
# The Star Frontiers Article Collection

from *Dragon* Magazine

| TITLE | SUBJECT | SOURCE |
|---|---|---|
| Blastoff! First Look at SF | AD: Review | Dragon 65 |
| The SF 'Universe' | AD: Detailed Review | Dragon 74 |
| The Zethra | AD: New Race | Dragon 84 |
| StarQuestions | : Q&A | Dragon 85 |
| Fast and Deadly | KH: Starships | Dragon 86 |
| Freeze! Star Law! | AD: Law Enforcement | Dragon 87 |
| Battle of Ebony Eyes | KH: Mini-Mod, Black Holes | Dragon 88 |
| StarQuestions | : Q&A | Dragon 88 |
| Yachts and Privateers Return | KH: Starships | Dragon 88 |
| The Mighty Mega-Corporations | AD: Mega-Corps History(in Zeb) | Dragon 89 |
| Mega-Corporations of the Frontier | AD: Mega-Corps History(in Zeb) | Dragon 90 |
| Careers in Star Law | AD: Law Enforcement | Dragon 91 |
| Day of the Juggernaut | : Mini-Mod, Huge Ship | Dragon 91 |
| StarQuestions | : Q&A | Dragon 92 |
| Rare Wines and Ready Cash | AD/KH: Agricultural Trade | Dragon 93 |
| From Anarchy to Empire | AD: Governments | Dragon 94 |
| The Zuraqqor Strike Back | AD/KH: New Race, Mini-Mod ships | Dragon 95 |
| The Coming of the S'sessu | AD/KH: New Race, Sathar-like | Dragon 96 |
| StarQuestions | : Q&A | Dragon 97 |
| StarQuestions | : Q&A | Dragon 98 |
| The Volturnus Connection | AD: Volturnus | Dragon 98 |
| Tanks a Lot! | AD: Vehicle Combat | Dragon 99 |
| SilverTwin | AD: Star Law Vehicle/Enforcemnt | Dragon 102 |
| The Saurians | AD: New Race | Dragon 103 |
| Tanks Again! | AD: Vehicle Combat | Dragon 103 |
| Star Law Returns | AD: Law Enforcement | Dragon 104 |
| Expanding the Frontier | AD: Exploring | Dragon 105 |

| | | |
|---|---|---|
| Tote That Barge! | : Interstellar Economics | Dragon 107 |
| Old Yazirians Never Die | AD: Age and Aging | Dragon 108 |
| Patriots, Terrorists, & Spies | AD: Cults | Dragon 109 |
| Going For a Swim? | AD: Underwater Adventures | Dragon 110 |
| For a Fistfull of Credits | AD: New Items | Dragon 112 |
| An Interstellar Armory | KH: New Starship Arms | Dragon 115 |
| Here Comes the Cavalry | AD: Warfare | Dragon 120 |
| The Leader of the Pack | AD: Leadership | Dragon 122 |
| The Whole-Earth Ecology | AD: Aliens | Dragon 123 |
| A Shot in the Arm | AD: Damage System | Dragon 124 |
| Second Look at Zebulon's Guide | ZG: Zeb Guide Errata | Dragon 125 |
| Armored and Dangerous | : Powered Armor | Dragon 129 |
| The Frontiers of Design | KH: Starship Building System | Dragon 132 |
| Sage Advice | AD/ZG: Q&A | Dragon 135 |
| Damage Control--Report! | KH: Starship Combat | Dragon 136 |
| "Jetboots, Dont fail me now!" | AD: revised movement rules | Dragon 139 |
| Sage Advice | : Q&A | Dragon 144 |
| From Freighters to Flying Boats | AD: Ships, Boats, Ocean | Dragon 149 |


*Article listing courtesy of Rev. Roy Crisman*

# "Blastoff!"

## The work is done -- now comes the fun

*by Steve Winter*

*Dragon* Magazine, #65, pg. 7

The STAR FRONTIERS™game project was ambitious from the start. The problems that appear when designing three complete and detailed alien cultures, a huge frontier area, futuristic equipment and weapons, and the game rules that make all these elements work together, were impossible to predict and not easy to overcome. But the difficulties were resolved, and the result is a game that lets players enter a truly wide-open space society and explore, wander, fight, trade, or adventure through it in the best science-fiction tradition.

The STAR FRONTIERS set includes:

- A 16-page Basic Game rule book
- A 64-page Expanded Game rule book
- A 32-page introductory module, Crash on Volturnus
- 2 full-color maps, 23" x 35" and 10" x 17"
- A sheet of 285 full-color counters

### The Races

A quartet of intelligent, starfaring races inhabit the STAR FRONTIERS rules. New player characters can be members of any one of these groups:

- Humans (basically just like you and me)
- Vrusk (insect-like creatures with 10 limbs)
- Yazirians (ape-like humanoids able to glide short distances using lateral membranes)
- Dralasites (amorphous creatures that can control and even alter the shape of their bodies)

Characters for the STAR FRONTIERS game are created by a system that generates two characteristics at a time. Similar abilities are paired, so no character will ever have (for instance) a high dexterity score and a low reaction speed. In addition, characters can use experience points they earn during adventures to raise their ability scores, to learn one of 13 special skills, or to improve a skill they already know.

### The frontier

After communicating via radio messages for years, these four starfaring races meet in a region of space called the Frontier Sector. This vast region, 1,500 cubic light-years, contains 38 star systems. Only 17 of these systems have been explored and colonized when the game starts. Free enterprise is the law of the Frontier, and corporations compete with each other and local governments to control the most profitable areas and to open routes to unexplored systems.

Player characters are placed in this unexplored territory. They can work as corporate or government agents, or can strike out on their own as free-lance adventurers.

Despite their apparent differences, the four races share one thing: a common enemy that came upon them some time ago. Without warning, a fleet of warships attacked Frontier outposts and isolated colonies, destroying whatever they found wherever they went, fighting to the death or destroying themselves to avoid being captured. Only after several battles was it learned that the marauders were the Sathar, an evil race of worm-like aliens from outside the frontier.

In the face of this onslaught, the four player races formed a loose military alliance to protect their colonies: the United Planetary Federation. The second wave of Sather attacks was met by UPF warships. The invaders were slowly beaten back, system by system, until they withdrew completely, leaving no clues that would lead the victors back to their home world.

Defeated in space, the Sather turned to terrorism. Humans, Dralasites, Vrusk, and Yazirians were recruited to sabotage frontier bases and destroy the morale of the colonists. These deadly agents now lurk on almost every known planet, carrying out their master's orders and undermining the efforts of local authorities to build up their worlds.

**The adventure**

With the frontier as its background, the action in a STAR FRONTIERS game focuses on exploring new worlds, discovering alien secrets or unearthing ancient cultures. The rule book includes detailed guidelines for creating adventures, alien planets and the plants, animals, and intelligent creatures that live on them.

Something the game does not contain is rules for spaceship design or combat. Traveling on commercial starlines is covered in detail, but no rules are given for player-owned ships or spaceship weapons. This (admittedly) very important aspect of science fiction was left out because there simply was not enough room in the rule book for it. We didn't want to insert a weak set of starship rules, or raise the price of the first set by increasing the size of the rule book.

Instead, the starship rules will be published as a separate boxed game. This will include rules for starship design and construction, combat, character skills related to starships, starship deck plans, rules for fleet combat and boarding actions, and a complete starship boardgame that can be played with or without the original STAR FRONTIERS set.

**The long journey**

Design work on the game started in the summer of 1979. Dave Cook and Lawrence Schick, full-time designers for TSR Hobbies, were assigned to the project. Their goal was to create a wide-open science fiction role-playing game with a solid scientific base. TSR wanted a game that would satisfy fans of hardcore science fiction, and still be easy to play. Dave and Lawrence started by designing a character-generation system and simple rules for movement and combat. Then they started playtesting, adding and revising.

