position.

OBLIQUE is struck when the vehicle's front and side seem to be of the same length from the firer's position.

SIDE is struck when the vehicle's side is seen to be longer than any other aspect of the vehicle from the firer's position.

REAR is struck when the vehicle's stern is seen to be as long as or longer than the vehicle's side.

TOP is struck only by certain types of artillery ammunition (explained later), or by any weapon fired from above the vehicle by aircraft carrying out plunging attacks (up to the judge to determine availability and type of such aircraft).

DIRECT FIRE WEAPONS DATA CHART

PROCEDURE: Read down to find weapon in use; read across to the range in kilometers, and read up to find the range/accuracy number and penetration factor of the weapon at a given range.

Weapon	*Effective (5+)*	*Long (8+)*	*Extreme (10+)*
Light Turret Gun	.5 km (20)	1 km (15)	2 km (10)
Medium Turret Gun	1 km (30)	1.5 km (25)	3 km (20)
Heavy Turret Gun	1 km (40)	2 km (35)	4 km (30)
HVAP Smoothbore	1.5 km (45)	2.5 km (40)	5 km (35)
TL7 Tac Missile	3 km (40)	–	–
TL8 Tac Missile	3 km (45)	–	–
TL9 Tac Missile	3 km (50)	–	–
TL10 Tac Missile	4 km (55)	–	–
TL11 Tac Missile	4 km (60)	–	–
TL12 Tac Missile	6 km (65)	–	–
TL13 Tac Missile	8 km (70)	–	–
TL14 Tac Missile	10 km (75)	–	–
TL15 Tac Missile	12 km (80)	–	–
Anti-Armor Chain Gun	1 km (40)	1.5 km (35)	3 km (30)
Mass Driver Gun	3 km (50)	5 km (45)	10 km (40)
Laser/Autocannon	1 km (60)	2 km (50)	3 km (40)
Plasma A Gun	2 km (45)	3 km (35)	5 km (25)
Plasma B Gun	3 km (50)	5 km (45)	8 km (40)
Plasma C Gun	5 km (55)	8 km (50)	12 km (45)
Fusion X Gun	8 km (70)	12 km (65)	18 km (60)
Fusion Y Gun	10 km (75)	15 km (70)	21 km (65)
Fusion Z Gun	15 km (80)	22 km (75)	31 km (70)
40 mm RAM HEAP Grenade	.2 km (22)	.4 km (22)	.5 km (22)

Penetration values and ranges for infantry heavy weapons may be found in *Azhanti High Lightning*. Some of those which may be used as secondary weapons are repeated here for convenience. (Note: Most of these weapons are anti-personnel and not designed to penetrate AFV armor. However, see special note on scrubbing ablative armor with autocannons.)

Weapon	*Effective (5+)*	*Long (8+)*	*Extreme (10+)*
AutoCannon (DS)	2250 m (10) +4	4500 m (8) +3	6000 m (4) +1
VRF Gauss Gun	1500 m (8) +9	3000 m (6) +6	4500 m (4) +3
LMG	600 m (3) +4	1200 m (2) +3	1800 m (1) +2
PGMP-12	300 m (10)	600 m (8)	975 m (4)
PGMP-13/14	450 m (12)	900 m (8)	1500 m (4)
FGMP-14/15	450 m (14)	900 m (10)	1500 m (6)

(DM following penetration is DM to hit when weapon firing full automatic.)
Ranges are in meters.

HIT RESULT CHART:

3 or less = No Effect.
4-7 = Light Damage (roll again on Light Damage Table for specific effect).
8-11 = Heavy Damage (roll again on Heavy Damage Table for specific effect).
12 or more = Destroyed.

LIGHT DAMAGE TABLE:

1, 2 = Secondary Weapon Hit (1 secondary weapon of firer's choice is destroyed; if turreted or manned at time of hit, 1 crewman killed and vehicle must take a morale check.)
3 = Exterior System Hit (1 exterior system of firer's choice destroyed – either Laser-Com Unit, 1 round/aerosol or smoke, or 1 directional mine strip.)
4 = Sensor Hit (1 sensor of firer's choice destroyed; if carried in an extensor pod, the entire pod is destroyed.)
5 = Main Turret Damaged (turret traversion speed halved.)
6 = Suspension Damaged (if tracked or wheeled vehicle, immobilized for 1D6 hours of repair time; if air-cushion or grav vehicle, speed halved.)

HEAVY DAMAGE CHART:

1, 2 = Main Turret Destroyed (main weapon and all nonturreted secondary weapons lost, all turret crew killed. Survivors must bail out.)
3, 4 = Severe Suspension Damage (vehicle immobilized for 12D6 hours of repair time once recovered. If grav vehicle in flight receives hit, roll 7+ on 2D6 for a controlled landing; DM -2 if flying above NOE altitude at moment of hit. If unsuccessful, vehicle is destroyed.)
5 = Fighting Compartment Hit (roll below armor factor of aspect hit divided by 10 on 2D6 per crewman or passenger to survive; DM +2 if plasma or fusion gun inflicted hit. Survivors will bail out.)
6 = Power Plant Hit (all power lost. If grav vehicle in flight receives hit, roll for controlled landing as in 3, 4 above. Crew will bail out.)

CHART V-INDIRECT FIRE.

Indirect fire weapons use an entirely different procedure to hit than other weapons, which varies according to the TL of the firing weapon. These weapons are mortars, howitzers, and MRLs; energy weapons, being line-of-sight only, are useless as indirect fire weapons. The battlefield meson gun, although similarly restricted, is covered here as well since it is used as an artillery weapon upon introduction.

Note that all artillery weapons except MRLs and mortars may fire directly if need be; however, they do so with a DM of -3 to hit. All artillery weapons listed in *Mercenary* are immobile and are either man-portable or are provided with prime movers. If a weapon is to be made self-propelled, a carrier must be built around it using the rules for AA Vehicles but incorporating only 1 weapon.

ARTILLERY CALLING AND ADJUSTMENT:

At TLs 6-8:

All calling and adjustment of fires must be performed by an F.O. assigned to a field unit by the battery he is to direct. The sequence of events is as follows: In a given friendly artillery phase, the F.O. sights a target and calls for a ranging round. The round will hit the target on 11+ on 2D6; DM +2 if the target is within any zone that has been preregistered. For every point below 11 that was rolled, the round will fall 50m away from the target in a randomly determined direction (roll 1D6; 1-2 = long, 3 = left, 4 = right, 5-6 = short). In the next friendly artillery phase, the F.O. can adjust the round in any direction up to 50m per point of F.O. skill he possesses, assuming he could sight the round's initial impact point. In the next friendly artillery phase, the F.O. may continue to adjust the round or may call for fire-for-effect on the final target point. If the latter is done, the guns will drop their rounds in a straight line, the direction and length of which is up to the F.O. The fire mission may be aborted at any time voluntarily, ans is automatically aborted if the initial ranging round ever drops out of sight of the F.O. At TL 8, two special rounds become available: the CLGM (Cannon-Launched Guided Missile) and the Anti-Tank Cluster Bomb. Both are described later under ammunition types, but use a fire-adjustment procedure identical to that at TLs 9-10 when first introduced.

At TLs 9-10:

F.O.s are still used to direct fire, but now use laser designators to "paint" their intended victims for incoming shells. The procedure for this is as follows: The F.O. sights and designates his target in a given friendly artillery phase, and calls for whatever type of fire mission he deems necessary. The rounds will drop in the next friendly artillery phase, and will automatically hit their targets if the F.O. is still designating the target (unless he has been killed or disabled); if not, each round will deviate [(1D6 divided by 2) x 50m] in a randomly determined direction as described above.

At TLs 11-12:

F.O.s are still in use, but now use man-portable fire control computers to both call and direct fire. The procedure is as follows: The F.O. sights his target visually, selects that target on his computer display with a cursor (thus giving the exact coordinates, verified by surveillance satellite data, to the guns), and calls for whatever fire mission he deems necessary. The rounds will drop in the next friendly artillery phase; whether or not they will hit their targets depends on target movement and round type. At this TL, counter-battery fire may be fired "on the map" using satellite data to aim; no visual contact is necessary.

At TLs 13-15:

At these TLs, all artillery may fire "on the map" with no need of F.O.s or visual contact with the target. If desired, however, vehicles equipped with Laser-Com Units and F.C. computers of at least MK. 4 may be assigned dedicated batteries to be directed by them using a procedure identical to the above.

AMMUNITION TYPES.

Unless noted below, all prices and weights of ammo is as listed in *Mercenary*, pg. 49.

High Explosive (TL6+): Penetration factor = 4, unguided.
Flechette (TL7+): Penetration factor = 2, unguided; x2 normal blast radius of an HE round of equivalent size. Price = as equivalent HE round.
ICM/Cluster Bomblet (TL7+): Penetration factor = 4, unguided; x4 normal blast radius of an HE round of equivalent size. Price = x2 of equivalent HE round.
White Phosphorus (TL6+): All troops not inside armored vehicles (with closed tops), under top cover or in full pressurized armor are killed if inside blast radius (as equivalent HE round). A fire is started in the blasted area (which will produce smoke for 6D6 turns), and all troops not killed but within the blast area must vacate it immediately, if possible, and take a morale check. Unguided. Price = x2 of equivalent HE round.
Smoke (TL6+): Produces smoke for 3 full turns; unguided. Price = as equivalent HE round.
CLGM (TL8+): Penetration factor = Tac Missile at given TL. Guidance system: at TLs 8-10, laser-designation of target is necessary on turn of arrival to insure a hit; at TL 11+, round will automatically guide on a given target. All hits are against a target's TOP armor (unless fired directly) – useless against infantry. Only howitzers and mass driver guns of categories Heavy and Medium may fire CLGM. Weight = 40 Kg., cost = 2000 CR/round.
Anti-Tank Cluster Bomblet (TL8+): Penetration factor = 22. Guidance system: up to 10 vehicular targets within a 90 degree arc of the round's "front" and within 1km of the shell's bursting point will be hit. All hits are against target's TOP armor; round may NOT be fired directly. Round is useless against infantry. Usage restrictions are as for the CLGM. Weight = 40 Kg., cost = 1000 CR/round.
Rocket Shells (TL10+): Usable only if firing weapon is a howitzer that is designed and designated as a rocket howitzer (+10 to weight, +50% to cost; may not fire standard shells, and receives a DM of -4 if firing directly). Rocket shells have a range equal to (6xTL) in kilometers, but perform identically to other shells of the same type in all other respects. Weight = 1.5x normal weight, x4 normal cost.

COUNTER-BATTERY FIRE.

The prerequisite for counter-battery fire is a system for locating the source of enemy fire; at TLs 6-10, this is done by sound/flash ranging, surveillance radar, or similar means. For each artillery company (9-15 guns), 2 such vehicles must be provided (category Light, no main weapons; if at TLs 6-7, must include 2 tons of ranging gear – if at TL 8+, must have most advanced radar and F.C. computer available aboard). At TL 11+, satellite data is used to locate the enemy guns (requiring that the battery command vehicle have a Laser-Com Unit). If the enemy can be found (roll TL or less on 2D6 to locate enemy battery; +1DM for each volley beyond the first fired by enemy battery) and is within range, counter-battery fire may begin. To put shells into the vicinity of the enemy, the firing battery must roll equal to or less than its TL on 2D6 for each round fired. For each shell that makes the roll, a subsequent roll of 11+ on 2D6 must be made to achieve precise hits; only precise hits will affect the enemy. Only HE, Flechette, ICM and WP shells may be used for counter-battery fire at TLs 6-10.

At TL 11+, precision weapons (CLGM and Anti-Tank Cluster Bomblets) may be used as well. At these TLs, counter-battery fire is done just like normal indirect fire, since satellite data obviates the problem of firing blind.

ANTI-ARTILLERY FIRE.

This tactic involves using massed energy-weapons fire, directed by satellite data and central fire control computers, to sweep incoming shells from the sky. Only TL 11+ vehicles armed with Plasma or Fusion Guns as the main weapon, as well as being equipped with F.C. computers of at least MK. 4 and Laser-Com Units, may take part in such firing. In order to participate in such fire, the vehicle in question must be grounded and stationary and must have been so for the entire turn, as well as not having fired or been fired at with main weaponry in any of the turn's previous phases. Additionally, each company (10-17 AFVs) must have a director vehicle (category Light, no main weapons; must have a Laser-Com Unit and a F.C. computer at least equal to those of the AFVs); this vehicle does not need to accompany the AFVs since it is linked to them via the Laser-Com. Each battalion (2-6 companies) will need a higher-level director vehicle, and so on up the levels of command to the central fire director for a unit.

Procedure for antiartillery fire is as follows: calculate the number of incoming rounds (number of tubes firing x number of shells each fired). Calculate the amount of intercepting fire (number of weapons firing x maximum ROF per weapon), and divide by the previous number. The result (rounding down) is the number that must be equalled or rolled below on 2D6 to destroy the shell in flight. DMS = -1 on destruction roll for each level of AFV computer above 4. If desired, the firing player may state that he is concentrating on a given number of shells, thus allowing others to land unhindered.

A more effective, yet less versatile form of antiartillery fire involves the use of point-defense lasers. These are mounted on AA carriages, one to a carriage. In addition, 2 tons of special detection/tracking gear must be included as well. The point-defense laser weighs only 1 ton and uses the same amount of power as a regular laser. However, each turn it can sweep up to 12 artillery shells from the sky (roll 2D6 for number of shells hit) by firing 12 pulses of antiartillery fire. It also has some effectiveness against Tac Missiles. Two pulses must be allotted to the tac missile for a roll of 12 to hit. For every two additional pulses, add a +1 DM to hit. Impose a -1 DM to hit Tech-12, 13 missiles and a -2 DM to hit Tech-14, 15 missiles. Each point-defense laser may fire either in the fire phase or the artillery phase of a round, but not in both. Point-defense lasers are useless against AFVs due to their low penetration, but may be used against infantry or lightly armed vehicles (treat each pulse as one shot from a laser rifle). Point-defense lasers may be defeated by smoke or laser aerosol rounds.

BATTLEFIELD MESON GUNS.

Strictly speaking, meson guns are direct fire weapons (Note: to mesons, such obstacles as hills, mountains, etc., do not exist. As long as the meson gunner is receiving information as to the location of his target via satellite data or F.O., he does not need to directly sight, i.e., have unobscured line of sight to his target.); however, their size and unwieldiness make them impractical for front-line use, and thus they are grouped with the artillery. They first appear at TL 15 with select Imperial armored units of at least brigade size in platoon-sized units. The principle behind these weapons is identical to their space-bound counterparts, and they make use of these properties to knock out otherwise invincible targets such as super heavy, massively armored tanks. Due to the extremely long ranges possible with the meson gun – ranges that literally go over the horizon – the meson gun carrier can exploit its extreme lethality over a vast area, and with the pinpoint accuracy provided by its advanced computer system and surveillance satellite data, no target within range of a meson gun can count itself as safe. Specifications for a meson gun carrier follow:

NAME AND TL: Imperium Meson Gun Carrier; TL 15.
WEIGHT AND CATEGORY: 200 tons; Super Heavy (200000 CR).
SUSPENSION AND MOVEMENT CATERORY: Anti-Gravity; Super Heavy (50000 CR).
ARMOR:
  NUMBER OF LAYERS: 3 TL 15 (18 tons, 60000 CR).
  ARMOR SLOPING: Advanced (Nonturreted vehicle).
  TRUE ARMOR THICKNESSES:
    FRONT: 42
    OBLIQUE: 31
    SIDE: 21
    TOP/REAR: 10
PROTECTIVE GEAR: Anti-Laser Reflective Paint, 1 strip Directional Mines (Total: 2 tons, 304000 CR).
F.C. COMPUTER: MK. 9 (7 tons, 20 MCR).
WEAPONS:
  MAIN: Battlefield Meson Accelerator (50 tons, 60 MCR).
  AMMO CARRIED: N. A.
  SECONDARY: None.
  AMMO CARRIED: None.
SENSORS: Active IR, Light Intensification Viewer, Tac Radar, Tac Ladar, Tac Magnetoscope, Echo Sounder (all in Extensor Pod) = 170 Kg., 56200 CR.
COMMUNICATIONS: Laser-Com Unit (50 Kg., 150000 CR).
POWER PLANT: 53% (1% for computer and sensors, 12 % for suspension/propulsion, and 40% for Meson Gun. 106 tons, 10.6 MCR).
MODIFICATIONS: NBC Shields, Non-Turreted Vehicle (20000 CR).
CREW: 4 (T.C., Driver, Gunner, Assistant Gunner); 2 tons crew compartment.
TOTAL COST (BEFORE PRODUCTION): 91,440,200 CR.
NOTES: Refer to remainder of this section.

These vehicles may only fire directly, and must be grounded and stationary to fire. Range brackets are: EFFECTIVE = 0-20 km; LONG = 21-40 km; and EXTREME = 41-50 km. Rate of fire is 1. If a hit is achieved, the target and everything else within 50m of it is totally annihilated.

ORBITAL BOMBARDMENT.

Although orbital bombardment is generally out of the scope of these rules, the following guidelines may be used. Assume that the power – and thus the penetrating force – of any starship weapon is many times that of the version included here. As a rough rule of thumb, the laser cannon in these rules uses approximately 1 megawatt of power, whereas the lasers aboard a starship use in excess of 200 megawatts. Therefore, any hit on an AFV by a ship's laser would destroy the vehicle, no matter how heavily armored. The same is true of ship's missiles compared to the Tac Missiles in these rules. If using starship weaponry to fire at AFVs on planet, use the basic roll to hit for weapons as given in either Book 2 or *High Guard*, depending on which set of rules you are using. To reflect the difficulty lasers and energy weapons may have penetrating the atmosphere of a planet, treat their fire as through sand (-3 for lasers to hit, -2 for energy weapons if using Book 2; factor 6 sand if using HG). Depending on weather condition, etc., a F.O. may be required for orbital bombardment of vehicles. The referee may impose other DMs for various kinds of atmospheres, electronic jamming, etc.

CHART VI-MORALE.

As explained in the Sequence Explanation on direct fire, morale checks are necessitated by casualties, incurred during either of the direct fire phases or during the enemy artillery phase. These checks are made whenever a platoon of vehicles loses at least one vehicle, or an infantry platoon loses at least 10% of its strength. When a morale check is taken, the affected unit must roll equal or below its ER on 2D6 to pass the check. If the check is passed, nothing happens to the unit; if not, what the unit is doing will affect its action when its men panic. If the unit is advancing or attacking, it will seek the nearest cover (if any) and remain there until or unless it subsequently rolls equal to or below its ER in the morale recovery phase. A DM of +1 is added for each turn that the unit still does not regain its morale. If the number of DMs reaches a point where it is impossible for the unit to regain its morale, roll again every turn; if the roll is equal to or less than the ER, the unit will hold its position – if not, the unit will immediately withdraw by the most direct route. In the case that there is no shelter within 1 turn's movement of the unit at the time that its morale failed, it will begin to move away using reverse movement until or unless it recovers its morale. In the case of units holding a defensive position, they will abandon it and move towards the next most suitable cover to the rear if they fail their morale checks. They will act in the same way as attacking units if their morale becomes unrecoverable.

In the case of units higher than platoons, the number of casualties required to cause a morale check is equal to one full subunit. For example, a company loses a platoon (either through casualties or through withdrawal due to failed morale); the remainder of the company, as a whole, now checks morale. The results of a failed morale check on a high-level unit (i.e., above platoon level) are identical to those at platoon level. Conceivably, an entire army could fall apart due to one vehicle being destroyed; however, this could only happen to an army with extreme morale problems!

In addition to the morale procedure shown above, all units of battalion size or larger have a preservation level – i.e., a level of casualties at which the unit is no longer combat-effective, and will withdraw or be withdrawn from combat at that point. The preservation level is found on the basis of the size of the highest-level unit committed in a given action; when that unit has lost 40% of its strength, it has reached its preservation level. For instance, four infantry battalions (each mustering 452 men) are involved in an action; the preservation level of each is 181 men. If, however, these four battalions are unified under the command of a brigade headquarters, the preservation level is equal to 40% of the brigade's total strength – in this case, preservation level would be approximately 725 men.

When preservation level is reached, the action that a unit will take depends on circumstances. If the unit is a mercenary contingent,

this level of casualties will (generally) force the unit proprietor to cancel his contract and activate the unit's repatriation bond. If the unit is an indigenous one, the judge will have to determine what happens; as a rule, however, units will capitulate only if there is no other alternative. If the situation of the unit's side is desperate enough, these depleted units are often kept in the field regardless of casualties; the unit's ER, however, will be reduced by 2 for each additional 10% casualties suffered after preservation level is reached, and the survivors will capitulate en masse once their ER reaches zero or less.

INFANTRY AND AFVs VERSUS SOFT-SKINNED VEHICLES.

When an AFV engages such a target, it is simply considered unarmored, which ensures that any hit achieved will destroy the target. The same applies to a hit with any infantry anti-tank weapon capable of destroying an AFV. When infantry uses small-arms fire to engage such a target, however, the procedure is rather different. The standard TO HIT procedure is used, but if a hit is achieved, penetration and damage are handled just as if firing at other infantry, since the effect of such fire is to kill the target's crew rather than to destroy the target directly. All such fires must penetrate the target's hull first and if successful may try to penetrate the armor of the occupants. The armor class of the target's hull is determined as follows: If designed to be pressurized for spaceflight or for use in adverse conditions, treat as Battle Armor; if of fairly sturdy construction (such as a metal aircraft or a vehicle with crude splinterproof armor), treat as Cloth; otherwise, treat as Mesh. Penetration and protection values for infantry weapons and "armor" of soft-skinned vehicles are as in *Azhanti High Lightning*.

PROCUREMENT.

AFVs are creatures of the highest technical complexity when compared to other vehicles of their TLs, and thus not many worlds are capable of manufacturing them. A world that can and will build AFVs must meet the following criteria:

1=The world must be classified as industrial and/or rich.

2=The world's TL must be at least 6 (note that the TL of a world determines the maximum TL of any AFV built there; if the vehicle is being built for the Imperial government, up to 2 TLs may be added for this purpose (if not exceeding 15 and if the world has an unmodified TL of 6 or better); if for a subsector government, up to 1 TL may be added with the same restrictions as above (unless no worlds of higher TL exist in the subsector).

3=The world must not be all-water, all-desert, an asteroid complex or an Imperial Way Station or the like.

4=The world's governmental type must not be 0, 7 or D.

Once a suitable world has been located and plans drawn up for the prototype vehicle, the customer must secure a contract to build with the local arms manufacturer. Since AFVs are weapons, pure and simple, and since such things aren't sold to just anyone, most arms manufacturers will only deal with the following types of clients:

1=Properly accredited representatives of planetary, subsector or Imperial governments that are friendly to the factory's homeworld.

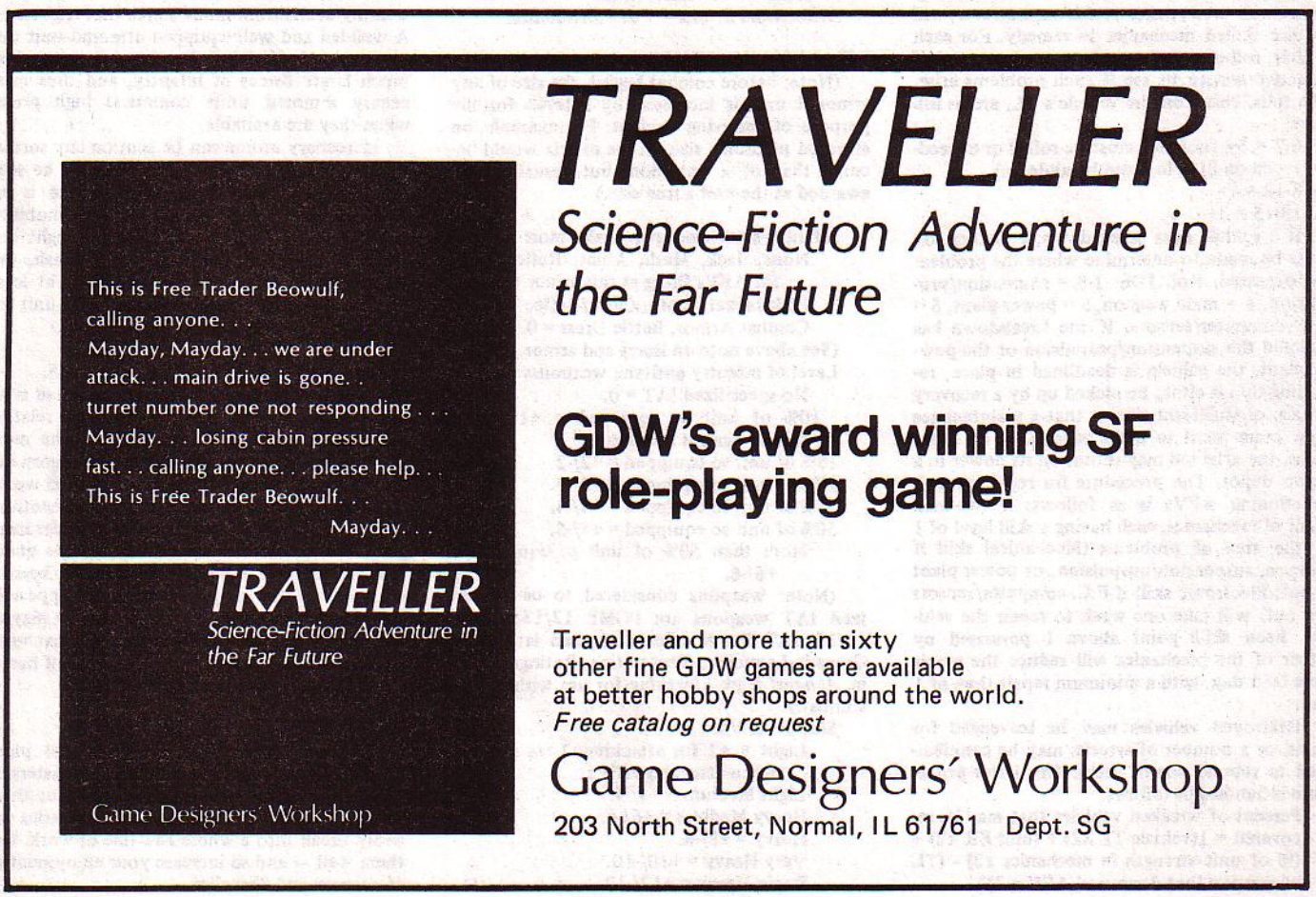
2=Properly accredited representatives or multiplanetary corporations, with the same nonhostility clause.

3=Any mercenary officer or unit proprietor under contract to any of the above.

If these conditions are met, construction may begin. The time involved will equal a once-only period of 1 month (for drawing up blueprints and procedures) + [(tonnage of vehicle divided by TL) x 1 week]. If the vehicles are ordered in lots of 10 or more, the remaining vehicles of the lot will be delivered at 1-day intervals after the completion of the first (whereas, if not ordered in lots of 10 or more, the next vehicle will not be started until its predecessor is completed). Payment terms vary, but as a rule, an initial 30% of the vehicle's total value must be paid as a down payment, with the rest being taken in installments using a system similar to that for starships. Additionally, mercenary unit proprietors may opt for taking set percentages from the pay their units receive at the conclusion of their missions under government supervision, and generally with a set date for end of payment time (with possible repossession if payment is not complete). All completed AFVs will be delivered at the factory.

THE MERCENARIES' BONDING AUTHORITY.

As was stated in *Mercenary*, pg. 17, mercenaries have become an accepted part of frontier life in the Imperium and in many of the nations it borders. This stems mainly from the stabilizing influence exerted by the Bonding Authority, which was created in the year 750 under the auspices of the Emperor Paulo I. After a number of unfortunate incidents involving corrupt, unreliable mercenaries, the Authority was formed to handle escrow accounts, insure correct fulfillment of contracts and keep the



peace. Site Officers of the Authority will investigate any reports of wrongdoing or contract violation, and their writs have the force of Imperial decree when applied to mercenaries working through them. The major value of the Authority is that any mercenary officers chartered by them will be known to have the highest standards of reliability and honesty under contract, and will thus be better investments than unchartered mercenaries. Of course, only mercenary officers chartered by the Bonding Authority may be in possession of armored units.

LOGISTICS AND MAINTENANCE.

Logistics for any mechanized unit centers mainly upon two things: fuel and ammunition. Up until TL 9+, the main power plant of all AFVs are either gas turbines or internal-combustion engines; at TL 9, the first small, portable fusion power plants become available for use in vehicles. The fusion power plant is effectively fuelless, only requiring a recharge after 5000 km of travel: however, all TL 6-8 power plants require 1 ton of gasoline or the like for every 1000 km of travel. Ammunition is only needed for AFV weapons that throw slugs, shells or missiles (obviously, since energy weapons only need a functioning power plant to fire), and will require resupply as expended. The prices and discounts for ammunition are listed in *Mercenary*, pgs. 43 and 48-9, except as otherwise noted in this article. Gasoline will cost 500 CR/ton, and is available on any world of TL 5+. Getting these supplies to the troops in adequate quantities is up to the unit commander.

Maintenance of AFVs, as with all machinery, is of two sorts: minor field repairs and major overhauls and rebuilds. Minor mishaps are quite trivial and usually can be handled by the vehicle crew; major problems, however, will require skilled mechanics to remedy. For each vehicle, roll once per month or once per week if in active service to see if such problems arise. The rolls, based on the vehicle's TL, are as follows:

6-7 = 5+ (number must be rolled or exceeded on 2D6 to avoid breakdown)
8-12 = 4+
13-15 = 3+

If a vehicle does break down, a further roll must be made to determine where the problem has occurred. Roll 1D6: 1-3 = suspension/propulsion, 4 = main weapon, 5 = power plant, 6 = F.C. computer/sensors. If the breakdown has affected the suspension/propulsion or the power plant, the vehicle is deadlined in place, requiring that it either be picked up by a recovery vehicle of sufficient size or that a maintenance crew come to it to make repairs. In all other cases, the affected may return on its power to a repair depot. The procedure for repairing malfunctioning AFVs is as follows: a two-man team of mechanics, each having a skill level of 1 in the area of problems (Mechanical skill if weapon, suspension/propulsion, or power plant is out; Electronic skill if F.C. computer/sensors are out) will take one week to repair the vehicle. Each skill point above 1 possessed by either of the mechanics will reduce the repair time by 1 day, with a minimum repair time of 1 day.