The game grew and changed for two years, until it was finally submitted for review in the summer of 1981. During those two years, TSR Hobbies grew tremendously. The company had

discovered that its games appealed to a much broader audience than wargamers and fantasy fans alone. D&D® and AD&D™games, for instance, were selling to people who had never played a war game or a role-playing game before. In order to tap this huge market , TSR decided to restructure the STAR FRONTIERS game so it would appeal to people who had never seen this type of game.

This decision meant most of the game needed to be rewritten and reorganized so persons with no gaming experience could buy it, take it home and play it without learning a lot of rules. The number and types of dice in the game were changed, the maps and counters were added, and many realistic but complex rules were sacrificed for playability. In general, there was an overall softening of the game's "hard core."

Another addition was a separate, introductory-level game written especially for newcomers to role-playing games. By de-emphasizing role playing, it allows new gamers to start playing the sample adventures almost immediately, using simple character creation. movement and combat rules.

In order to meet the game's scheduled release date, this revision work was split up among different members of TSR's product development staff. The project was completed in time for its scheduled release at the GEN CON® XV game convention.

The STAR FRONTIERS game in its final form retains the original concepts developed during the first two years of playtesting, but many of the mechanics of play and specific rules are considerably different from the original versions. Although many TSR employees were sad to say goodbye to the original hardcore version, others predict the revised STAR FRONTIERS game will be very well received.

Because of the space that would have been needed, a complete list of credits was not published with the game. For those who are interested in the game's long and fascinating history, the credits are listed below.

Concepts and original design: Dave Cook, Lawrence Schick

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# The Zethra

## An NPC race for the Star Frontiers game

*by Ed Greenwood*

*Dragon* Magazine, #84, pg. 76

From Pan-Galactic File 009887615AR211Open:

This report is filed upon completion of a preliminary study ordered when Agent 00969H "Quillanson" asserted that the being Hhon of Prenglar, Stulta of Dramune, and Mlaqaq of Truane's Star were common members of a single race. Questioning of these individuals, and the being Urloth and Vrendu of Cassidine, has yielded little information, save that all, though they have no detected regular intercommunication, think of themselves as Zethra, and originated on a single, unknown planet beyond the borders of the Frontier sector in the direction of the Xagyg dust clouds.

As far as can be determined, the Zethra (the name is used in singular and plural forms) derived the theoretical knowledge of interstellar spacetravel mechanics, but lacked heavy metals with which to construct spacecraft (Ref: Security File Catalogue, "Zethra Briefings"). At length, they acquired a derelict space vessel, thought to be an abandoned Vrusk "Sarsk" explorer starship (Ref: Security File Catalogue, "Vrusk Explorations, Xagyg Sector"), mastered its controls, science, and maintenance, and several hundred Zethra set out to explore surrounding space with it.

Information as to their precise route and adventures remains undisclosed, but the ship has apparently moved out of the sector, after leaving an unknown number of Zethra on various Frontier worlds. Such planetfalls seem to have been by choice, rather than by any military or colonization plan, but the intractable and enigmatic nature of the Zethra has thus far limited the information gathered on this possibly dangerous race. Agents are warned that the Zethra themselves constantly gather information, possibly for future military use, and news of a sensitive nature should on no account be allowed to reach them.

Agents are also warned to beware the personal powers of such individuals when encountered - an excerpt from a report filed by Agent 00616Y "Umbryl," ordered to question Urluth of Cassidine, is appended:

"The alien was initially approached by Agent 00982H 'Samber' and a recording robot 00151R 'Tencode' Level 5 modified Security Type, and it seemed intrigued. It accompanied them to Brazil's Hubstar Saloon, but upon seeing the follow-up guard take position behind it - two Vrusk, four Humans, and a Dralasite, all field agents of some experience and good reports - the alien grasped both Agent 00982H and the robot and appeared to shock them with such force that the Human agent collapsed and the robot went haywire, dancing about jerkily on the spot.

"It then forestalled the guards' attack by transmitting a jolt through the metal floorplates of the Hubstar's lobby that stunned all seven into unconsciousness. An electrostunner fired by myself

from within the Hubstar appeared to do it no damage, and it touched the robot again. The robot spoke, obviously to me and at the command or instigation of the alien: 'Don't try this again. I go now. Do not follow.' Contact with my superior, Agent 00812D 'Asimit,' resulted in orders to do just that. Report concludes with film and robodata…"

**Zethra**

**Physical appearance and structure**

Zethra are rubbery, ball-like creatures with high elasticity and durability, possessing a number of tentacle-like appendages. Six of these are retractable, strong, dexterous arms, capable of manipulating both large, heavy objects and tiny, intricate controls or items; their length varies from one to four meters. These project from the body in a ring about its widest circumference. A ring or "crown" of four small (.5m long) sensory tentacles projects from one end of the ball, parallel to (but separated from) the rings of arms.

Zethra are a mottled greenish-grey with a few orange patches, but they can alter the pigmentation of their skin cells by rearranging internal supplies of chemical substances, to blend with their surroundings. Although they are able to match all color hues exactly, they cannot alter their low reflectivity or the soft texture of their skin, and so cannot gleam or become rigid.

Of the five major spacefaring races, Zethra most closely resemble Dralasites internally, due to the amorphous nature of their body parts. A Zethra's brain is located beneath its crown; feelers from the brain's green, oval mass extend down throughout the rest of the body like countless tiny threads, directing body activities and supplying the necessary energy. Energy storage nodes, resembling star-like clusters of green threads, are located about a Zethra's body. They can be moved by the brain to avoid loss, if particular body areas are threatened or injured. Zethra move by rippling and rolling their ball-like bodies, pushing themselves along, or pulling at their surroundings for propulsion.

Zethra are hermaphroditic. They mate by tentacle contact, and one or both partners may give birth by budding. A "bud" grows in a bubble-like shape from the skin wall of the parent, until at length it breaks free to become a miniature, independent, and fully capable Zethra.

**Particular information on Zethra:**

**Average size:** 1.5m diameter

**Average mass:** 60 kg

**Average lifespan:** unknown; thought to be 400+ years

**Reproduction:** hermaphroditic, budding

**Body temperature:** 4 C; wide tolerance of changes in environmental temperature

**Senses**

Zethra sense heat, light, and electrical energy, and can distinguish variations in the same with great sensitivity through their four "see-feelers," or "seefers" (as Humans call these organs).

They can also sense vibrations and energy fluctuations through parts of their bodies, but entirely lack a sense of small. Like Dralasites, they also lack the ability to see or appreciate colors, detecting them only as differences in shade.

**Speech**

Zethra have no audible speech, instead using a rapid, complex language of electrical energy pulses with which they communicate with other Zethra through any good conductor (*e.g.* ferrous metals), or through direct seefer contact. Zethra can communicate with Humans, Dralasite, Vrusk, and Yazirians through a code-like series of "clicks"; they "hear" sounds in return by sensing and interpreting air vibrations.

Zethra create "clicks" by silently tapping someone with a tentacle, or by banging on a surface with a held object. They may also pass electrical pulses or mild shocks through conductive materials (a painful form of communication!), or cause a machine to emit sounds by the use of electrical impulses. Any Zethra who has practiced with a polyvox can cause it to emit a message through the use of energy pulses. They appear to comprehend unfamiliar languages rapidly and with ease.

**Society and Customs**

Zethra appear to be very self-interested and amoral. Rare in the extreme, they seem to lack any organized society or racial goals, although they will readily cooperate with their own or with other races for rewards. Zethra desire supplies of energy, or organic matter with which to produce it.

Zethra also like information, and appear fascinated by trivia from all races and planets: odd bits of poetry, music and lyrics, catch-phrases, rumors, and apparently inconsequential facts. Such information is used for personal enjoyment and to achieve some unknown goal or future scientific development, but they will divulge nothing of their personal plans or preferences. All information can be retained perfectly for later recall and use.

The few Zethra encountered have readily joined Frontier life. As noted above, they appear to have come from a planet in an unidentified sector, spreading through space by using a derelict spacecraft built by Vrusk, which they found, studied, and then piloted by use of their special abilities. They do not appear to have had the materials necessary to construct their own spacecraft.