Destroyed vehicles may be scavenged for parts, or a number of wrecks may be cannibalized to rebuild one of them. This latter procedure is handled as follows:

Percent of wrecked vehicles that may be recovered = [(vehicle TL x2) + (unit ER x2) + (% of unit strength in mechanics x2) - (TL of weapon that destroyed AFV x 2)].

Note that this formula is intended to reflect the increased durability of AFVs at higher TLs, the increased destructiveness of weapons at higher TLs that militates against successful recovery, and the advantage of having a large and well-trained recovery team.

ARMORED UNITS IN THE ABSTRACT BATTLE SYSTEM.

A number of changes are needed in the A.B.S. to allow the use of armored units, as well as to clarify a number of points. These are:

1=Unit Size Table: The unit number values and titles are as follows –
0-2 = Platoon (3-5 AFVs)
3-5 = Company (10-17 AFVs)
6-8 = Battalion (31-60 AFVs)
9 = Regiment/Brigade (100-185 AFVs)

2=Firing Matrix: The standard Firing Matrix will be retained unaltered, but a number of DMs are listed (see charts for further explanation). These will allow the use of the Firing Matrix for all three kinds of combat – infantry vs. infantry, armor vs. armor, and infantry vs. armor.

INFANTRY VS. INFANTRY – NEW DMs.

Prevalent Personal Armor (at least 60% of unit using said armor):
None, Jack, Mesh, Reflec = +2 for unit firing at this armor type.
Flak Jacket, Cloth, Cloth/Reflec = 0
Combat Armor, Battle Dress = -2 for unit firing at this armor type.

(If prevalent weapon fired is a laser and prevalent armor fired at is Reflec or Cloth/Reflec, use DMs for Combat Armor, Battle Dress; if prevalent armor fired at is ablat, use DMs for Flak Jacket, Cloth, Cloth/Reflec.

Differential in opposing leaders' Tactics skills = + or - differential
Differential in TLs = + or - differential

INFANTRY VS. ARMOR – NEW DMs:

(Note: before combat begins, the size of any armored unit is increased by 2 levels for the purpose of resolving combat. For example, an armored platoon's size on the matrix would become that of a battalion, but casualties are awarded at the unit's true size.)

Infantry's prevalent personal armor:
None, Jack, Mesh, Ablat, Reflec = +2 for AFVs firing at this armor type.
Flak Jacket, Cloth, Cloth/Reflec = +1.
Combat Armor, Battle Dress = 0.
(See above note on lasers and armor.)

Level of infantry antitank weapons:
No specialized IAT = 0.
10% of unit so equipped = +1 on attack/-1 against attacker.
15% of unit so equipped = +2/-2.
20% of unit so equipped = +3/-3.
25% of unit so equipped = +4/-4.
50% of unit so equipped = +5/-5.
More than 50% of unit so equipped = +6/-6.

(Note: weapons considered to be specialized IAT weapons are PGMP 12/13; FGMP 14/15; IAT Tac Missiles, early and late; RAM Grenade-Launcher. Penetration Ratings are as in *Azhanti High Lightning* for use with regular combat.)

Size of AFVs:
Light = +2 for attacking/-2 for infantry when attacking AFVs.
Light Medium = +4/-4.
Heavy Medium = +6/-6.
Heavy = +8/-8.
Very Heavy = +10/-10.
Super Heavy = +12/-12.
Energy weapon (other than laser) prevalent AFV main armament = +2 on attack.
Differential in opposing leaders' Tactics skills = + or - differential.
Differential in TLs = + or - differential
Ablative armor/aerosol/reflective paint in general use = -8 against attacker using lasers as prevalent main armament.

ARMOR VS. ARMOR – NEW DMs:

Size of AFVs:
Light = 0.
Light Medium = +2 when attacking/-2 to attacker when defending.
Heavy Medium = +4/-4.
Heavy = +6/-6.
Very Heavy = +8/-8.
Super Heavy = +10/-10.

Plasma or Fusion Gun prevalent main weapon (at least 60% of vehicles using these weapons) = +2 when attacking/-2 to attacker when defending.
Directional mines prevalently used = -6 to attacker if not using an energy weapon.
Ablat armor/aerosol/anti-laser paint prevalently used = -8 to attacker if using laser weapons.
Differential in prevalent F.C. Computer = + or - differential.
Differential in opposing leaders' Tactics skill = + or - differential.
Differential in TLs = + or - differential.

MERCENARY ARMORED UNITS.

Since it requires a staggering amount of money to outfit and maintain an armored unit when compared with comparable infantry units, not many of any size are found outside the armed forces of the Imperium or the more wealthy semiautonomous states that it governs. A well-led and well-equipped armored unit can easily decide battles, however, even against much larger forces of infantry, and thus mercenary armored units command high prices when they are available.

Mercenary armor can be sent on any sort of mission that mercenary infantry could be sent on, although their most common use is on striker missions. Since their firepower, mobility and flexibility is not only dearly bought but potentially decisive in almost any clash, the going cost to hire an armored unit is at least 15 times that of an equivalent infantry unit for the same mission.

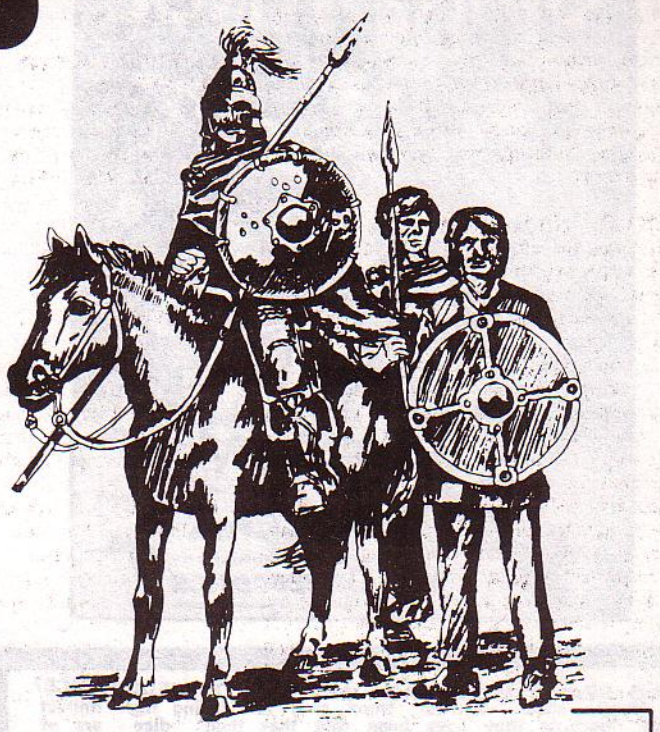
A NOTE FOR JUDGES AND PLAYERS.

Due to considerations of space, these rules cannot be comprehensive in all things relating to the subject of armored combat. The most notable subjects that fall into this category are aircraft (fixed-wing and otherwise), field works and fortifications, mines, special equipment not having a direct impact on combat, and the intricacies of electronic warfare and warfare under NBC conditions. Some items having a bearing on a few of the subjects mentioned appear in the rules. It is up to the judge or the players themselves to come up with systems that work well for them to cover these problems, if necessary or desirable.

CONCLUSION.

AFVs can now take their rightful place among the combat arms as the true masters of the battlefield. Players will find uses for them with little trouble, and wealthy mercenaries can easily break into a whole new line of work. Use them well – and so increase your enjoyment of *Mercenary* and *Traveller*.

THE TRIBES OF CRANE



You, task chief of the Leopard people wandering tribe of Crane, sit in your great wagon awaiting news from your swift searching outriders. Suddenly hoof beats approach. The outriders leap from their mounts to your wagon flushed with excitement for they know full well the meaning of their news. But one sector to the North the great merchant caravan of the Impala people has been spotted. The order is given "To arms . . . to arms!" You snap your orders, "Gather my captains of hundreds. Let all know the tactic will be enfilade right. Now my arms, my mount." You heard that Kate, chief of the Impala people, has chosen a stand and defend tactic twice before; will he again? You know also that the Impala people are fine warriors as are all the people of the many tribes. This will be no raid of the strong on the weak, but rather a mighty clash of the ***TRIBES OF CRANE....***

The **Tribes of Crane** is a unique correspondence game, allowing for interaction between players and the fantasy world of Crane and each other through a continuous game that may be entered at any time.

As a new player you will start as the chief of one of the many wandering tribes of Crane. Perhaps your tribe will be of the Sea people or Caravan merchants.

As chief you will know many secrets of your people and their lands, but there will be much you have still to learn of the lost secrets of Crane. It will be you who decide if your people will remain in their familiar homeland or begin a journey to new lands as you strive to increase your herds, train warriors, and learn of the ancient lost secrets that can move your people toward prosperity and dominance.

The land of Crane is a complete fantasy world with a full range of geography from the permanent ice of the polar regions, to the deserts, and tropical forests of the equator.

Cities dot the continents of Crane providing centers of trade and homes for the powerful Shamans and King Lords.

The creatures of Crane are as varied as its geography. Cattle goats and the caribou are the mainstay of the tribes, depending on the geography. But horses and the great mancarrying war hawks are important to the fierce warriors. Many undomesticated creatures also inhabit Crane such as the Euparkeria, a hugh bipedal lizard that feeds on cattle in the grasslands of Crane.

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Interaction between players is very common. Alliance, trade, and combat are always possible. Combat is determined in part by a comparison of tactics used by the antagonists, the relative number of warriors, and the geography.

The games objective is to increase the relative strength and prosperity of your tribe which is measured by different criteria, depending upon the type of tribe, and thus obtain points. Players try to obtain high average points per turn thus placing new players on a par with those who have been playing longer.

The **Tribes of Crane** may be entered for $10.50 which includes the first two turns, set up turn, a rule book and all necessary material (except return postage). Thereafter, turns are $3.50 each. A rule book may be purchased for $3.50.

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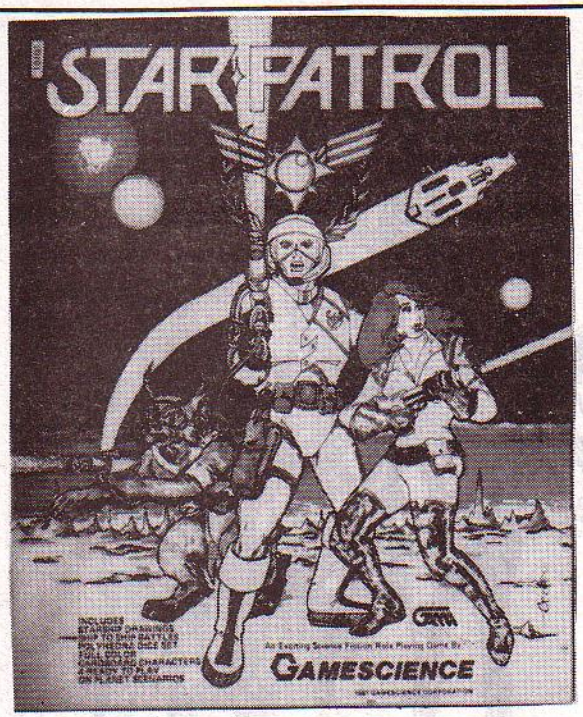

LIMITED OFFER

STAR PATROL is a comprehensive, science fiction oriented, role playing game which simulates ship to ship combat as well as on planet adventures for individual characters.

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Movement rules include options for fatigue, gravity and special equipment like jet belts, contra-gravity platforms, hand computers, head-up displays, inertial compass, intertron harness, infrared goggles, exo-skeleton, power harness, medi-kit, psionic amplifier, pressure tent, starlight goggles and tricorder with mass tables and costs for each.

You'll find 34 different types of contact weapons, 32 types of armor, 13 types of shielding, 77 types of ranged weapons from rocks to power cannons and phasers. 32 different types of aliens, taken from many of the most popular S.F. classics, and defined in detail so that they can be incorporated, or new ones created.

All tables, charts and graphs used for play are repeated in the central pull-out section so that the mission master has quick reference to all needed information.

Starship combat rules include anti-acceleration fields, hyperdrive, an encounter generation system, combat rules, a space vector movement ruler, 20 military spacecraft and 11 civilian types plus spaceship modification rules and customizing with 18 different spaceship weapons, weapon accuracy tables, missile damage and hit location tables, as well as scale drawings and reporduceable counters for table top or mapboard play. Fuel consumption, refueling, space travel star mapping, planet types and probabilities, orbit patterns, gravity tables, life form probabilities, resources, trade & exploration bounties as well as trade restrictions and planetary interests are also covered.

A random scenario generator enables mission masters to run entire random adventures by rolling up landing zones, terrain, weather encounters with creatures, artifacts, aliens, resourses & hazards, as well as copeing with meteor storms, radiation, dust pools, treacherous footing and unknown surfaces.

5 READY TO PLAY SCENARIOS INCLUDE ...

...Shipwrecked crewmen attempting to survive on the hostile planet Flamaraii with salvaged equipment. Can they find a way home? Can they even survive?

...Professional adventurers scoure the spaceport searching for someone who can pay for their special skills. Chances to become a pirate, mercenary or bootlegger are as frequent as opportunities to join the Space Patrol, Merchant Service or other legitimate organization.

...A Marine strike force has been ordered to find and destroy the secret T'Rana outpost on a remote planet outside the Leagues blockade. Since T'Rana troopers are controlled by psionic leaders, chances for surprise are nil!

...A derelict starship must be boarded to discover the fate of its missing crew.

...A strike team searches the pseudo-arachnid tunnel complex in search of brain bug leaders and/or human prisoners. This fast playing, excitement packed scenario can be played solo!

This game has 24 full color cardboard characters and aliens, in 25mm scale to match the 25mm scale ship plans provided for the derelict starship adventure, as well as a star map of the league star system, a blank 22 X 35 inch hex mapsheet, full set of GAMESCIENCE brand HIGH IMPACT™ polyhedra dice and options for portraying authentic space movements with TI-58 or TI-59 programable calculators.

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FANTASY DEMOGRAPHY

by Lewis Pulsipher

Demography is the statistical study of populations. When you're considering how many non-player adventurers, especially high level characters, might be expected to be in your role-playing world, a few demographic exercises can help you decide what might be reasonable and believable.

First, how many people, world wide, are likely to be adventurers? Let's assume that adventurers are a small fraction of the total military population, for an adventurer is an extraordinary kind of soldier. The proportion of the population which devotes full time to bearing arms depends on the ability of the remainder to produce the food and other goods required to support the troops. In medieval times the available excess was very small, so that just one or a few armored fighters could be supported by several villages. In the World Wars, when every person was involved in the war effort, roughly 10% of a nation's population was in the armed forces, though most of these people were engaged in non-combat duties. Today the proportion of population in the armed forces of the major powers is roughly 1%. The exact proportion of military population in your world depends on the state of agriculture, but 10% can be taken as an absolute maximum in any case, and something under 1% is far more likely.

Most of this less than one percent will be normal troops, not adventurers, unless yours is a very strange world. While .001% or .01% is the likely percentage of adventurers in the total population, let's assume that 1% are adventurers. This might be the concentration in a local area, near dungeons and dangerous wilderness, even though the overall percentage for the continent or world is much lower.