**Attitudes**

Zethra are not allies of any particular race, and refuse to cooperate with either the Sathar or any UPF organization, such as the Star Law rangers, the Pan-Galactic Corporation, or the smaller interstellar companies. Their true feelings are difficult to identify, but they seem to get along with all creatures who do not hinder their activities. Zethra do not appear to understand humor on the part of any creature. Rarely offended by the words or deeds of others, they are commonly thought of as emotionless. They can, however, become the friends or enemies of individuals of other races.

**Special Abilities**

Zethra can, at will, consume organic matter and convert it to energy, using it for continued activity, healing, and rejuvenation. This is done by some inexplicable natural process which remains a mystery to Frontier scientists of all races, even after exhaustive physical and field examinations. Zethra can store such energy in internal battery-like organs, using or releasing in when necessary to move, think, act, manipulate items, or as a weapon against other creatures.

An adult Zethra can store 220-440 SEU in its body, and requires approximately 20 SEU daily for movement, thought, and functional stability. Prolonged combat, complex mental effort, and the healing of injuries can double a Zethra's daily energy consumption. Zethra can heal minor wounds by resting in the normal fashion, or by releasing energy (50 SEU will restore one lost hit point). This represents a return to body stability.

Lost limbs or body organs will regenerate very slowly; a tentacle, for instance, takes 3-6 months to be replaced, and a seefer 1-4 months. Given enough time and food, a Zethra can always rebuild itself so long as most of its brain and at least one "storage-star" cell cluster survives. It will patiently absorb all organic matter around it until able to regrow the damaged parts of its body.

It must be emphasized that Zethra can only absorb organic matter, and will convert it entirely to energy with few by-products. Different materials will, of course, yield different amounts of energy (live intelligent creatures seem to yield the most energy, per given amount of mass, though Zethra will refrain from "eating" companions or obviously intelligent beings unless such beings are enemies).

Zethra can also transmit energy by contact, with great precision, releasing up to their current total SEU, minus 25, in any turn. These pulses can activate or deactivate computers, security systems, and robots. The pulses will duplicate the effects of throwing the "on" switch, or of giving certain command words; they may also simply blast or jolt the machinery past the point of its safeguards. Unfamiliar equipment and large computers often cannot be knocked out in such a manner, but a Zethra can always cause a robot to malfunction by a discharge of 100+ SEU. A Zethra who is familiar with a scanner, security lock, or related device will not hesitate to disable it if it is so inclined, regardless of the wishes of other creatures.

A Zethra discharge is less potent than a beam weapon, doing 1d10 damage per 2 SEU expended. They can elect to put more energy into a given attack, so that a cornered Zethra could well slay half a dozen or more opponents. Zethra discharges must be by the direct contact or through a metal conductor (which reduces damage by -2 per meter of conductor separating Zethra and victim). A Zethra can expend 2 SEU to stun as an electrostunner does, but if a target appears to be protected by an anti-shock implant the Zethra may increase its next attack jolt to 14 SEU, sufficient to both overcome and destroy the implant. A gauss screen can stop a Zethra jolt, but will usually fail under repeated attacks; Zethra cannot burn out such a defense, but know their limited power supply.

Zethra are immune to all electrical and radiant energy (*i.e.*, laser) attacks, and can drain a powerclip, beltpack, or backpack at the rate of 10 SEU per turn. Laser, electrostunner, stunstick, and shock glove attacks all provide Zethra with energy, rather than damaging them. They absorb 10 SEU per turn given to them by the weapon attacks, conducting away what cannot be absorbed. Fire and sonic attacks to half-damage to them. Electrical creature attacks

(such as those of the Rogue Crystals found on Vulturnus) do no damage, and are absorbed in the same way weapon attacks are. Physical attacks do full damage.

For example, if three Star Law marksmen with laser rifles shoot a Zethra with their dials set to 20 SEU, they would do no damage to it, but would instead give it 10 SEU of additional energy (the rest being channeled away). The Zethra could conduct the excess energy to the marksmen or another target through a metal floor, while engaging in some other activity.

Zethra can also serve as a power supply for beam weapons, defensive screens, and machinery wielded by themselves or by others. Contacting the necessary powercords with the tips of their tentacle-like arms, they will often recharge the equipment of encountered strangers in return for food and gossip.

**Experience**

A Zethra's perfect memory, inquiring mind, and reasoning intellect aid it in its understanding of the manufacture, handling, and repair of machinery and mechanical tools or aids. This ability is similar to a Vrusk's Comprehension, but is effective only in dealing with objects and mechanical thinking, not in social dealings. This allows a Zethra to add 1d10% chance of success to its success rate (in addition to its skill level) when using Technical skills.

**Zethra Ability Modifiers**

Zethra NPCs are created in the same manner as characters normally are, according to the Star Frontiers game rules. The base ability scores are altered by applying the following modifiers:

STR/STA: -5

DEX/RS: +5

INT/LOG: +5

PER/LDR: -5

**Zethra Movement Rates**

Normal rolling (=walking): 15 m/turn

"Scrambling" (=running): 35 m/turn

Average movement per hour: 6 km

Consider Zethra movement as "Slithering" for application of Terrain Effects.

**Additional Data**

Zethra may use all tentacles with equal facility; they have no "handedness." They also lack a backside, and can move in any direction with equal ease, rarely losing control in weightless conditions.

Zethra cannot be stunned, but are otherwise affected by non-electrical beam weapons as noted above. They can bounce as effectively as other creatures leap, but are affected by wounding,

falling, and explosives. Zethra swim at the same rate as the other races, but lose no stamina points until their current SEU is 40 or less (then they lose 5 STA per 30 minutes). Absorption of aquatic lifeforms will prevent SEU loss. Water transmits Zethra jolts poorly: -3 points of damage per 10 meters distance, but any creature within the jolt's effective radius in contact with the water cannot avoid damage.

Zethra can tolerate a wide range of atmospheric pressures (though not the vacuum of space) and absorb any needed materials from surrounding gases through their skin. They have no lungs, and don't require oxygen or other specific gases. They cannot drown unless drained of energy and imprisoned underwater with no food available.

Inert ("noble") gases do not yield the materials Zethra need, but they can tolerate them for short times. Poison, smoke, or doze grenades will not affect Zethra. Stimdose, Staydose, and power screens have normal effects on them, however.

Zethra cannot wear defensive suits, but can wear belts, with pouches, linked from the base of an arm around the curve of their bodies to the base of another arm. In this manner they can carry screens and other items. Some Zethra have ID cards issued by local authorities to keep track of their movements and activities, but Zethra have no distinctive Personalized Recognition Attribute (such as a fingerprint or voice pattern).

**Referee Notes**

The PSA of Zethra are always Technological. Zethra are always after more information, but their goals, plans, and feelings should remain a mystery to other races. If a Zethra befriends a player character, that PC can trust the Zethra not to make any hostile acts, but not to act in a consistent or "sane" manner; the PC may be attacked by space pirates and see his friend wander out into a laser crossfire to inquire of the new arrivals if they know any old songs, or have heard anything about so-and-so's daughter on the planet Kdikit

Zethra seem very long-lived and know much of past Frontier events and machinery. A typical Zethra will have skill levels as follows: Melee weapons 1, Thrown Weapons 2, Computer Skill 4, Robotics Skill 3, Technician Skill 6, Environmental 2.

Zethra tend to prefer thrown weapons in combat if they cannot use their electrical discharges effectively. They always try to learn what they can of computers and robots (something local authorities are understandably reluctant to aid or allow, given the unknown aims and flexible loyalty of Zethra).

Naturally adept at Technician subskills, they are of necessity practiced in Environmental Skill. Two subskills here are automatically possessed by all Zethra, regardless of study or training: Analyzing Samples, and Making Tools/Weapons. Zethra often work as fences, barkeepers in spaceports, or as bodyguards to rich and adventuresome spacefaring individuals. Any position where new information is likely to be constantly forthcoming is preferred.