Next we turn to the number of high level adventurers. The table shows how many first level adventurers there are for each adventurer of a given level. The first column (2:1) assumes that for every two adventurers of a given level there is just one of the next higher level. The second column assumes a three to one ratio, and the third column gives a four to one. The numbers in parentheses are the total number of adventurers of all lower levels for each one of the level given at left. Thus, for example, at the four to one rate there are 64 first level adventurers (and 85 adventurers total) for each fourth level adventurer. It is up to you to decide what rate is most reasonable, depending on casualty and retirement rates, age, and so on. Most military organizations have a rank ratio of at least three to one, depending on country and era.

Now, assuming 1% of the population are adventurers, how many people are there for each eleventh level adventurer? At the generous rate of two to one there are well over 2000 adventurers, or 200,000 people, for each eleventh level. When a higher rate is used the numbers jump astonishingly, to almost 1½ million people per eleventh level when the rate is four to one. Assuming a world of 500 million people – quite large by medieval standards and more than the population of Europe or North America today – at a rate of two to one there would be something like 2,500 eleventh level adventurers. At four to one there would be about 350. And if you revert to the more reasonable assumption of .01% adventurers in the population you get about 3½ for the *entire world*.

These figures should astonish those referees who customarily sprinkle across the landscape characters of double figure levels. Even at the most favorable rate, high level adventurers are extremely rare birds.

For example, in a town of 10,000 with a high concentration of adventurers (2:1 and 1%) the highest level character is most likely to be around seventh level. It's obvious that encounters with adventurers in town will be uncommon unless sought.

NUMBER OF HIGH-LEVEL ADVENTURERS

Level	2:1	3:1	4:1
1	1 (1)	1 (1)	1 (1)
2	2 (3)	3 (4)	4 (5)
3	4 (7)	9 (13)	16 (21)
4	8 (15)	27 (40)	64 (85)
5	16 (31)	81 (121)	256 (341)
6	32 (63)	243 (364)	1024 (1365)
7	64 (127)	729 (1093)	4056 (5421)
8	128 (255)	2187 (3280)	16224 (21645)
9	256 (511)	6561 (9841)	64896 (86541)
10	512 (1023)	19683 (29524)	259584 (346125)
11	1024 (2027)	59049 (88573)	1038336 (1384461)

Let's assume you've mapped out an area for your campaign about the size of Britain, North Carolina, or Michigan – 50,000 square miles (around 2,000 five mile hexes). A quite dense population of 100 per square mile gives you 5 million people (equal to present day North Carolina). This is much higher than medieval population in similar areas of western Europe.

One can assume, however, that magic is used to increase agricultural production and lower the death rate. Assuming a two to one ratio and 1% adventurers this gives us 50,000 adventurers and about two eleventh level characters in the entire area. If your "world" is only this large, ninth, tenth, and higher level characters are likely to be living legends who are either powerful officials or secretive individuals who are rarely seen even in areas where they reside.

It is a subconscious understanding of demographic limitations that makes some players distrust and disbelieve in campaigns where higher level characters abound. Granted, one must adjust the area of adventure to the strength of the party, and one must also assume that the player party consists of unusually successful adventurers. At the extreme one referee with a "world" of only 50,000 people assumed that the players were the highest level characters in the world, even when they were novices, but this isn't satisfactory. Occasionally, beginning characters need help from higher level non-player characters who can cast such spells as cure disease, dispel magic, or raise dead. But demography shows that a long journey, or considerable good luck, will be required to find such people and when there are hundreds or thousands of first levels for every high level it will be hard to gain the attention of the great man or woman.

The point of this is not to impose a certain number or percentage on a referee, but to persuade referees to recognize population limits and to work with relevant figures. If you prefer a world filled with high level characters, all right, but shouldn't there be an explanation for this peculiar situation? In order to create a fantasy "atmosphere" you need to avoid political, social, or economic impossibilities or you will destroy the illusion and lessen the enjoyment of all involved in your campaign.

The idea of applying demography to the number of characters was first used by Robert J. Clifford III in the APA ***Alarums and Excursions*** *24. His conclusions were somewhat different than my own.*

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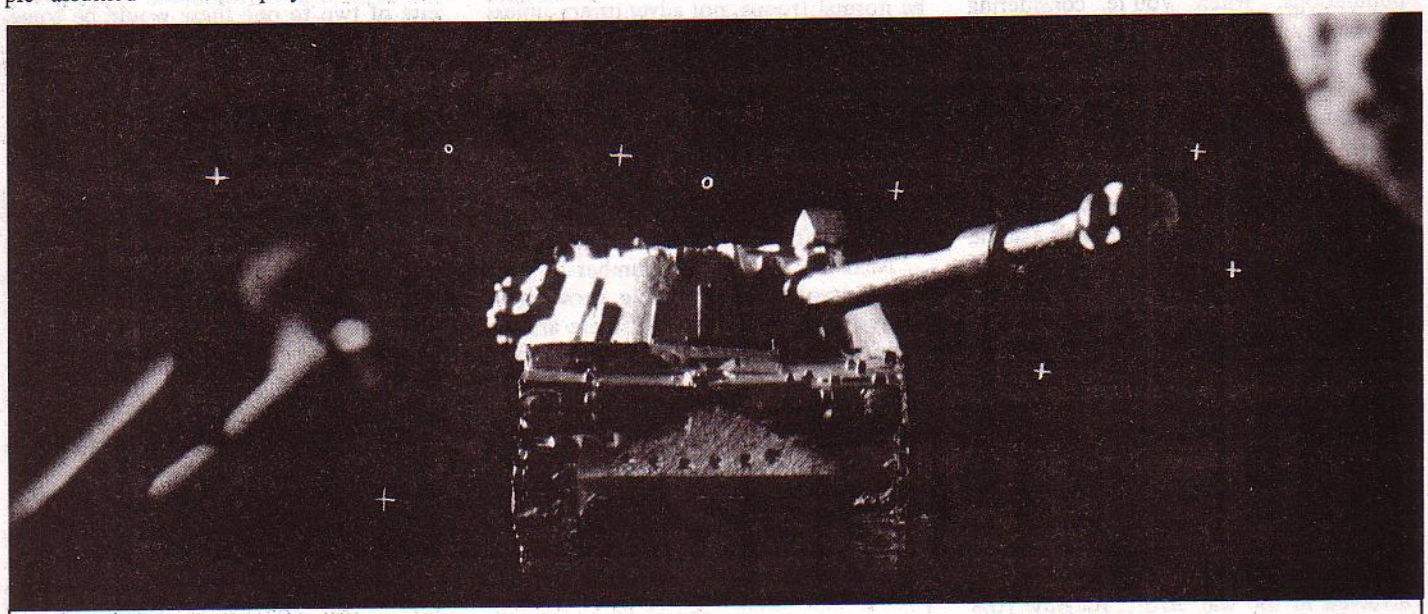

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CAPSULE REVIEWS

THE SPACE GAMER reviews board games, role-playing games, computer games, video games, and game supplements. We review play-by-mail games if a reviewer is enrolled. We will review any science fiction or fantasy game if the publisher supplies a copy. We do not guarantee reviews of historical wargames. TSG may publish a review of a game we are not sent – IF a reader submits a review.

The staff will make reasonable efforts to check reviews for factual accuracy, but opinions expressed by reviewers are not necessarily those of the magazine.

Games for which reviews have been assigned or received include: *Barbarian Prince, The Black Tower, The Castle, Catacombs of the Bear Cult, Crucis Margin, Demon Lord, Demon's Run, Diadem, Doom of the Singing Star, The Dragonlords, The Dragon Tree Spell Book, The Free City of Haven, The Generic Gangster Chase Game, Hazard 7, Hydronauts, Hyper Battle, IISS Ship Files, Interstellar Skirmishes, Martigan Belt, Midway Campaign, Ordeal by Eshaar, Oregon Trail, The Outworlds, Portals of Irontooth, The Shattered Alliance, Star Patrol, Star Sector Atlas 1, Stones of the Selt, Sword Lords, Swords & Sorcerers, Thieves' Guild IV, Transylvania, Trillion Credit Squadron, Undead* and *Zorphwar*.

Games for which we are currently seeking reviewers include: *Car Wars, Dragon's Hall, Fifth Frontier War, Griffin Mountain, Heroes of Olympus, Imperial Data Recovery System, Lara's Tower, Ravenscrag, Sea of Mystery, Space Ace 21,* and *Thieves' World*.

THE AIR-EATERS STRIKE BACK! (Metagaming); $6.95. Designed by Keith Gross. 22" x 27" map, 240 die-cut counters, 8-page introductory rules folder, 16-page rule book and charts, one die, plastic bag, boxed. 1-5 players, playing time 3 to 6 hours. Published 1981.

Grab your respirators! Hold on to your breath! The Air-Eaters are back! Yes, THE AIR-EATERS STRIKE BACK! – the first in Metagaming's new line of "metagames" – presents the return bout of humanity against the foes of *Invasion of the Air-Eaters*, back to try again to take our world and change its air supply. Only now the battle is no longer confined to Earth alone. The map in this sequel shows not only Earth, but the Moon, Mars, the poles of Venus, Mercury, several asteroids and moons of Jupiter (plus a space for Jupiter itself, where only aliens may tread) and orbital boxes for each – with a large schematic of the entire solar system as well. Counters represent Earth units – armies, disintegrator tanks, bounce infantry, sub fleets and elements of Earth's growing space fleet of transports, fighters, destroyers, battleships, etc. –Alien forces – bases, crawlers, landers, atmosphere converters, mother ships escorts and the new quasar and nova fighting ships – and planetary markers, bases and colonies. The object of the aliens, of course, is to take as many planets as possible to use for resources to build the extra units necessary to take Earth and the inner worlds, plus squash the Terran threat before they break out of their system into the universe. The Terrans must, once again, repulse the aliens to survive.

THE AIR-EATERS STRIKE BACK! is a worthy successor to the original microgame. The rules are clear and easy to follow; the graphics are quite pleasing (the die-cut counters here are far superior to those that have appeared in the micros); and the game is challenging enough, yet not overly difficult to learn. It isn't even necessary to have played *Invasion*, as the introductory rules here teach all the basics for those unfamiliar with the parent game – and those who have *Invasion* can go right on to the intermediate rules. Several interesting new rules, such as the use of asteroids in planetary bombardment, add flavor to the situation. It can become quite tricky placing forces to strike at enemy bases while keeping enough in reserve to protect your own industrial units from devastation – a catastrophe that can lose you the game.

There is a bit of a problem with play balance in the intermediate and advanced games – whereas things in the earlier game often went in favor of the aliens, here the Terrans have the edge. This can usually be adjusted with optional rules and by having the more experienced players play the aliens. And the Martian Revolt scenario – minus the aliens – has some problems, primarily in that both sides use the human counters, which prove difficult to tell apart.

Still, THE AIR-EATERS STRIKE BACK! is a strong initial offering for the new metagames and an enjoyable SF game, either as a sequel to *Invasion* or in its own right.

– William A. Barton

CHIVALRY & SORCERY (Fantasy Games Unlimited, Inc.); $10.00. Designed by Edward Simbalist and Wilf Backhaus. 8½" x 11" rulebook with 128 pages of small print. Referee and one or more players. Percentile and six-sided dice must be purchased separately. Playing time indefinite. Published 1977.

This is another fantasy role-playing game. It includes magic, religion, religious fighting orders (Paladins), chivalry, and warfare, all set in a medieval/feudal society. The usual fantastic races and monsters are included.

This game has many strong points. One of the most important is the rich societal information, especially that on chivalry. For people who are irritated by social system ambiguity in other fantasy role-playing games, this is a major plus. Another strong point is the C&S magic system, which details how spells are learned, how magical devices are made, and how magical combat is conducted. An inspired system for elemental magic, such as fireballs, ice storms, poison gas clouds, and heat/cold is also included. The combat system is quite detailed, relieving ambiguity in this crucial area.

Unfortunately, this game's only real flaw is a potentially major one: complexity. The magic system is so complicated that some people will give up even trying to learn it after simply looking at it. It takes work on the part of the referee and players to learn this system. The rules do, however, allow for a simpler, D&D-style learning of spells. The combat system is also somewhat complicated, and will move excruciatingly slowly unless both players and referee know it well. Even at its best, it is by no means fast. The only systems which are simple in the game, religious miracles and the social background/structure, may be too standardized for some people's tastes.

It has been said that C&S is unplayable, that it is better as a work of reference, but that is emphatically untrue. I know many people who play C&S and enjoy the game very much (that's what you laid out the cash for, right?). It all comes down to one question: are you willing to spend the time to learn the complicated rules? If you are, by all means buy C&S; your reward will be many hours of joy. If you are not, stay away, it is not for you.

– Jon Tindel

DELUXE TRAVELLER (GDW); $19.98. Designed by Marc W. Miller with Loren Wiseman, John Harshman and others. Five 8½" x 5½" booklets, 17" x 22" color map of the Spinward Marches; two 6-sided dice; oversized box. Released 1981.

For those who can't get enough of *Traveller*, there is now DELUXE TRAVELLER. DELUXE TRAVELLER makes the *Traveller* system even easier to play and understand than ever before and is designed more with the new player or beginner in mind than with those looking for greater intricacies and complexities. In fact, DELUXE TRAVELLER almost seems designed to replace the basic set as the new player's first purchase. It includes not only Books 1-3 – the new, revised, easier-to-understand second editions – but Loren Wiseman's *An Introduction to Traveller* (Book 0) and a new introductory adventure, *The Imperial Fringe*, especially designed to aid new players and referees in getting started adventuring in the *Traveller* universe. To aid in this, the set also includes a beautifully designed map of the Spinward Marches with all planetary systems, gas giants, starport types, bases, jump routes, amber and red zones marked in colors on a white-on-black hexfield.

There are several items to recommend this set. First, of course, is the inclusion of the second edition of the basic books. The rules have been revised and most of the errors, omissions and typos cleared up, making the game system much easier to grasp than ever before. New vehicles have been added, a few skills have been revised, weights and prices on equipment have been lowered in places, combat armor has been added, along with archaic firearms, and the computer program writing table has been incorporated as well. Charts are all grouped on several pages as in the second edition of *High Guard* rather than spread throughout the book. The introductory adventure includes the deck plans for the Type S Scout ship – and an area-by-area description that is much more complete than that provided in *Traders & Gunboats*. The map really aids in traveling from subsector to subsector in the Marches. And the box is big enough to hold almost all your *Traveller* materials.

There are few disappointments in DELUXE TRAVELLER – and most will only disturb the experienced player. Book 0 is mainly for players and refs new to the game. And while the *Im-*

perial Fringe may be a good way to start off a group of new players adventuring, its premise – a 20-year survey of the Spinward Marches – will hardly fit well with established campaigns (and I doubt will ever be finished by those who begin it). There were a few omissions in the second edition rules, too: The missile types and rules were not incorporated in this edition, making *Mayday* still the only source for these. The combat system retains its armor-as-a-DM-to-hit basis rather than using the much superior *Azhanti* system. And the weapons damage is that of *Snapshot* rather than the more differentiated versions of the first edition.

Still, DELUXE TRAVELLER is an excellent addition to the *Traveller* line – especially for the new player and referee. And even the old-timer Travellers who want the second edition rules wouldn't go far wrong by going the extra price for the deluxe edition.

– William A. Barton

KUNG FU 2100 (SJ Games); $3.00. Designed by B. Dennis Sustare. Bagged, with a 2-page folding rules section, 16" x 9½" map, 114 counters (uncut), 6 record sheets, CRT. 2 players, playing time ¾-1½ hours. Published 1980.