It must be emphasized that Zethra are rare, enigmatic, mysterious creatures. They must always be NPCs, but represent an independent force, rather than an enemy to other races like the Sathar. Zethra seem to like travel and adventure.

# "Freeze! Star Law!"

## The interstellar police of the Star Frontiers game

*by Kim Eastland*

*Dragon* Magazine, #87, pg. 71

According to the Star Frontiers game glossary, the Star Law Rangers operate as an interstellar police force that "concentrates on finding Sathar agents, but also fights space pirates and other interstellar criminals." We also know that the Rangers have large territorial areas of authority because in the history section we find that Rangers "track the Sathar's agents from planet to planet and fight them on their own terms." Beyond that, there is little for an aspiring Star Frontiers game referee or player to consider when dealing with Star Law forces. The purpose of this article is to fill in some large holes that exist about this intergalactic agency and its members.

Before proceeding any further, let's look at a few facts and assumptions that will help define law enforcement and military authorities in the Star Frontiers game.

- The peace of the Frontier region is maintained in space by the UPF Spacefleet (see the Star Frontiers Knight Hawks game). We assume that actual authority in deep space is in the hands of the Spacefleet and not the Star Law.
- The defense of individual planets is the responsibility of their armies and militias. This is certainly true for civilized planets. Whether the armed forces are made up of volunteers, inductees, or mercenaries would depend upon the planetary government, its population and resources, etc. (in other words, the referee). It is safe to assume that matters of immediate local defense (riots, revolutions, massive pirate raids, etc.) usually fall under the authority of a planetary army and the space fleet it uses for orbital defense.
- Every large city will have its own police force to guard its citizenry and maintain law and order. Some planets might have police with wider territorial authority for counties, states, provinces, nations, or continents.
- Although the interstellar company most often referred to in the Star Frontiers game is the Pan-Galactic Corporation, the Knight Hawks Campaign Book notes that it is only one of a half-dozen similar mega-corporations in the Frontier. It seems obvious that each mega-corp would want their own security force to guard their property and interests, to investigate industrial espionage, etc. No one mega-corp security force would be trusted by any other to always stay within its corporate authority.
- In addition to the above, innumerable other law enforcement agencies would be at work: high-tech mercenaries hired by rich individuals as body guards, private investigative firms licensed to operate locally or planet-wide, and so forth.

As you might guess, the problem of interplanetary security is a big one. If the theft of a Pan-Galactic Executive Vice President's personal belongings occurred, it would bring in Pan-Galactic's Security Force, any private firms the VP had employed, and (if notified) all

planetary authorities. If the felon were loose on the planet, that might bring in all planetary investigators authorized to keep local peace. If certain major crimes were committed during the robbery, say the theft of a government shuttle for a getaway, the armed forces might now be involved.

However, if the fugitive leaves the planet and escapes into deep space, would the Spacefleet be involved? What happens if one of the possessions stolen was a device that would be of interest to a hostile alien race? Could a Port Loren beat cop try to arrest a Sathar in deep space? Obviously, there must be a law enforcement agency with far-reaching powers and jurisdiction that can work with different local agencies while transcending their limitations. This is the job of Star Law.

The exact crimes and jurisdictional areas that Star Law would be involved with can be laid out by individual game referees. What is given here is a suggested organizational structure for Star Law. We hear a lot about the Rangers, a glamorous branch of Star Law, but in fact they are only one small part of a stellar agency dedicated to galactic peace.

We know that Star Law Headquarters is located in the city of Port Loren on the planet Gran Quivera ("The Hub of the Frontier Sector") in the Prenglar system. We also know there is a Star Law base on Morgaine's World in the same system. Beyond this, we can create some "basic facts" as a foundation for Star Law.

1. A Star Law base exists on every civilized world of any size in the Frontier Sector. These bases range from large complexes to one-man offices, depending upon that world's needs.
2. Star Law itself does not own a great fleet of ships or an army of combat vehicles. Each base would probably have an array of fast, light armed vehicles for planetary and interplanetary transportation, such as flit-boards, rocket bikes, skimmers, etc.
3. Star Law would not have vast armies of combat personnel because the UPF and individual planetary governments would not want a powerful Star Law undermining their own powers and authority. Instead, Star Law would have numerous agents with wide-ranging authority who would not pose a threat to city or regional police forces or planetary armies.
4. Star Law personnel would have the power to call the UPF's attention to major transgressions by city or planetary governments, though they try to avoid matters arising from local politics. They can get military assistance from Spacefleet or other authorities if deemed necessary by the UPF Security Council. An individual Star Law agent's firepower would be impressive since he must often uphold the law when working with few allies. An average Star Law mission team would include 2-6 members.
5. Any ventures beyond the Frontier "on the Rim" (as the unexplored and possibly dangerous systems are called) or into alien space (neutral or enemy) would be officially undertaken by Star Law. Any unofficial ventures would be made by mercenaries, bounty hunters, etc.
6. Residents of the Frontier Sector who are not of the four main races but who have clean records and initiative might also be Star Law officers. Indeed, when dealing with the Rim, they might be more desirable as agents than one of the major races.

7. All investigations of known hostile races (Sathar, Mechanons, Zuraqqor, etc.) would be made under the authority of Star Law. A Star Law agent's authority level would be very great in this area.
8. Investigations dealing with possible crimes committed by Star Law personnel would be handled by a special branch of Star Law Internal Affairs that answers only to the UPF Security Council.
9. All investigations of other established security forces (Spacefleet, world armies, etc.) or interplanetary governing bodies (such as the United Planetary Federation) would be handled by special investigation committees appointed by the Star Law Captain-General.
10. Under article 15 of the Securities Act, a Star Lawman of Ranger rank or above may commandeer any ship, private or UPF-owned, not engaged in an active defense of UPF space for the purposes of pursuing enemy agents in or out of the Frontier.
11. Under article 12 of the Securities Act, a Star Lawman of any rank can impose Stellar Law in a city, county, or continent if he deems it necessary to maintain civil obedience.
12. Under article 13 of the Securities Act, a Star Lawman of Ranger rank or above may also impose Stellar Law on an entire planet if he deems if necessary to maintain civil obedience.
13. Under article 14 of the Securities Act, the Star Law Captain-General may impose Stellar Law on an entire system if he deems it necessary to maintain civil obedience or UPF security. Only the UPF Security Council can declare Stellar Law on the entire Frontier.
14. Star Law retains its authorities during both peacetime and wartime.

**Star Law Ranking**

Although there are many different positions with Star Law and various grades within those positions, there are only a few that Star Frontiers players or referees need concern themselves with. The titles and definitions of those positions are:

1. Star Law Deputy Officer (DO): A Star Law DO is a rookie officer, fresh out of the academy. He or she is in effect a lower-grade City Officer and is assigned to assist someone of a higher rank, usually a full City Officer. After a period of time, usually one to three years, the Deputy Officer is evaluated and may be promoted to a higher grade. On rare occasions, a DO might be promoted into positions as high as Chief Agent, depending upon his background, skills, and abilities. A Star Law DO cannot be immediately promoted to Ranger status, however.
2. Star Law City Officer (CO): A Star Law CO may have many Deputy Officers below him. Usually a CO is a Star Lawman who has authority only over a particular city. COs work only in major cities on highly advanced planets.
3. Star Law Planetary Officer (PO): A Planetary Officer may have many Deputy Officers below him; on major civilized planets, he may command some COs as well. A Planetary Officer cannot exercise his authority on another planet unless ordered to do so by his Commanding Officer as Port Loren.
4. Star Law Deputy Agent (DA): Star Law DAs may command numbers of Deputy Officers, POs, and COs. A Deputy Agent governs investigations that assist other law enforcement and security forces. DAs can command POs and COs in their planetary system only.

5. Star Law Chief Agent (CA): A Chief Agent is one rank above the DA and can command all officers below his rank. He has the power to override the authority of the security forces within his planetary system when dealing with investigations there. A CA is extremely powerful within his system.
6. Star Law Ranger: Rangers are a sort of cross between DAs and CAs in authority, except they can exercise their power in any system within the Frontier Sector. They operate one level above CAs in the Star Law chain of command, but usually work with other security forces rather than commanding them. Rangers are usually called in when hostile alien intrigue is suspected (Sathar plots in particular).
7. Star Law Marshals: This unusual position is usually awarded to Rangers whose jurisdiction extend into the Rim systems. Some Marshals patrol the Rim exclusively. They have authority over other Star Law Rangers and all lower ranks. Their numbers are few and turnover is high. They usually work alone.
8. Star Law Commanders: A Star Law Commander is a Marshal empowered to venture into alien space. He has complete authority to operate in the UPF's best interests there. In the Frontier and Rim, he can command all of the above levels of Star Lawmen. Commanders are the only persons in the Star Law who can legally kill an intelligent lifeform without any evidence but their own word. Only a handful of Commanders exist, and they report to the UPF Security Council along with the Star Law Captain-General.

Other sections of Star Law that might come into play are:

1. Star Law Posse: A group of Star Law Troopers whose mission is to help out Star Lawmen in trouble. They can only be assembled by a Marshal, Commander, or Star Law HQ. Their stats are usually normal for their race, and they should be armed and armored competitively by the referee. NOTE: The posse does not exist to haul the player's "afterburners" out of the fire all the time. They can help if the referee has swamped the players with foes.
2. Star Law Penal Officers: The worst criminals in the Frontier Sector are kept at certain penal colonies. Maintaining these secluded prisons and the transport ships that conduct prisoners there is the business of Star Law Penal Officers. Outside of their penal functions, they operate at Deputy Officer rank.
3. Star Law Internal Affairs Agents: When investigating Star Lawmen, IA agents have the command capability of a Marshal.
4. Star Law Undercover Agents: While most Star Lawmen can go undercover, these agents are in "deep cover." They have maintained their cover for years and may not even reveal themselves to player characters, but can pass information to them secretly. They usually only answer to Star Law Marshals, Commanders, or HQ, and are found in high risk areas such as the Rim.

**Star Law Authority**

All Star Lawmen have the following powers in addition to those listed above:

1. The authority to detain, pursue, and warn or arrest anyone within their jurisdiction who breaks the law. The decision to warn or arrest is at the Star Lawman's discretion and dependent upon such factors as past record, severity of crime (speeding vs. possession

of a weapon), attitude of lawbreaker, etc.

2. The authority to commandeer any vehicle and pilot it, or cause it to be piloted, in excess of normal legal regulations, in an attempt to fulfill section 1. This authority does not include any overt actions that unnecessarily threaten society.
3. The authority to search a premises in an attempt to fulfill section 1 if due cause exists. In those cases where Star Law Command can be contacted immediately for confirmation, such must be obtained. In those cases where Star Law Command is more than ten minutes communications distance away *and* the Star Lawman decides that this wait is to the detriment of or dangerous to society, the Star Lawman may gain access to the premises in any fashion possible. In cases where a Star Lawman is in pursuit of a criminal or lawbreaker or is witness to a criminal act, then the Star Lawman may gain access to the premises in any fashion possible.
4. The authority to protect society, himself, or private property (in that order), whether in an attempt to fulfill section 1 or in the normal course of his activities, by whatever means necessary excluding measures which may be more harmful than that which is threatening society, himself, or private property.
5. The authority to close down any establishment, business, or operation which is either breaking a law or endangering society and the common good until the appropriate agency, governmental department, or proper level of authority can investigate the problem. (In some cases, the Star Lawman himself must investigate the alleged crime.)

Obviously, the Star Lawmen have a much greater level of authority than normal law enforcement agents, but they also have a much greater responsibility. Because of this, the screening of Star Law applicants is incredibly detailed and thorough, and includes Telol injections, psychoprobes, and rigorous indoctrination. In the entire history of Star Law (127 years), there has never been a recorded instance of a "bad apple" getting through the screening, though some Lawmen have gone bad after years of stress and exposure to the criminal element.

To placate an always suspicious public, recent innovations such as the file computer and recorder helmet have been introduced into the Star Law ranks, especially among Lawmen working in highly dangerous or urban areas. The file computer is a specialized computer that does nothing but record information verbally fed into it by a Star Lawman. These 15 cm. square devices are then tied into Star Law's mainframe computers at the end of every shift, and their info is dumped into the general information pool. Star Lawmen thus create a running account of their own activities, an open "file" on various suspects, and recordings of eyewitness accounts and testimonies. The info-pool contains a vast wealth of current information that can be made available whenever it is needed to Star Lawmen only.

A recorder helmet operates in much the same way and even has a file computer built into it, but also has a tiny visual scanner/recorder built into it that can record the case visually as well. The helmet can either be broadcast to a local recording facility or use micro-disks in the built-in recorder to store the images.

**Termination of Cases and Reassignment**

A Star Lawman under the rank of Ranger can be called off a case or have his case closed by either a personal directive or general reassignment, both issued by Star Law Headquarters. Star Law Rangers can only have their cases closed or be reassigned by personal directive from Star Law HQ. Star Law Marshals cannot have their cases closed, but can be reassigned, but only by the Star Law Captain-General, and then another Star Lawman of equal or higher rank must take over their cases. Star Law Commanders cannot be reassigned or have their cases closed, but they can be recalled by the Star Law Captain-General for briefing or debriefing. Star Law Commanders can be forcibly retired, but another Star Law Commander must take over the case, and the entire casefile and official actions ordered are reported to the Security Council to prevent any cover-ups.

**Final Thoughts**

Obviously, the number of scenarios that can be built upon the needs of the different types of Star Lawmen listed above is far greater than those for a "one-level" Star Law. Game referees might wish to start players as Star Law Deputy Officers and bring them "up through the ranks." The point at which PCs are promoted should be determined by the referee and should depend less on the PC skill levels than on how PCs conduct themselves on cases. As in any law enforcement organization, the remuneration may not be high, but the excitement and satisfaction of a job well done is often reward enough.

# The Battle of Ebony Eyes

## A STAR FRONTIERS Knight Hawks game scenario

*by William Tracy*

*Dragon* Magazine, #88, pg. ?

For as long as the oldest spacer remembers, the enigma of the Ebony Eyes has existed . It was discovered accidentally by a tramp freighter, captained by a human named Eboniyes. Over the years the phenomenon became known as the Ebony Eyes, both after the captain and the presence of black holes.

Located exactly halfway between the systems of Dramune and Kaken-Kar on the Frontier Sector Map (p. 51, STAR FRONTIERS Expanded Game Rules), the Ebony Eyes are two unique black holes that orbit one another, lying only 160,000 kilometers (16 hexes) apart. Both singularities are almost equivalent in size and strength.

Anything coming within 50,000 km (5 hexes) of one of the Ebony Eyes is lost, and will fall into the singularity within minutes. Rescue and escape are impossible. It is possible for a ship to take up an orbit around one of the Ebony Eyes at a 60,000 km (6 hex) radius; the ship would move at one hex per turn, and could start a scenario already in orbit around the Eye. An orbiting ship would have a speed of zero. A ship may enter orbit around an Eye by coming within six hexes of it at a speed of one, moving along the proper orbital path, then turning off its engines. A safe "window" exists between the holes (30,000 km wide, or 3 hexes) for ships to travel through without risk of having their flight paths altered by the singularities' enormous gravitational pull.

The two black holes, designated Ebony Eyes Alpha and Ebony Eyes Beta on official UPF astro-navigational charts, are relatively small compared to average black holes. But an interesting phenomena occurs around the Ebony Eyes that is known at no other known black hole location.