KUNG FU 2100 is a game about (you guessed it!) Kung Fu combat in the future. One player controls the Terminators, the other, the CloneMaster's forces. The Terminators are a small group of martial artists trying to overthrow the CloneMaster in his complex. The CloneMaster, who has reserved technology and immortality for himself, must kill the intruders before they destroy him, his clone tanks, and his computers. His guards, (the Janissaries, or "Jellies" are renegade Terminators – less skilled than the attackers, but more numerous.

The combat system is original. Anytime a Terminator and a Jelly are adjacent, combat may take place. Each player secretly chooses combat chits (2 for Jellies, 3 for the Terminators). Each chit is played one at a time, the Terminator choosing who plays first. Each chit represents a special tactic, of which there are 4. They are: Iron Fist (punch), Lightning Foot (kick), Body of Mist, and Monkey Soul (which are great for dodging bullets, kicks, and other nasty things). A fifth ability, not a combat tactic, is called Mountain Heart. It allows a figure to absorb extra hits.

The rules are clearly explained and organized, and the color and the art is absolutely great. The counters are colorful and durable. The names of abilities are cute, if a little weird.

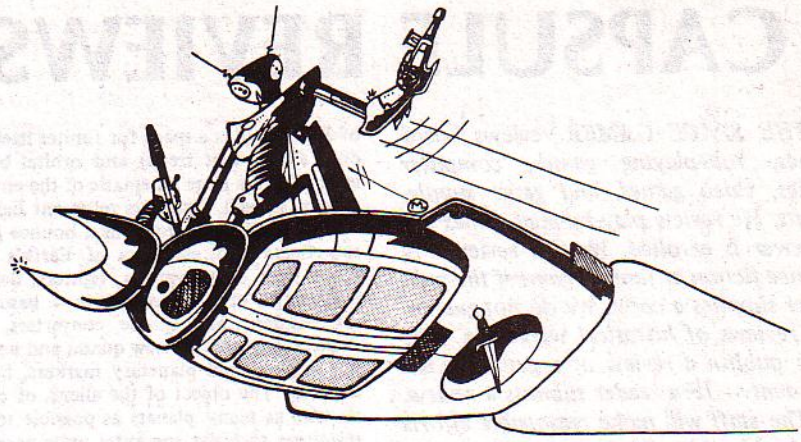
Unfortunately, the balance favors the Terminators a little. I recommend that the CloneMaster take 6 regular Jellies and Jellies 11 and 12. The servants and technicians are almost useless, despite what the tactics suggestions say. Also, the fact that you have to cut EVERYTHING apart is less than attractive. The counters are totally uncut, and the rules, map, CRT, and record sheets are all attached together.

Despite its flaws, KUNG FU 2100 is a good game. Kung Fu fighters and aspiring "grasshoppers" will love it. Everyone else will probably like it.

– Adam Strock

OUTPOST GAMMA (Heritage); $5.00. Designed by Howard Barasch. Boxed, with 12" x 14" cardboard playing board, 154 die-cut counters, 1 die and 24-page 4" x 7" rules booklet. Two players; playing time 1-2 hours. Published 1981.

OUTPOST GAMMA is a far-future version of an all-too-common conflict from the last few centuries: a handful of colonists/explorers with



high-tech weapons facing an overwhelming number of natives with more primitive arms. In this case, ten (count 'em) Legionaires have been sent to Irda, a harsh, wind-swept planet, to protect miners from constant raids and sniping by disgruntled Irdans. There are two scenarios. In the first, the Legionaires must hold fortified positions against waves of angry natives (105 counters, representing some 472 locals). In the second, the pride of the Empire must evacuate the miners (by crossing the map) without being picked off or overwhelmed by the Irdans. In both cases, the Legionaires have to deal with very complex terrain (the terrain effects chart lists 12 types) and violent electrical storms which wreak havoc with their advanced weapon systems.

After what has seemed like an unending number of cute or gimmick-laden microgames, OUTPOST GAMMA is a refreshing return to nuts-and-bolts tactics. When I first opened the game, I was a little put off by there being only two scenarios. However, the tactical richness of the game is such that those two scenarios can keep you going for a *long* time. And the rules are simple and straightforward enough that you are free (and forced) to *think* and *plan* without worrying if your opponent is going to drop a planet-buster or release a hoard of voracious mega-gnats. And the components! The map is a gorgeous, full-color piece of artwork that *looks* like terrain and is a far cry from the rather dull and even crude maps found in many microgames (e.g., *Olympica* and even *Ogre*). The counters are equally colorful and have the same quality (though not as detailed) artwork.

My complaints with the game are few. The rules get fuzzy in spots, though most questions can be resolved or guessed at without too much difficulty. I have a hard time getting the board to lay flat, and I am worried that constant folding and unfolding will wear out the center crease all too soon. And the physical scale/time elapsed per game turn/stacking limits combination doesn't seem to be very well coordinated (how come only 4 Legionaires can occupy a single hex when as many as sixteen natives can fit into the same space?)

I recommend OUTPOST GAMMA without reservations. Like *Ogre* and *GEV*, you will get far more than your money's worth.

– Bruce F. Webster

REVOLT ON ANTARES (TSR); $4.00. Designed by Tom Moldvay. One 4" x 7" 20-page rules booklet, 11½" x 14" map, 84 die-cut counters, two 6-sided dice, plastic box. Two to four players; playing time 30-90 minutes. Published 1981.

Call in the jump troops! Break out the laser tanks! They're revolting on Antares 9! Three scenarios allow the rebel houses to rise in rebellion against Imperial Terra and its allies, the Terrans to defend Imirrhos against revolting houses in league with alien invaders, and for the various houses to try to become the most powerful on the planet. Units in the game represent laser tanks, powered infantry, jump troops, hovercraft, air wings, faction leaders, artifacts and "Galactic Heroes" who might be persuaded to join one side or the other. Action takes place on a hex map of the planet showing fortresses, economic sites, land and sea. It is only the presence of alien artifacts and special abilities on the part of the faction leaders and Galactic Heroes that keep REVOLT ON ANTARES from being routine.

The artifacts and abilities are what make this minigame. Each faction leader has a certain "psychic" power that can affect combat (or, in one case, recruitment of heroes) – teleportation of units, summoning of lightning, projection of hallucinations, etc. – making them formidable enemies and valuable allies. The artifacts possessed by the houses – dimensional plane, energy drainer, force cannon, etc. – add to their strength. And the Galactic Heroes can help tip the balance for a faltering side, if the right one is recruited. The randomness of the placement of the artifacts and the availability of each individual hero help keep the game from degenerating into predictability.

The game does tend to bog down some, however, even with heroes and artifacts. This is especially true if a powerful stack is trapped by several weaker stacks at the edge of an ocean and it doesn't have any units capable of crossing water. The reinforcement schedules seem just a bit unbalanced, too, but not fatally in most cases. And the dark green counters of House Braganza are almost impossible to read – a real design flaw there.

Although REVOLT ON ANTARES isn't overly exciting, it can be an interesting little game to play, especially if you like the smaller games with an SF (make that science *fantasy*) flavor.

– William A. Barton

STAR ROVERS, Module 1 (Archive); $20.00. Designed by Nevile Stocken, Charles Hoffman, Carole Rode Hoffman, David Hargrave, Dennis Huey and Steven Lortz. One 8½" x 11" 128-page rulebook, 3-hole punched in press-snap binder; 2 "quick-sheet" chart pages; 4-page general plans, *Zyrconium Zephyr* starship; 17" x 22" time line chart; 17" x 22" deck plan, forward area, *Zyrconium Zephyr*; 17" x

22" floor plans, Moondog Maude's Cantina; five 6-sided dice. 2 or more players; playing time indefinite. Published 1981.

Archive has finally released its STAR ROVERS SF RFG – the first module, in any event. And despite the fact that the game costs quite a bit for a single module in what will undoubtably be a long series, the package does hold quite a bit – deck plans of a starship, floor plans of a cantina (I can hear that band a-playing now), a time line chart covering all the eons from pre-Stone Age to the Eternal Age of cosmic awareness and noncorporeality, and a rule book with quite an impressive amount of material – for a first module. The rules cover character generation (12 attributes, each with 3 subattributes); a pretty complete personal combat system (somewhat complex, though not so much as in, say, *Aftermath*); character classes – including spacers, merks, spooks, zenos, shadowjacks (smugglers, pirates, Han Solo, etc.) – and a wide variety of skills; extensive lists of personal weapons and equipment; a system for generating star clusters; and notes on encounters and aliens.

STAR ROVERS has some innovative features. The D5 is one – a six-sided die on which 6=0. The weapons and equipment tables are a super-science space opera fan's dream (and a hard SF booster's nightmare). The skills are nicely diversified if somewhat lacking in explanation. The star cluster generation system has some unusual (if improbable) twists. And the barroom encounter section, particularly the guidelines for playing poker and slot machines with D5, would grace almost any role-playing system (though the survival of poker in the galactic ages depicted does strain the credibility a bit).

While some may love the super-science of STAR ROVERS, those who tend to believable SF will find much in STAR ROVERS way off in the clouds – the worst improbabilities of *Space Opera* are hard-core SF in comparison: black hole guns (personal weapons, no less), anti-matter handguns, ion beamers, radiorang explosive boomerangs, alternate dimension coaches, time machines, chaos bombs (anything can happen in its field) – these are run-of-the-mill devices in STAR ROVERS. The worst problem, however, is that the system is incomplete. I realize this is a first module, but it's going to be difficult for characters to do much star roving without any sort of space travel system – the astrographical hazards of the star cluster (black holes, quazars, moebius loops, godstars) aren't much use without a way to run into them.

If your taste tends toward the fantastic in SF and you don't mind waiting for a space travel module, you may find STAR ROVERS to your liking. If you prefer *science* fiction or want a complete system to start with, your money will best be spent elsewhere.

– *William A. Barton*

ULTRA-WARRIOR (Task Force Games); $3.95. Designed by Thomas Zarbock. One 14-page rules booklet, 108 die-cut counters, 17" x 21" map, ziplock bag. 1-4 players; playing time 30 to 45 minutes. Published 1981.

ULTRA-WARRIOR is a game of man-to-man combat in the far future – The Knights of the Round Table in space. It postulates a future in which armies have been replaced by single combatants protected by environmental control suits and energy barriers, wielding awesome weapons capable of changing the very land upon which their opponents stride. These are the Ultra-Warriors. The game provides rules for energy allotment and usage for defense (suit power, smoke and energy barriers) and offense (heat blasts, frost bolts, electron bolts, energy disks and disruptors); movement via action points; terrain conversion; and an impulse system for movement and combat. Counters depict Ultra-Warriors, smoke and energy barriers and various types of terrain. The map is a featureless hexsheet marked for the placement of terrain counters in the various scenarios. Eight scenarios link into a campaign game, mainly focused on the exploits of Lance, a "lawful" Ultra-Warrior.

The game has some nice features. The shifting terrain via counters is an interesting idea, making changeable settings more feasible than in most games. It works here due to the need for only a few counters to represent the Ultra-Warriors themselves. The finite supply of energy available to the warriors makes planning and restraint necessary as players decide how much they may allot to defense, how much to offense and which type to use each turn. This and the fact that terrain conversion can damage or even cause the death of an opponent – making the ground under and around the warriors as viable a target as the enemy himself – will keep the game from degenerating into just another slug fest. And the game can end quite quickly if not enough energy – or too much too soon – is allotted on a turn.

Players new to the notion of impulses and action points may have a few problems with the system until they get used to it. This may be compounded by a few places in the movement section, particularly the example, where the rules are not quite as clear as they could be.

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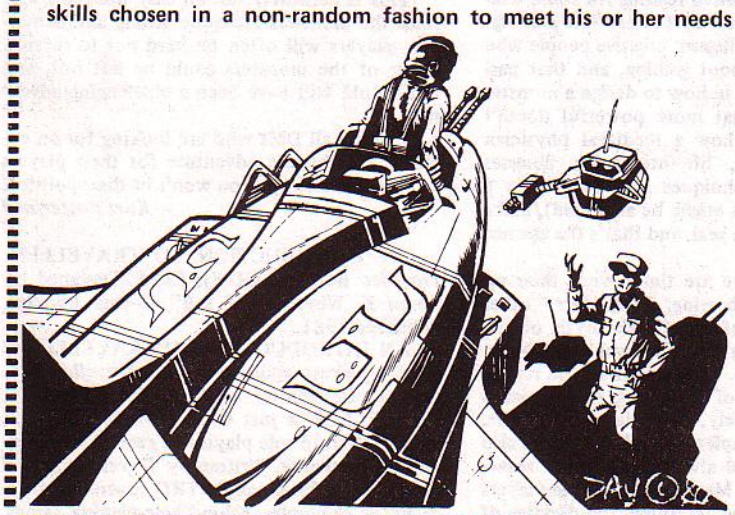

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Adventure scenario for use with Space Opera.

The scenarios provided (especially the solo scenario) may become a bit boring after a few playings, too, so players will probably want to devise some of their own. And care must be taken when moving character counters that the terrain doesn't move with them (watch out for stiff breezes and bumps to the playing surface, too).

Overall, ULTRA-WARRIOR isn't a bad little game. Unless the idea of knights-errant jousting across the cosmos turns you off, you might find it a worthy selection for a quick play session with a moderate-level simulation.

– William A. Barton

SUPPLEMENTS

BREAK IN AT THREE KILOMETER ISLAND (Judges Guild); $3.00. Designed by Rudy Kraft. Approved for use with *Villains & Vigilantes*. One 8½" x 11" 16-page scenario book. 2 or more players; playing time indefinite. Published 1981.

BREAK IN AT THREE KILOMETER ISLAND is Judges Guild's first approved-for-*Villains & Vigilantes* superhero adventure, and should prove quite challenging for all but the most experienced V&V characters. The scenario revolves around a break in by four superpowered villains, known as the Four Fiends, at the nuclear power plant at Three Kilometer Island (hmmmm). The Fiends, led by the evil scientific genuis Helen Retro, are after a new substance called Asimtote which is produced at the plant so they can use it to create dreaded "M" bombs and thus (what else?) dominate the world! The Vigilante player-characters must stop the break in, currently in process, thus saving the world for truth, justice and you-know-what. The book contains stats and history of Helen and her cohorts, Macho, The Runt and Levin; maps of the island and the nuclear power plant with area descriptions; guard statistics; special combat tables; and other items of information vital to the Vigilantes – and to the GM as well.

If handled properly, BREAK IN can provide an enjoyable evening of superheroics for V&V fans and, depending on the outcome, can even serve as the basis for a longer campaign situation (especially if the Fiends make off with the Asimtote). The villains are given enough background and character so the referee shouldn't have any trouble playing them to the hilt. The Fiends range in level from first to fifth, allowing the use of a range of Vigilante characters from beginning level to experienced; however, I wouldn't advise having all first level player-characters in this one – unless they outnumber the villains by at least two to one.

The main problems with BREAK IN seem to be production-oriented. The book seems to have been shot from a typewritten script rather than typeset, giving the text a sloppy appearance. The almost-obligatory JG typos are present as usual. And it appears that author Kraft was not aware how the final product was to appear, as he keeps referring to charts and maps in the middle of the book which aren't located there at all. Most of the tables he refers to are on page 14 – quite a way from the middle – and the map of the plant is on the back page. Some of the tables could have stood a bit more explanation, too, though most refs will be able to figure them out without too much problem.