Because these two black holes are so close together, the temporal and spatial fields around them have been twisted out of shape. This phenomenon causes illusionary duplicates of anything that enters the area to appear. The duplicates (0-3 of them, determined by a d4-1 roll) will appear within a few kilometers of the original object (in the same hex as the object), and will make every move that the original object makes. The duplicates will shoot illusionary weapons if the original does, and the beams and missiles launched will be duplicated well (though duplicates will have no effect on targets). Energy sensors, radar, and all other detection devices will not be able to tell which object of an identical set is real and which is not.

## Background to the Battle

Every galactic year a special research ship is sent to the Ebony Eyes to check on any changes in their energy patterns and to try new experiments. The ship stays for two standard days and is usually accompanied by a small military escort, since some of the most important scientists

in the UPF are involved in the research.

This year a larger than usual military escort was sent with the research ship (the Ensten); an increase in Sathar hostilities in recent months brought this about. The military vessels were instructed to protect the Ensten at all costs, and also planned to conduct maneuvering and weapons drills in their spare time.

The trip to the Ebony Eyes was uneventful and soon the scientists aboard the Ensten were happily taking readings. The crews of the UPFS vessels, however, were nervous because of unusual energy transmissions they picked up as they entered the system. They were also unused to the "duplicating" effects of the local space-time distortion.

Only minutes after taking up positions at the Ebony Eyes, the UPF crews were shocked to discover what appeared to be an enormous Sathar war fleet coming around the side of Ebony Eyes Beta. The Sathar had gone undetected as nothing could be seen, visually or using long range detectors, of what was on the other side of the Ebonv Eyes (which are surrounded by whirlpools of matter and dust extending out to 50,000 km). The Sathar were just as surprised, and believed that a major UPF fleet had discovered the base of operations they had established at the Ebony Eyes some months ago, from which they had successfully raided UPF space and eluded discovery. The famed Battle of Ebony Eyes resulted. It was certainly one of the most unexpected military actions to have taken place with the Sathar, and it proved to be one of the most confusing battles as well.

**UPF Ships**

UPFS Ensten (research vessel)
HP 40 ADF 4 MR 3 DCR 70
Weapons: LB
Defenses: RH

UPFS Admiral Clinton (battleship)
HP 120 ADF 2 MR 2 DCR 200
Weapons: DC, LB(x3), PB, EB(x2), S(x4), T(x8), RB(x10)
Defenses: RH, ES, PS, SS, ICM(xl2)

UPFS Honor (light cruiser)
HP 70 ADF 3 MR 2 DCR 100
Weapons: DC, LB, EB, PB, RB(x6) T(x4)
Defenses: RH, ES, SS, ICM(x12)

UPFS Chivalry and Faith (destroyers)
HP 50 ADF 3 MR 3 DCR 75
Weapons: LC, RB(x4), LB, T(x2), EB
Defenses: RH, MS(x2), ICM(x5)

UPFS Electron and Proton (frigates)
HP 40 ADF 4 MR 3 DCR 70
Weapons: LC, RB(x4), LB, T(x2), EB
Defenses: RH, MS(x4), ICM(x4)

**Sathar Ships**

SAVB Nova (fortified space station)
HP 300 DCR 150
Weapons: LB(x5), RB(xl6)
Defenses: RH, MS(x4), ICM(xl2)

SAV Blood War (Heavy cruiser)
HP 80 ADF 2 MR 1 DCR 120
Weapons: LB(x2), PB, FB, DC, S(x2), T(x4), RB(x8)
Defenses: RH, ES, PS, SS, ICM(x8)

SAV Famine (light cruiser)
HP 70 ADF 3 MR 2 DCR 100
Weapons: DC, LB. EB, PB, RB(x6), T(x4)
Defenses: RH, ES, SS, ICM(x8)

SAV Disease and Apocalypse (frigates)
HP 40 ADF 4 MR 3 DCR 70
Weapons: LC, RB(x4), LB, T(x2)
Defenses: RH, MS(x2), ICM(x4)

The following 10 fighters are based aboard the fortified station Nova:

Fighters A-J
HP 8 ADF 5 MR 5 DCR 30
Weapons: AR(x3)
Defenses: RH

## Scenario set up

The following is a list of the ships that fought at Ebony Eyes, with the hex number that each begins the game in and their direction of facing (see below). It also lists their speed when the battle begins. Use the appropriate counters for the ships, upside down planet counters for the black holes, and a miscellaneous ship counter for the Ensten.

Direction of facing is indicated by an alphabetical letter, A-F, that follows each ship's hex number. The following diagram shows in which direction a ship will face on the Knight Hawks game map:

Ebony Eyes Alpha: Hex 2019 (stationary)
Ebony Eyes Beta: Hex 3519 (stationary)

UPFS Admiral Clinton: hex 3526 D (full stop)
UPFS Honor: hex 3326 F (full stop)
UPFS Chivalry: hex 2929 E (full stop)
UPFS Faith: hex 4033 C (full stop)
UPFS Electron: hex 3233 D (full stop)
UPFS Proton: hex 4229 A (full stop)

UPFS Ensten: hex 3426 E (full stop)

SAVB Nova (in orbit): hex 4119 (1 hex/ turn)
SAV Blood War: hex 2816 D (2 hexes/turn)
SAV Famine: hex 3611 B (2 hexes/turn)
SAV Disease: hex 4116 C: (1 hex/turn)
SAV Apocalypse: hex 4116 C (1 hex/turn)
SAV Fighters (aboard the Nova): hex 4119

## Special rules

A referee will be needed for this scenario. At the start of the game, the referee should roll dice and determine how many copies of each ship exist (d4-1), and then inform the players of the results for both their own fleet and that of the enemy. The referee will have to keep track during the game of which ships are discovered to be copies and which are found to be real. This can involve some elaborate bookkeeping.

Targeting computers and personnel will not be able to tell the difference between real ships and their illusionary copies. If a real ship uses a weapon, any copies of it will appear to shoot the same type of weapon. Individual "to hit" rolls should be made for all weapons, both from copies and (of course) real ships. If one of the rolls is determined to hit a target, determine randomly whether the target ship or a copy of it (if any) was struck.

If an illusionary weapon hit a real ship, the ships crew can determine which ship fired the weapon and can disregard that ship when firing back. Thus if a ship and its two copies fired missiles at another ship and only an illusionary missile hits, the target ship can disregard the "fake" ship that fired the illusionary missile when returning fire, and can thus permanently increase its chances to find which of the copied ships is the real one.

If a real ship is hit by a real weapon, it will take damage and so will its copies. A real weapon hitting a fake ship and a fake weapon hitting a fake ship will produce no effects, but no one except for the referee will be able to tell if the weapon hitting the fake ship was real or not.

Tactics and victory conditions The Sathar will try to knock out the Ensten's engines, so that after defeating the UPF ships they can capture the Ensten's scientists (they have recognized what the ship is and how valuable its passengers would be).

The Ensten alone may attempt to escape the battle; both UPF and Sathar ships will not voluntarily leave the map until one side or the other is conquered. The Ensten may escape by exiting the game board from the far left side, between hexes 0101 and 0139. If the Sathar see they will not be able to stop the Ensten from escaping, thev will center their efforts towards destroying it. The Sathar will follow the Ensten until they are destroyed.

To win, the UPF ships must destroy all the Sathar ships, but not necessarily the space fortress, and keep the Ensten safe. If the Ensten is destroyed, but the Sathar ships (excluding the space fortress) are destroyed, the game is considered a draw. If the Ensien escapes but all the UPF ships are destroyed, it is considered a marginal victory for the Sathar (their base is discovered and they must flee).

# Yachts and Privateers Return

## Revised statistics for STAR FRONTIERS KNIGHT HAWKS Ships

*By Douglas Niles*

*Dragon* Magazine, #88, pg. ?

Imagine yourself flashing like a meteor through the void of space with a Federation cruiser on your tail, or picking your way nimbly through the densely-packed asteroids in the White Light system, searching for a pirate base concealed somewhere among the crowded rocks. These are just a couple of situations in which you might appreciate having the controls to a fast and maneuverable ship at your fingertips.

The yachts and privateers introduced to the STAR FRONTIERS Knight Hawks game in DRAGON Magazine #86 ("Fast and Deadly") represent new vessels designed for jobs such as these. Because of some discrepancies with the game rules contained in that article, some additional explanations are in order.

As several readers noticed, the armaments allowed on the yachts and privateers more closely resembles that allowed on military vessels than civilian ones. In fact, these ships were designed as "paramilitary" vessels, and consequently are not restricted by the civilian ships limitations on armament.

Because of the advanced technology needed to outfit these ships, however, the cost of building them also increased. To simulate this, if players in your Campaign wish to purchase or build a yacht or privateer ship, require them to pay double the hull cost listed in the Knight Hawks rules.

The ship statistics given below should be considered official for the various classes of both yachts and privateers. The following abbreviations are used: HS = hull size; HP = hull points; ADF = acceleration/deceleration factor; MR = maneuver rating; DCR = damage control rating. See the Knight Hawks rules for a full explanation of these ratings.

**Yachts**

The six classes of yachts are listed below. The specific ship statistics are for the first vessel of each class; these vessels have consequently given their names to the entire class of ships.

Note that the first models of the Yacht class were armed like military ships. Later models have been streamlined considerably for less warlike roles. To simulate this modification, players are allowed to add 1 ADF or MR point for each weapon or defense system that is removed. This is an exception to the Knight Hawks "Modifying Spaceships" rule.

**Rim-Song Class:** HS 3, HP 15, ADF 4, MR 3, DCR 29; Weapons: laser battery; Defenses: reflective hull; no lifeboats.

**Imp Class:** HS 4, HP 20, ADF 3, MR 4, D(:R 32,- Weapons: laser battery, assault rocket

battery; Defenses: reflective hull; no lifeboats.

**Nova Class:** HS 5, HP 25, ADF 2, MR 2, DCR 35; Weapons: laser battery, rocket battery, laser cannon; Defenses: reflective hull; no lifeboats.

**Astro-BlasterIII Class:** HS 6, HP 30, ADF 1, MR 3, DCR 38; Weapons- laser battery, electron beam battery; Defenses: reflective hull, interceptor missiles (x4); no lifeboats.

**Nebula Class:** HS 7, HP 35, ADF 3, MR 3, DCR 41; Weapons: laser battery, rocket battery, laser cannon; Defenses: reflective hull, masking screen,- one lifeboat.

**Belvedere Class:** HS 9, HP 45, ADF 3, MR 3, DCR 47; Weapons: laser battery, rocket battery, laser cannon; Defenses: reflective hull, interceptor missiles (x4); one lifeboat.

**Privateers**

Privateers were designed as powerful, fast ships. Unlike yachts, these vessels have not evolved beyond their original purpose and are still used primarily for combat operations.

**Thruster Class:** HS 2, HP 10, ADF 4, MR 5, DCR 26; Weapons: assault rocket battery (4); Defenses: reflective hull; no lifeboats.

**Lightspeed Lady Class:** HS 4, HP 20, ADF 4, MR 4, D(,R 32; Weapons: laser battery, assault rocket battery (3); Defenses: reflective hull, masking screen; no lifeboats.

**Moonbright Stinger Class:** HS 9, HP 45, ADF 3, MR 2, DCR 45; Weapons: laser cannon, seeker missile launcher (2 missiles), electron beam battery; Defenses: reflective hull, interceptor missiles (x6); one lifeboat.

**Rollo's Revenge Class:** HS 10, HP 50, ADF 3, MR 3, DCR 50; Weapons: laser battery, proton beam battery, electron beam battery, 6 torpedoes; Defenses: reflective hull, 6 interceptor missiles; one lifeboat.

**Condor Class:** HS 13, HP 65, ADF 3, MR 31, DCR 59; Weapons: disrupter beam battery, 2 laser batteries, proton beam battery, electron beam battery, 4 torpedoes; Defenses: reflective hull, stasis screen, interceptor missiles (x8); one lifeboat.

**Yachts and privateers in your campaign**

Despite their relatively high cost, the versatility and high performance aspects of yachts and privateers are causing them to appear more and more frequently throughout the frontier. For example, the space battles fought as part of "Laco's War" have been fought almost exclusively by privateers, and both privateers and yachts promise to figure prominently in the struggles to control trade to mineral-rich Alcazzar as well (see the Mission to Alcazzar module for more information-Ed.) Other uses for these nimble ships include duties as, pleasure vessels, exploration ships, convoy escorts for corporate or military formations, high-speed freighters, scouts, mercenary transports, and ever. pirate ships.

# The Mighty Mega-Corporations

## Star Frontiers game background

*by Kim Eastland*

*Dragon* Magazine, #89, pg. 65

Star Frontiers game characters confront a number of identifiable organizations throughout the course of their adventures (Star Law, the Sathar war machine, spy networks, etc.), but one organization stands out from all the rest: the Pan-Galactic Corporation.

The Star Frontiers Alpha Dawn basic game rules list Pan-Galactic as "the oldest and largest interstellar company." The history section explains how Pan-Galactic was established: "Soon, settled world in the Frontier became melting pots for the four races, with dazzling mixtures of architecture and alien cultures. To supply the needs of these worlds, the first interstellar company,• the Pan-Galactic Corporation, was formed. It developed interests everywhere, from scientific research to farming to spaceship building. PGC even created its own language, Pan-Galactic, which soon became the most common language of all races on Frontier worlds. Many large companies which started later were modeled on PGC, but none approach the size or power of the Pan-Galactic Corporation."

In the Star Frontiers Knight Hawks game, Pan-Galactic is mentioned as the largest of over a half dozen huge and multi-faceted corporations operating in the Frontier. How and when did the Frontier fall? Where did these other companies come from? The status of the mega-corps is the subject of this article.

The establishment of the PGC as the major mega-corporation on the Frontier was designed into the basic rules as a starting point from which game referees could launch their own scheme-of-things for corporate structures. The information given in the original Star Frontiers Alpha Dawn game was applicable for the time of the First Sathar War. The information given for the Knight Hawks game is specifically placed at the beginning of the Second Sathar War, decades later. This article's material is based on the time period after the Second Sathar War, at the start of the Corporate Wars that followed. This allows referees to pick the time period their campaigns will occur in as well as the campaigns' locations.

**Corporate History**

Before discussing the "current" mega-corps, we should take a look at the past. The first large interstellar company was the Pan-Galactic Corporation; it is no exaggeration to say that the PGC ruled the Frontier in the early days. Like the great railroad corporations of late 19th- and early 20th-century Earth, the PGC was the only fast safe way to travel through an unknown frontier for the millions of pioneers who yearned for land and their own fortunes. The PGC had its fingers in every pie, controlling financing, transportation, mining, industrial and agriculture, and more on the Frontier worlds.

There is a lot to thank the PGC for in this early developmental period. It founded a common unit

of currency (the credit), established the galactic board of trade, created and spread the Pan-Galactic common language, financed innumerable scientific breakthroughs that led frontiersman farther and farther into space, and did much, much more.

But there were great problems inherent with the one-company system. Corporate corruption became rife on the less civilized worlds. Often whole planets and races were at the mercy of the PGC's concept of "morality," and too often aesthetic values were lost to financial ones. No competition meant stagnation in many industrial areas and complete control of the economic system by a single entity. Possibly the worst problem, however, was the lack of autonomy on a planetary and interstellar scale because of the overwhelming dependence of the Frontier on one source for all its needs. Because of this last factor, it was inevitable that PGC would lose its monopoly on the Frontier.

During the period between the Sathar Wars, secret financial groups sprang up, investing money in land and various industrial operations and gaining power until their size could no long be hidden from the PGC's eyes. Many of these initial investments were made in cities, planetary governments and militias, and even in the UPF itself. By the time PGC recognized its potential rivals, it was too late; their footholds were established, and with them came planetary autonomy. Pan-Galactic's hold over the Frontier was broken at last. The new corporations decided to fight PGC on its own ground, making diverse investments and establishing their operations in the same areas as PGC's own operations.