BREAK IN AT THREE KILOMETER ISLAND, while not perfect, still should provide V&Vers with enough in the way of adventure – especially with GM elaborations – to make it well worth its price.

– William A. Barton

CHIVALRY & SORCERY SOURCEBOOK (FGU); $10.00. Written by Edward E. Simbalist and Wilf K. Backhaus. 105-page, 8½" x 11" book; Supplement for *Chivalry & Sorcery*. Published 1978.

The designers of the fantasy role playing game *Chivalry & Sorcery* tried to make medieval history (including legends and fantasies) a living breathing time, not just a backdrop for "players-kill-monsters-loot-dungeon." SOURCEBOOK amplifies this. It introduces new character classes and presents well-researched, entertainingly written treatises on medieval hunting, economics, trade, military mobilization, medicine, and theories of magic. Like the original game, it has innumerable charts on such things as: a hundred things a monster might do besides mindlessly attack, what it costs to build/run a castle, how many fish a Forester can catch, and what the weather is like.

Even if there wasn't a single chart, SOURCEBOOK would be required reading for those who want to learn how to do fantasy *role-playing*. The authors are intelligent, creative people who passionately care about gaming, and that passion shows. Lessons in how to design a monster (with the caveat that more powerful doesn't mean better), and how a medieval physician would cure tragic, life-threatening illnesses (with primitive techniques and prayer, in a world where prayers *might* be answered), make the fantasy world so real, and that's the essence of good fantasy.

Admittedly, there are times when their vehemence gets overbearing: They decry other games' treatment of the Greek myth of the Gorgon – forgetting that medieval bestiaries ignored the myth too. The authors should realize that a prime tenet of advancing your cause is to present it positively, don't dump on others. The triumph of complete, detailed charts is also a frustration; you're always looking up something, somewhere. Many fantasy role-players find it too confining to follow the dictates of the moral restraints of a medieval society.

If you don't play C&S, don't want to, and are uninterested in the background of fantasy adventures, you won't like SOURCEBOOK. But, if you've played C&S, or might, or just want to see how to build a dream world (and furnish it, and move in first of the month), risk the sawbuck. Buy this book.

– Ronald Pehr

COSMIC ENCOUNTER EXPANSION SETS 6 & 7 (Eon); $6.00 each. Set 6 has 10 new alien cards and 100 "lucre" chits; set 7 has 14 new cards. Published 1981.

These are two new sets of alien cards, fully compatible with the basic *Cosmic Encounter*. There are no new challenge or edict cards, and neither set allows the entry of more than six players. However, set 6 includes rules for "lucre" – a money system which adds a new element to the game. Some of the new alien powers require the use of lucre, and some are incompatible with the earlier aliens, but these caveats are marked plainly on the cards.

Some of the new powers are interesting: The Force has "the power to be with;" the Sniveler has "the power to whine." Others are nasty: The Witch has "the power to curse;" the Filth has "the power to reek." Some are just plain silly: The Hurtz has "the power to lease;" the Lloyd has "the power to insure."

Expansion sets 1 and 2 would be more valuable to a new player; Eon Products is approaching the point of diminishing returns. But sets 6 and 7 still have a lot of value for CE enthusiasts.

– Forrest Johnson

HALL OF THE FIRE GIANT KING (TSR); $5.00. Designed by Gary Gygax. Supplement to AD&D. 16-page 8½" x 11" booklet. Published 1978.

This adventure takes the characters into the deadly realm of King Snurre Iron Belly where, in addition to plenty of fire giants, they may encounter mind flayers, an ancient red dragon, about eighty trolls, and plenty of other nasty creatures. There are two dungeon levels along with one level of caverns, and players will soon find that very few of the rooms and caves are unoccupied.

The scenario is well thought out and nicely detailed. DMs will find some intriguing special instructions given for deviously playing several of the intelligent inhabitants of the dungeon. There's also some useful and interesting information on the Drow (dark elves).

This is definitely not an easy dungeon, and since the monsters are quite strong and numerous, players will often be hard put to survive. Many of the monsters could be left out, and this would still have been a challenging adventure.

I advise all DMs who are looking for an exciting, worthwhile adventure for their players to pick this one up. You won't be disappointed.

– Kurt Butterfield

AN INTRODUCTION TO TRAVELLER, *Traveller* Book 0 (GDW); $5.98. Designed by Loren K. Wiseman. 6" x 9" 48-page booklet. Published 1981.

AN INTRODUCTION TO TRAVELLER is GDW's newest addition to the *Traveller* rules system. Designated as Book 0, INTRO TO TRAVELLER is just what the title claims: an introduction to role playing in general and *Traveller* in particular. Written by *Traveller Journal* editor Loren Wiseman, INTRO covers some elementary principles behind role-playing games,

gives an overview of the *Traveller* game systems and provides advice to players and referees on their respective responsibilities in the game, focusing on elements from starting campaigns and modifying the game system to using miniatures in play sessions. Five appendices provide an example of an actual *Traveller* session, a glossary of terms used in the game, an overview of existing *Traveller* materials, a table of die rolling percentages and a "directory" for those using the first edition rules (so that they can find page references in that edition for those items mentioned here).

AN INTRODUCTION TO TRAVELLER is an excellent reference book for those new to the game. It provides guidelines for playing, refereeing and learning the system that I wish I'd had when I first started role playing. The book is written in a clear and interesting manner that should do nothing but aid and enlighten the novice. There are even a few reminders that experienced *Travellers* would do well to take note of – some I've had the misfortune to play with could learn much from the sections on player/referee responsibilities.

Unfortunately, for its price, AN INTRODUCTION TO TRAVELLER will not be of much overall use to the experienced player or referee. Most who have played any RPGs at all and particularly those who are *Traveller* veterans will have gleaned much of the book's advice from hard experience. Some of its material, too, seems to have been derived from the earlier, free *Understanding Traveller*.

If you're new to *Traveller*, you'll find this book a useful aid. If not, it probably won't be worth your time and money to buy – unless you're a completist.

– William A. Barton

THIEVES' GUILD III (Gamelords Ltd.); $5.95. Designed by Richard Meyer and Kerry Lloyd. Bagged, with 60-page rulebook. Two or more players; playing time indefinite. Published 1981.

THIEVES' GUILD III is the continuation of the *Thieves' Guild* series. Included in TG 3 are expansions for lockpicking and pickpocketing. Also included are two new scenarios, "The Tower of Tsitsiconus" and "The Duke's Dress Ball."

THIEVES' GUILD III is printed clearly and is hole-punched for easy insertion into a notebook. The lockpicking and pickpocketing expansions are truly helpful. Locks are given a complexity rating. The level of the thief is compared to the complexity rating to see if the thief can pick the lock. Items to be picked by a thief are given complexity ratings, too. "The Tower of Tsitsiconus" is an excellent production. It deals with the robbery of a mage's tower. It has some interesting rooms, items, and traps. "The Duke's Dress Ball" is a different kind of adventure. Your thief uses a forged invitation to get into the ball, trying to deprive the various guests of their valuables, assisted and inhibited by a number of special events.

The rooms in the duke's estate and the mage's tower have no scale on their maps. Some situations in the scenarios are not fully covered, but what GM has not met that problem before. These weak points are not much hindrance.

I recommend THIEVES' GUILD III to all who enjoy playing *Thieves' Guild*. Gamelords Ltd. has created another excellent product. It is making itself a great reputation for quality.

– Mike Kardos

PLAY AIDS

PLAYER CHARACTER RECORDS (Canadex Games, 2552 River's Bend Land, Oakville, Ontario, Canada L6L 1V3); $3.00. Designed by Iain Delaney. Ten 11" x 17" sheets. Published 1981.

I should say that I don't use a commercial character sheet when I play D&D. Anyone with a decent typewriter and 5 cents photocopier can make satisfactory character sheets, but some want more detail and better appearance than they can provide themselves. Unfortunately, Canadex's PLAYER CHARACTER RECORDS provide neither.

Each record is an 11" by 17" sheet, slightly heavier than typing paper, folded once to make four pages. The first page provides space for six character abilities, saving throws, numbers to hit various armor classes, weapon proficiency, and psionics – all straight from AD&D. The other pages are mostly white space, with no lines and just enough headings to provide minimal organization. Aside from an alignment graph (again from AD&D) the art consists solely of two swords on the front page.

The Records are virtually unusable for *RuneQuest*, C&S, or other FRPGs which require more information than AD&D. As an AD&D record they lack detail. Moreover, a

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character record should have an exact place for everything. In the absence of lines, numbers on the records hang in the air and could cause confusion; at any rate, the result is bound to be sloppy-looking.

These are poorly conceived and poorly executed; save your money.

– Lewis Pulsipher

MINIATURES

FAMOUS MONSTERS (Heritage); $19.95. Designed by Brian Phillips. 15 25mm figures, 10 paints, brush, 4-page rules, 4-page painting guide and data sheet, 11" x 17" map, two dice, plastic tray. For two players; playing time 30 minutes to 1 hour. Released 1981.

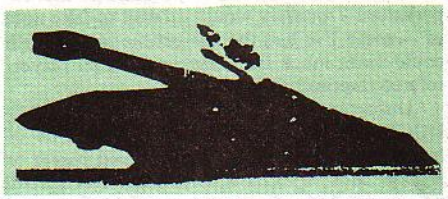
FAMOUS MONSTERS is Heritage's entry into the monsters-of-movieland gaming field. The kit contains 25mm lead miniatures, game rules and map and paint and brush to enable the beginner to play out a game with painted figures. The game map is a representation of Dr. Frankenstein's castle, with secret lab, tower and various other rooms where the monsters may be hiding to foil the attempts of the humans, to rescue Elsa (the captive heroine), led by Karl, the hero, and the ubiquitous Dr. Van Helsing. The rules cover – besides the usual movement and combat – panic, the effect of silver bullets and wolfbane, secret doors and other standbys of the monster movie genre. The overall concept is reminiscent of those late-night monsterfests in which Frankenstein, Dracula and the Wolfman have a go at it with the local villagers – with Vampira, the Bride of Frankenstein and Ygor thrown in for good measure.

The game, while exceedingly simple, is interesting enough to give novice gamers a taste of "the real thing." The map could easily be used for other purposes – a simple castle for a FRPG, for example. Though still easily bent by the weight of the figures, the plastic tray is a sturdier improvement over the styrofoam trays in earlier kits. While the quality of the miniatures in the set vary, probably due to the several designers involved, the three chief monsters (Frank, Drac and Wolfy) are better designed and more to scale than Archive's version of the terrible trio (though Ral Partha's "Flesh Golem" is superior to this Frankenstein Monster).

Some of the figures are less than satisfying – Vampira and Frankenstein's Bride, for instance, as well as some of the villagers. Many are so textured that details are difficult to distinguish, though this is alleviated somewhat when the figures are painted.

I'd recommend this set to novice miniature gamers to whom the subject is of particular interest. Old hands might wish to wait for individual sets to be released.

– William A. Barton



SPACE OPERA GROUND AND AIR EQUIPMENT (T-Rex); $4.00/set. 1/285 lead miniatures of futuristic armored vehicles, licensed for FGU's *Space Opera*. Released 1981.

This first offering from a new company is an impressive *tour de force:* remarkably detailed little future tanks based on the *Space Opera* designs. The initial release includes five units: two styles of large tank and a trim little starfighter (one per box) and two smaller tanks (two per box).

The quality of detail on these is absolutely superb; the originals must have been triumphs of the machinist's art, and the reproduction quality is excellent. Each unit comes with its own "in flight" stand (the tanks are hovercraft).

My complaints are small ones. The price is a little high for many pocketbooks – though the tanks are worth it – and I question the scale. Even allowing for future increases in tank size, these are *houses* in 1/285 scale. The larger tanks are almost 2" long! (And these are just line units; they promise a "Continental Siege Unit" that will dwarf them.)

Altogether a remarkable first offering; look for more from these people. As with most new companies, their distribution is spotty in stores; mail-order, or plague your hobby shop to get them. Recommended, at least in small quantities, to any future armor buff.

– Steve Jackson

STAR WARRIORS (Ral Partha); $4.50/set. 15mm lead SF miniatures. Released 1980.

Ral Partha presently offers six 12-figure sets in this line: Power Armor, Marines, Mercenaries, Armed Civilians, Aliens, and an assortment. These are typical nicely-detailed science fiction figures. The poses are good, the casting fully up to Ral Partha standards, and the package gives you your money's worth.

The only real problem I see with these is that 12 of one figure (or six each of two) may be more than some gamers need . . . the more so since the Marines, Mercenaries, and Power Armor figures are all rather similar. The assortment pack avoids this problem.

If you're playing science fiction games in 15mm, these are excellent.

– Steve Jackson

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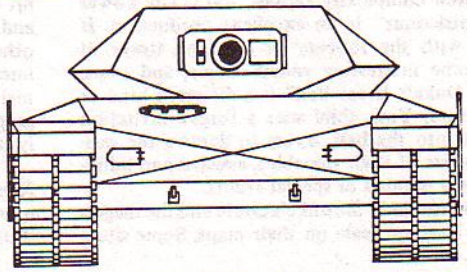


OPERATION: SKYBOLT

OPERATION: SKYBOLT is a realistic, easy to play Play-By-Mail (PBM) game from Computer War Games Corporation. OPERATION: SKYBOLT features two levels of play and detailed maps of the terrain you will be fighting for. There are two teams of 10 players, each consisting of 1 Army/Corps Commander and 9 Division Commanders. The Army/Corps Commander controls Air Units, Orbital Combat, and supplies for the Divisions under him. He must also coordinate the efforts and strategy of the entire team. The Division Commanders control their battalions and support units ranging from Engineers to Helicopter Assault Sections to Artillery, all in an effort to accomplish the objectives set for them by their Commander. The maps include roads, rivers, railroads, cities, airfields, terrain, etc. The reports give a complete casualty and status rundown on each of your units. There are no codes and few abbreviations for you to decipher. We handle all the math and record keeping so that you can concentrate on strategy and tactics as you fight your way to victory.

For the months of October and November ONLY we are offering FREE setup to new players. Turns are $4.00 for Division Commanders and $5.00 for Army/Corps Commanders. Turns are every twenty days and we guarantee that a game will be processed within 72 hours of a game's due date. Rules are $1.00 but be sure to specify which set you want (Division or Army/Corps). We also offer a money back guarantee: If you don't like the game after the first turn, merely notify us and we will refund all but your set-up fee; No questions asked.

To join a game just send a check or money order for $5.00 to cover your first turn to: Computer War Games Corp. Dept. S1, 93 Hill Street, San Francisco, CA 94110.

COMPUTER GAMES

DRAGONQUEST (The Software Exchange; not to be confused with the SPI product); $15.95 for 16K tape, or $21.95 for 32K disk. Program by Charles Forsythe for the TRS-80. One player; playing time varies. Published 1980.

Calling all heroes! There's a dragon trying to create an international incident. Having been turned away at the embassy gates, scaly old Smaegor has snatched the king's daughter and made off for parts unknown. The reptilian captor has set a deadline of nightfall before he subjects the lovely princess to a trial by mastication. Here's a chance for fame and fortune, not to mention a nifty bit of adventuring.

DRAGONQUEST opens with a cute little routine that's nearly worth the price of admission by itself. From then on, all the *de rigeur* adventure stuff pops out at you from every direction: there's the water travel segment, the find-a-weapon routine, the Dr. Doolittle let's talk to the animals bit and much, much more.

There are also some design factors in DRAGONQUEST that are of interest. For one, you can pick up or drop a whole bunch of stuff at one blow, rather than singly, item by item. And there's the use of the shift key for entering the direction you wish to go: SHIFT E would help you move east, etc. Asking for help also produces some interesting results, but if I told you what they were, you'd miss out on the fun of finding out for yourself.

The adventure itself follows a fairly predictable logic. There are no glaring incongruities in it, nor is any esoteric knowledge needed. You are not out for treasure per se; you have a specific task to accomplish within a limited amount of time. If one were to seek out the weak points of DRAGONQUEST, one would have to look at the lack of red herrings, the lack of blind alleys and dead ends. DRAGONQUEST is very trim; there are not many twists and turns in it. But for many, this would be considered an advantage.

Pick up a copy and try to rescue the princess. She needs your help.

– Dave Albert

(Reprint courtesy of SoftSide magazine.)

MISSION ESCAPE! (CE Software); $24.95. 48k disk by Jim Jacobson for the Apple II. 1 player; playing time 5-15 minutes. Cannot be saved. Published 1981.

This is very similar to a game called *Escape from the Death Planet*, released a couple of years ago for the Pet. It's loosely based on *Star Wars*; our hero is trying to fight his way through a series of rooms, each one infested with stormtroopers, drones, and missile-firing robots. The rooms get progressively deadlier; the player's missile supply goes down; his ablative armor begins to wear away from the troopers' laser fires . . . and then he stops a missile, and it's all over.

An entertaining little game. I've wasted hours on it, never getting beyond section 6 (of ten). Absolute requirements are typing dexterity and pattern-recognition skills. (The enemy can only fire along diagonals or orthogonal lines. If you misjudge a diagonal, you'll waste a shot and/or die.) The sound effects are entertaining but not abrasive, and the "suspend" command (to stop the game if you have to answer the phone, for instance) is a blessing.

I wish the graphics were better. They're fuzzy; sometimes you can have trouble distinguishing the units (which kills you quickly). In general, MISSION ESCAPE is less complex, much less attractive, harder to play, and harder to win than its Pet predecessor. Use of numbers to enter directions is a nice idea, but the Apple keyboard, with its numbers all in a line, is inconvenient for this. You need a calculator keypad.

But, on the whole, it's a great way to kill an evening. Recommended for Apple owners who like reflex-testing games.

– Steve Jackson

MAGAZINES

F.Y.E.O. – FOR YOUR EYES ONLY (SPI); edited by David James Ritchie. Bi-weekly except during January; $50 per year. Four 8½" x 11" pages. First published 1980.

This is an expansion of the old FYEO column from *Strategy & Tactics* magazine. Like its predecessor, it covers military news: recent actions, possible upcoming developments, technology, etc. Sections include a chronology (mostly information you could get from a good daily paper), a "rumors" section, and feature articles on new hardware.

On the whole, nicely done. Though it's only four pages long, it packs a lot of information into that small space. Unlike SPI's similar *Berg's Review*, it features legible type and occasional photographs. The writing style is clear and concise.

The big bite is the cost. At $50 per year, FYEO works out to a cool 50 cents per page! This will put it right out of the casual reader's reach.

Very few of us *need* this kind of data (or can afford to indulge a mere interest). For those who do, though, FYEO is probably worth the cost. Recommended for the professional game designer or well-off modern/future game buff.

– Steve Jackson

PEGASUS (Judges Guild; R. R. 8 Box 9, 1221 N. Sunnyvale Rd., Decatur, IL 62522); $15 for 6 bimonthly issues. Edited by Mike Reagan. 8½" x 11", 92-page magazine. First published 1981.

You've heard of the game-in-every-issue magazines? Well, PEGASUS is the supplement-in-every-issue magazine, from the company that practically invented the supplement industry. Each issue contains a 32-page supplement (based on the Judges Guild *City State* Campaign), plus articles on AD&D variants, new magic and monsters, tips on GM'ing, fiction and reviews. There are a lot of illustrations, many of these in comic book color.

The pearl in this oyster is the supplement. In the premier issue, the adventure was to run around four rocky islands trying to reforge the Black Ring and repair the Sentinel. It was well thought out, reasonably complete, and entertaining – not a mere monster bash. As for the rest of the magazine, its charm lies in being *practical* – every article is geared to be put to immediate use. It is like buying a package of rules modules.

It is a wonder how Judges Guild gets so much fun into a 32-page supplement. On the other hand, it is a mystery how so little is in the rest of the magazine. None of the dungeon tips were memorable. The dungeon adventure was boring and lame-brained, though I suppose it would kill an afternoon. Magic items were nice, but the monsters were old hat. The interview with Dave Arneson rambled. The reviews were poorly done.

I can't recommend PEGASUS as a magazine. However, the installment supplement was nearly excellent. If you play AD&D and you think 6 supplements a year for $15 (plus a magazine) is a good deal, then subscribe.

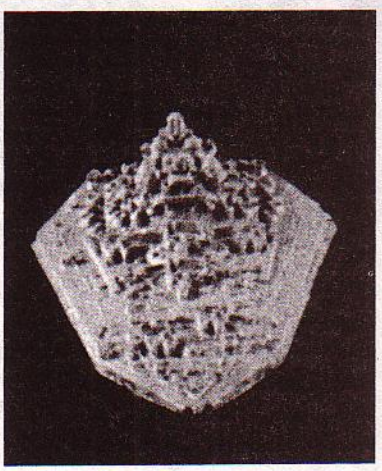
– W. G. Armintrout

PURSER'S MAGAZINE (Purser's Magazine, P. O. Box 466, El Dorado, CA 95623); cover price $4.00. 96-page 8½" x 11" non-slick computer magazine. Editor Mary Ann Dobson.

Robert Elliott Purser starts out his magazine by telling the reader that he/she should consider only two computers for purchase: TRS-80 Model III and Apple II. That sets the tone for the rest of the magazine, which consists of a few introductory-level articles on computers and nearly 70 reviews of software . . . all aimed at those two machines. However, lest their scope seem to be too limited, the publishers this summer brought out a special supplement directed towards Atari computers.

The magazine is very well done for a home-brew publication (all the editing is done on microcomputers, and the magazine is typeset *directly* from a floppy disk). The articles and reviews are aimed at computer novices and, I think, hit their mark. And the quantity of reviews is very helpful since it allows the magazine to cover a lot of the currently popular programs.

I have two main complaints with this publication. The first is that the articles are too few and somewhat lacking in substance. I'm afraid that a computer novice would read through them easily, nodding his/her head, and then realize that he/she really hadn't learned much of anything. My second complaint is that the software reviews are a little too friendly and gentle.



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DEALER INQUIRIES INVITED

I'm not sure who is doing the reviews (they are all unsigned), but it seems that the general attitude is "if it runs and does pretty much what it says, then it's a good program." For example; in the issue I received, there was a review of SSI's *Computer Napoleonics*. The review briefly describes the game and then simply says, "I found the game to be interesting and unusual. I like it. I recommend it." He/she then quotes several paragraphs of comments from a wargamer on their staff, who makes some very relevant and critical comments on the program (the best thought-out review of anything I found in the magazine), then follows them by saying, "I disagree with my reviewer. I felt that this game is far better than he gives credit for." No reasons why; no defense of the game; just "I like it and recommend it." Most reviews seem to be done by that same person and they just aren't very helpful.

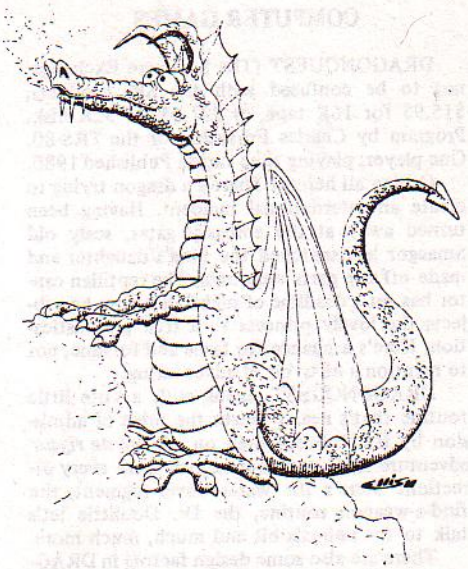
I recommend this magazine with the following conditions: (1) you own a TRS-80 Model III or an Apple II; (2) you don't know much about computers; (3) you want descriptions of much of the currently popular software. Don't buy it expecting well-thought-out reviews.

– Bruce F. Webster

BOOKS

DRAGONS (Random House); $3.95. Designed by David Kawami; drawn by Gerry Daly. 32-page 8½" x 11" book of punch-out figures on light cardstock. Published 1980.

DRAGONS is a collection of six whimsical punch-out-and-fold beasties. It's definitely aimed at the younger set, though some of the folding and insert-tab-A-into-slot-D is a bit advanced. The folding is clever, and the artwork (full color) is absolutely beautiful. And the dragons are ingenious. "Skelly" is a hand puppet, "Soarington" a glider, "Noddingham" nods his head when a breeze hits him – and so on.



It's just as well that they're so cute, because their use as play aids is pretty limited. All these dragons are too big to use with 25mm figures – let alone 15 – and if you're into larger scales than that, you want "real" dragons, not 3-D toys. In honesty, they were never meant for gamers – they're toys.

Still, DRAGONS is a cute novelty gift for a precocious young (or older but young-at-heart) fantasy gamer. Dragons are nice in their own right, even if you can't put them on the board for Grod the Barbarian to slaughter.

– Steve Jackson

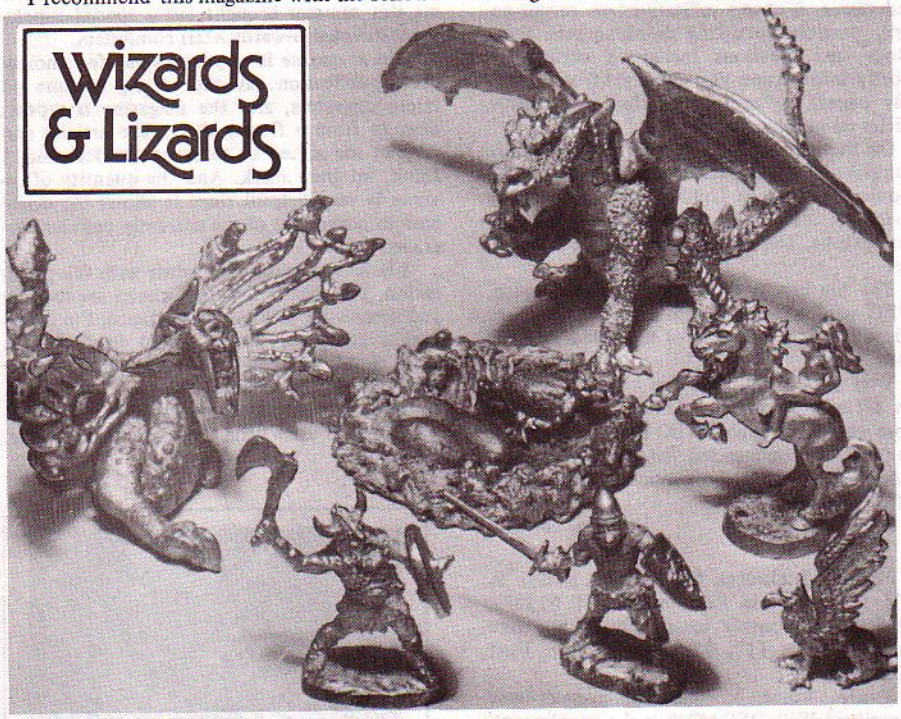
THE PLAYBOY WINNER'S GUIDE TO BOARD GAMES (Freeman); $2.50. By Jon Freeman. 286-page paperback book. Published 1979; earlier edition published 1975.

This book is billed as "hundreds of inside tips on the best strategies for winning at over 100 board games," but its value lies more in its game desciptions than in its strategy hints. Consider it a whole book of very short capsule reviews – not just of wargames, but of the whole boardgame field. There are 11 chapters; the first seven cover various sorts of boardgames, the last chapter is a rather good discussion of RPGs. The book is easily worth its price as an overview of the field.

On the other hand, it's nowhere near complete . . . much less so than, for instance, the *Game Master Catalog*. But the *Catalog* is an advertising book – its truthfulness about any given game is governed only by that publisher's honesty or sense of shame – while the PLAYBOY GUIDE is brutally honest about weak games. Still, a gamer might be unhappy, on buying this, to find half the book given over to games he never heard of, while many of his favorite wargames are omitted or passed over in a sentence.

This is a definite "go" if you don't confine yourself to wargames. The more restricted the spectrum of games you play, the less likely it is you'll find it worthwhile. Conversely, if you play everything you can find, you'll like the book.

– Steve Jackson



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OUTPOST GAMMA is a game of man-to-man combat on a colonial world of the far future, as hordes of low-tech native aliens use the hostile environment of their world to assault the power-armored Imperial Legionaires. **Outpost Gamma** features subtle strategy with simplified rules for fast, easy play. For 2 players.

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★ Constellation Contest ★

This is a contest of a type new to TSG . . . a word-search puzzle. The names of a number of constellations are hidden within this matrix of letters. They may read up, down, right-to-left, left-to-right, or diagonally in any direction. How many can you find? We won't tell you the exact number yet . . . but there are more than 30.

The first person to respond with a complete list of the constellations will win a year's subscription to TSG. If nobody gets them all, the winner will be the earliest among those that find the largest number. There is no specific deadline – the sooner, the better. We'll list the names of all runners-up. (Your entry should take the form of a LIST of constellations. Don't send us the puzzle with the names circled and make us do your counting!)

Also . . . whether you enter or not . . . please tell us what you think of this sort of puzzle, and of puzzles in general, as contests. If this one is popular, we could (for instance) do a word-search containing the names of several dozen s-f and fantasy games. If you don't like the idea . . . we'll drop it.

This puzzle was developed by Ralph Roberts of Asheville, North Carolina.

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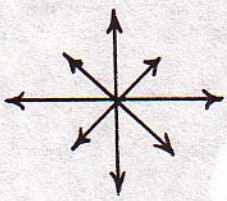

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UNIVERSE III is a computer-moderated correspondence game in which each player commands a starship entering a new universe to explore, colonize, and conquer new worlds, contending with other players and unknown hazards. Each time you send in a turn, the computer will evaluate it with respect to the current game situation and other players' moves, and send you a printout showing your current status. When you "meet" other players, you can send them messages . . . to trade, negotiate, or intimidate.

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NO DEADLINES – Our non-simultaneous movement system also means you can take as long as you like to send in your turn. No more "missed turns"!

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NO INTERFERENCE – Nobody at Central Texas Computing plays the game or tries to control the outcome. It's all up to you and the other players.

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LETTERS

. . . Congratulations on TSG 42! The reviewers are finally learning to come out with their opinions of a game – now if they'll just get a bit more specific about how a game plays. The AMOEBA WARS review leaves me a little bereft of details (do you move square-to-square, along star routes, what? is it as simple as RISK, or merely "straightforward" for a wargame). DARK STARS did a better job, in contrast. THEY'VE INVADED PLEASANTVILLE is a case of describing the situation without describing the game. What I guess I want – and maybe it can't be done in a tiny format – is to be able to visualize the game that's being reviewed. It's what I try to do with the ones I write.

W. G. Armintrout
Tooele, UT

There were several letters to the effect that the AMOEBA WARS review wasn't up to standard. The reviewer responds:

"Is it possible to cop a plea of half-innocent, half-guilty? Some reviewers (notably me) tend to be too specific; editing is a necessary consequence, as in my *Amoeba Wars* review. On one hand, I should have specified that the 'undercurrents of *Risk*' were in the combat system and the 'under-currents of *Cosmic Encounter*' were in the use of power and special power cards. On the other hand, objections were also recevied from readers to my having skipped over specific good and bad points of the game, and simply saying "in general, I found the game uninteresting. . . ." Additional descriptive details and the comment that I could find very few plusses or minusses fell to the editor's knife. *Amoeba Wars* had no startling innovations, no features that excited or repelled me. Let me recommend it to those who like a highly polished game, even if the game might prove unexciting to them.

I should have found a better way to say that the first time. I apologize for any hassle to readers or to Avalon Hill I may have caused them, and thanks for the criticism."

– David Ladyman

I have a number of questions to ask you, but I'll try to keep them as brief as possible: (1) – What are the procedures for submission of game designs at both large and small publishing companies? (2) – What are the neccessary qualifications of a staff designer, and how does one apply for such a position? (3) – What are the qualifications of a staff writer for TSG, and how does one apply for such a position? (4) – Would TSG be interested in publishing articles concerning: (a) – Gamer revision of published wargame designs (theory & practice)? (b) – Revisions for specific games (e.g. *Dune*)? (c) – Strategy, tactics, alternate scenarios, and descriptions of play for *G.E.V.*? (5) – Are you planning to expand *OGRE/G.E.V.* with background information, maps, scenarios, or anything else – and, if so, what are the tentative publication dates? (6) – To what extent does Metagaming hold rights to *TFT* and *OGRE/G.E.V.*?

I would appreciate a personal response, if possible; however, you may publish any portions of this letter, along with your responses, in TSG – other readers may also be interested in (1), (5), and (6). Thank you for your time.

Paul Hernandez
Annapolis, MD

You should already have received your copy of this reply – but, as you say, other readers may be interested. So:

(1) Submission procedures vary from company to company. The best thing to do is to write to any company you're interested in and ASK what their submission procedures are. If you don't get an answer, they probably weren't too interested in your design either. This will be covered in more detail in the "Game Design" series.

(2) In general, you'd have to (a) have an in at the company where you wanted a designing job, (b) have a history of published game designs, or (c) walk in the door and impress the chief of the design section with your incredible knowledge. Seriously – it varies so much from company to company that direct inquiry is your only chance.

(3) Right now TSG has no openings for salaried full-time writers. We have several "contributing editors" – requirements are, basically, to write regularly and well. Those interested in becoming a contributing editor should correspond with Forrest. The per-word pay is no greater than for anyone else, but you get to write more words.

*(4) YES, YES, and YES. We **always** want good variants and revisions, especially for the better space games. We've run several **OGRE/GEV** variants and scenarios already; we'll run more if we get good submissions.*

*(5) Yes, we're planning to expand **OGRE** and **GEV**, but I can't offer even a tentative publication date right now – see next answer.*

*(6) The contract covering **OGRE/GEV** and **TFT** is one of the subjects of the current legal disagreement between Metagaming and myself. That's really all I can say until it comes to trial.*

– SJ

Reader Ads

BACK ISSUES FOR SALE – mint – TSG: 13, 14 – $5 ea., 15-22 – $2 ea.; STRATEGIC REVIEW: 1-7 – $5 ea.; DRAGON: 1-12 – $3 ea., 13-22 – $4 ea.; $1 postage for orders under $11. P. Premo, RD 1, Alleghany, NY 14706.

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NEWS & PLUGS

Rumors of troubles at Task Force Games. The publication of *Federation Space* has been delayed indefinitely.

Mike Costello (17 Langbank Ave., Rise Park, Nottingham, England NG5 5BU) publishes *The War Machine*, a bimonthly devoted to "all aspects of the games software market." Price: One pound in UK, 1.50 foreign, for sample copy; 5 issue subscription five pounds, 7.50 foreign.

Orisek Industries has released three "Spellbinder" notebooks for gamers. Two are for computer games – one holds up to 4 cassettes, the other 4 floppy disks. The third "Spellbinder" is a combination notebook/DM screen, similar, but slightly less capacious than, the *T&T Survival Kit*, reviewed in TSG 43.

SPI has released its "easy to learn" *Dragonslayer* board game. Price: $15.

Muse Software offers *Castle Wolfenstein*, a 48K graphics adventure for the Apple, based on WWII. Price: $29.95.

Flying Buffalo is preparing a computerized dungeon PBM game. No details yet. Also opening: games of *StarWeb* and *Battle Plan* exclusively for gamers who have access to The Source.

Flying Buffalo is developing two new role-playing games set for release around Origins '82. One of them is based on their computer game *Starweb*, but players will take the parts of individual characters. The other is tentatively titled *Mercenaries, Spies and Private Eyes*, and will allow players to portray various spy-sorts from fiction and reality.

Discovery Games (we hear semi-reliably) is retooling their computer game line for compatibility with no less than ten different computer types.

Another one bites the dust, sort of: *Richard Berg's Review of Games* will shortly (within a couple of months) vanish as a separate entity. According to Berg, the biweekly magazine never generated enough interest to show a significant profit, and therefore had its advertising support cut off by SPI. However, RBROG will continue as a section in *Moves* Magazine. SPI plans for it to review only non-SPI products.

More on SPI . . . Simonsen, Wagner, et al., who recently sold several games to AH to raise money are said to be hot on the trail of some $300,000 in venture capital with which to refurbish the cash-flow situation of their shaky giant. One source (non-SPI) claims they already have it! Details of the transaction, and name of the "angel," aren't available.

PBM Update

UNIVERSE II (Clemens and Associates)

Company News: Vacation is almost over and turn processing will resume on October 15, 1981.

Quadrant I: One of the major Terran alliances has joined the Regajian Empire. This move is causing the Etuel to become suspicious of Terran motives.

Quadrant II: Several alliances seem to be concentrating on solidifying their gains by establishing well fortified colonies.

Quadrant III: A Terran counter-attack against the Muar Empire is in progress with both sides claiming victories.

Quadrant IV: The Guardian Alliance is growing rapidly and may soon challenge the older, more established alliances as they expand their area of influence.

– *Jon Clemens*

LORDS OF VALETIA (Gamesmasters Publishers Assn.)

Company News: With the hope that the 3rd time will be the charm, the LOV restart date, moved from Dec. '80 to Apr. '81, is rescheduled for Oct/Nov '81. Papers of Heritage are being assigned now.

Policy Change: 1. Orders are now filled within 3-4 weeks to allow time for checks to clear, so allow 4-6 weeks for delivery. This was due to a large number of bounced checks received from players. 2. The player ceiling is being reduced from 800 to 500. This means only about 45 new players will be allowed to enter this year, for ethical reasons.

– *Elmer Hinton*

UNIVERSE III (Central Texas Computing)

Game News: A major battle is being fought near Nath, causing some alarm among the Etuel and concern about Terran intentions. The Independent Scout Service has become the largest organized group of Terran starship commanders, though its intentions are still unclear. Unconfirmed rumors indicate a major Muar enclave has been established in Quadrant V.

Company News: Quadrant VI should be open by the middle of September.

– *David Bolduc*

STARMASTER (Schubel & Son)

Game News: The Central Galaxy erupted in a rash of warfare with seven major homeplanet invasions or similar large scale actions.

The Odonata Empire and Krimipintian Empire fought a fierce space battle with the Empire of Yhor. The prize was Oxen 3, a planet previously taken by the Empire of Yhor from the Pincerea State. The Odonata and Krimipintian swept the area of Yhor ships and now make plans to engage the land units on Oxen 3.

The Kingdom of Life and Valkyrian Confederation struck the Stralar Empire, a human race occupying Zeus 4. A fierce battle was fought, but the Stralar were losing badly. They prepared a message to be broadcast to the enemy saying they had chosen surrender rather than to add to more violence. They are willing to work alongside the victors if treated well.

At Cooper 3 the GAAC has suffered an unexpected defeat by the surprise attack of the Lyranians. The fate of Cooper 3 is still in doubt.

After many years of operations in and around the Quanistan system, the Kingdom of Karbia launched an invasion on Quanistan 3, the homeworld of the Great Kurin Empire. They made considerable military progress, but the problem of controlling a population of over 8 billion aliens with a relatively small invasion force is always a challenge.

At Dune 1, the Frigid Auld Worm's planetary defense of probes armed with mega-kill weapons has so far succeeded in holding off the powerful invasion fleets of the High Junia and Ragarian Empire.

The Holy State of the Whole of the Parts was successful in its invasion of Alyord 3. The question remains, can they find such a totally alien planet useful to their growing empire?

Horizon 4 and its empire, the United Prides of Leo, were subdued by a combined force of the Noorvikian Empire, Valkan Federation and Eismeer Suzerainty.

In the Northeastern Galaxy, the Jehakalkhi Empire surrendered Antic 4 to the Melkorian Fascist Regime. The Melkorians may find they will need Jehakalkhi's assistance to get full benefit from the production of Antic 4. Four billion people in 220 mega cities would be impossible to control using the rather small force of Melkorians now at Antic 4.

THE TRIBES OF CRANE (Schubel & Son)

World I: The Nisa Island Confrontation between the Grand Union and Dark Union seems to have come to a close. On the southern end of the island, the legendary General Tabor of the Dark Union escaped through the tunnels of an old manganese mine. On the northern end of the island, the Grand Union attacked and took the strong Dark Union Fort 93. Yet some of the garrison was able to escape with the help of the Uhlan tribe, a Dark Union infiltrator in the Grand Union ranks. The fast longships of the Uhlan carried the garrison quickly out to sea after holding off the Grand Union forces by sacrificing a 200 man expeditionary force.

World II: The strong city of Zula fell to Odegaard and the Whiz Bang Alliance. However, losses were so heavy on both sides that it is still in doubt who will have enough military strength remaining to effectively control the city.

– *George Schubel*

Calendar

September 25-27: BABEL CON '81. Star Trek, F&SF con. Contact Steve Harrison, Babel Con '81, 1355 Cornell SE, Grand Rapids, MI 49506.

September 25-27: GALACTICON 81. SF con. Contact Galacticon 81, P.O. Box 491, Daytona Beach, FL 32015.

September 25-27: URCON III. SF and simulation gaming con. Contact P.O. Box 6647, Rochester, NY 14627.

September 26-27: GAMES DAY '81. Contact (SASE) Games Day '81, Games Workshop Ltd., 17/18 Hythe Road, London NW10.

October 9-11: FALLCON. Miniatures, historical, F&SF gaming. Contact P.O. Box 24209, Cincinnati, OH 45224.

November 6-8: ARMAGEDDON '81. AD&D and wargaming con. Contact ARMAGEDDON '81, University of Houston Central Campus, Houston, TX 77004.

November 13-14: TEXCON 1981. D&D, Car Wars, other games. Howard Johnson's IH 35 N., Austin. Contact: David Ladyman, 8028 Gessner No. 1805, Austin, TX 78753.

November 14-15: ALPHACON III. SF and gaming. Contact c/o Bill Freebairn, 310 N. Sunset Dr., Ithaca, NY 14850.

November 20-22: CONTRADICTION. SF Con. Contact Linda Michaels, 27 Argosy, Amherst, NY 14226.

January 23-25: GAMES CON. Wargaming. Contact Games Con 1982, P.O. Box 1016, CANBERRA ACT 2601 AUSTRALIA.

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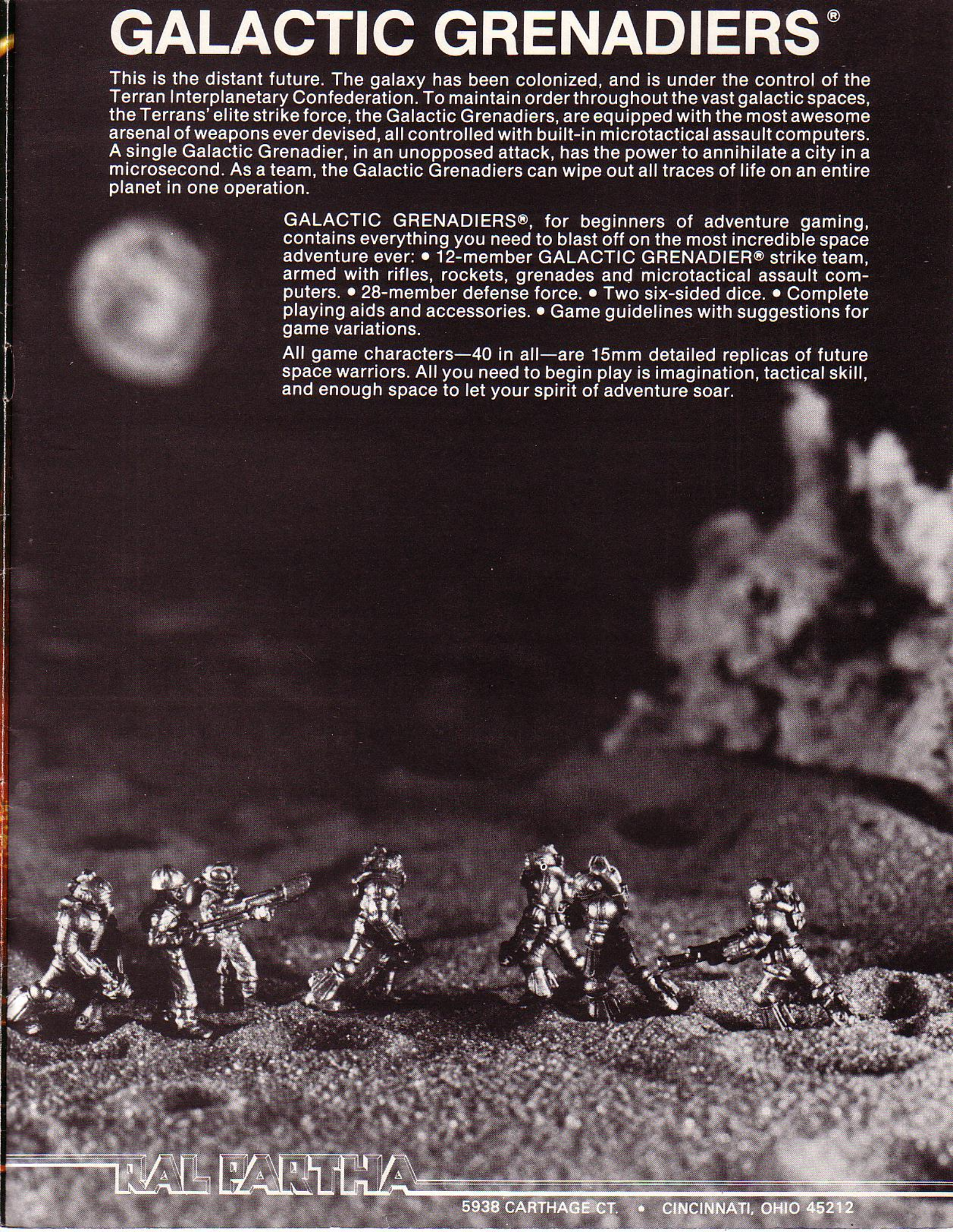

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