This last point is very important, because without it, the Sathar could not have presented a serious threat to the UPF in the form of a Second Sathar War. Escalating competition between the larger companies, particularly PGC, the Streel Corporation, Greater Vrusk Mutual Prosperity Institution, and Cassidine Development Corporation, led to armed conflicts that required much of Star Law's and Spacefleet's time and energy to monitor and quell. Many galactic historians agree that without this debilitating distraction, the UPF forces would have been far better prepared for the Second Sathar War. For an example of Star Law's need to keep constant surveillance over the Frontier, see the Star Frontiers module SF4, *Mission to Alcazzar*.

With the coming of SWII, investments and corporate focus changed radically and swiftly. Many executives and design teams left the established mega-corps to found their own companies, aimed at for more specialized areas. Financing became available through planetary and galactic bonds created to increase local industry and jobs. Because of this shift of talent, many of the established mega-corps decided not to compete with these emerging companies, choosing to shut down those particular operations of their own which were now forced into competition. The logic behind this was based on the larger investment firms' solid belief that specialized companies could not survive on their own to any significant wise and, thus, would later be merged back into existing mega-corps.

This was a disastrous mistake by the few mega-corps of those pre-war years and clearly shows the tunnel vision and lack of foresight which permeated the top executives levels at that time. The specialized firms grew at unprecedented rates and reinvested their income in their own specific areas, not in mergers and outside acquisitions. Because of this, within years, the thought of traveling with anyone but Trans-Travel or buying weapons from anyone but WarTech

Inc., was all but absurd. They were the best in their fields, were reliable, and were competitive in their pricing lest some upstart company gain an advantage on them. In short, they represented reliability in many areas that the PGC could not even compete in.

The single greatest factor preventing those embryonic firms from being swallowed by their richer cousins once they were successful was the UPF Antimonopoly and Merger Laws, passed during the Second Sathar War. Wishing to discourage centralized industry, the UPF enacted numerous laws that prevented complete monopolies from forming and laid down complicated guidelines from mergers. So effective were these laws in curbing continuing corporate tyranny that they were kept "on the books" following SWII. The animosity some of the older mega-corps felt towards the UPF Governing Council's decision to keep these laws is still felt today.

**The Corporate Wars**

The term "Corporate Wars" was not coined until a decade after SWII. The first use of the term was by WarTech Inc., in a special weapons catalog they released for various industries. The media quickly picked up on the term and pumped it to its sensationalistic best (after all, things had been pretty calm since SWII).

The true beginnings of the Corporate Wars are actually decades old. In fact, they started before SWII began. The confrontation that started the war is described in the Star Frontiers Knight Hawks game: "Laco's World (Dixon's Star) is the scene of a decade-long conflict between the Streel Corporation on one side and the Pan-Galactic Corporation operating through the Galactic Task Force on the other. Tens of thousands of casualties have been inflicted on the planet, and more than a dozen spaceships have been destroyed in what has come to be called 'Laco's War'." This war started and was settled before SWII, the results decided by PGC's extravagant military expenditures. This set the pattern for future corporate conflicts of an "unnegotiable nature."

At this time, the UPF could not afford to go to war with every corporation who raised an army or space fleet. With the sudden reintervention of the Sathar, culminating in SWII, corporations ceased their hostilities to combine their efforts against the common foe. But the end of the war quickly brought resumed tensions and private military escalations. This time, however, the UPF• was mobilized for such occurrences. New laws gave Star Law more power over corporate infringement on other corporate operations and property. Spacefleet was rearmed and could easily intimidate smaller fleets. For a while it looked like the UPF forces could prevent any occurrences leading to further "Laco's Wars."

Unfortunately, the government didn't reckon with the mega-corps' greed or resources. A combination of swelled mega-corporate coffers from the Second Sathar War, thousands of unemployed soldiers no longer on the UPF's payroll, and the emergence of specialized corporations who thrived on military conflict resulted in an escalation of corporate warfare to a previously unknown level.

In addition to covert Sathar, Mechanon, and pirate activities, the UPF security forces now had to deal with full scale invasions, sieges, and battles fought by over than a dozen mega-corps and conglomerates of smaller firms. It is during this time period that the information in this

article applies.

**Stages of a Corporate War**

To better understand the Corporate Wars, one must go to Star Law and their guideword for rookie Deputy Officers: ICEWARS! This acronym outlines the seven stages of escalation usually seen in a Corporate War.

- *Interest conflict* - A conflict of interest develops between two corporate entities over mineral rights, world development rights, or whatever.
- *Corporate espionage* - Usually an increase in corporate spying takes place after the initial conflict of interest develops. If results indicate the opposing corporations' goals are not in actual conflict, then the entire matter is cleared up immediately.
- *Economic sanctions* - If espionage does indicate a conflict, economic sanctions are imposed to pressure the other corporation out of the conflict. Sometimes this works, sometimes it doesn't.
- *Withdrawal* - When economic sanctions do not pressure either side out of a conflict of interest, then a rapid withdrawal of corporate personnel and equipment from the site in question begins. This "pullout" sometimes confuses the opponents into believing the economic sanctions worked. Generally, it is a prelude to war.
- *Armed conflict* - Once a site is deemed vacated by a corporation or any potential "hostage" personnel or material, mercenaries are sent in to "hold" the site while "negotiations" proceed.
- *Reinforcements* - The inevitable hostilities are exchanged and reinforcements are sent in to "protect the corporate interests." The actual war has now begun and "negotiations" continue to be held while the war continues. The length of the war varies. The shortest war on record was between two moon mining colonies around Outer Reach in the Dramune system. A stray maxi-missile with two high-explosive warheads hit a cache of TD-19 in a tin hut and the blast of shrapnel punctured every space suit worn in the battle. Actual battle time: 3 minutes. Casualties: 135 dead. The longest war on record was the great PGC-Streel War over Laco in Dixon's Star system. Actual battle time: 10 years. Casualties: 235,000 dead, 367,000 wounded, 170 tril-credits in equipment destroyed.
- *Stabilization* - When one corporation wishes to withdraw from the conflict, because of the drain on its resources or the inevitability of its defeat, the "negotiations" suddenly become serious and the conflict is then resolved within a week. Terms of "surrender" range from full reparations to the victorious corporation's financial outlay to the simple withdrawal of the losing corporation's forces.

It should be remembered that these wars are no longer fought on the developed worlds within the Frontier. Nearly all battles occur on newly discovered worlds and moons. If a Corporate War is seriously affecting the health and welfare of a planet on the Frontier, Spacefleet may step in and end the conflict in the swiftest, surest fashion it knows, by space bombardment, blockade, and other procedures. No corporation has ever won a battle with Spacefleet's forces.

For campaign play's sake, it is also important for the referee to remember that forces within the mega-corps often made for unpredictable developments. Power struggles between executives

are commonplace. The cadres, akin to modern labor unions, are strong in certain industries, and a planetary government certainly affects a mega-corps operating procedures (not to mention the effects of the UPF government and Star Law on corporate policies).

# Careers in Star Law

## More on interstellar law enforcement

*by Alex Curylo*

*Dragon* Magazine, #91, pg. 80

In his article "Freeze! Star Law!" (Dragon Magazine, issue #87) Kim Eastland detailed the organization of Star Law in the Star Frontiers game. A number of details required so that player characters can follow a career in Star Law were not discussed, however. The following is an addendum to "Freeze! Star Law!" and presents new material on enlisting and serving in the Frontier's police force.

**Enlistment**

All Star Law officers must be above average in several respects. Four of their ability scores must be at least five points above their racial average (see Expanded Rules, p. 59), two of which must be their Intuition and Logic scores.

Example: A player wants his Yazirian character, Simba (ability scores STR/STA 40/40, DEX/RS 40/40, INT/LOG 60/60, PER/LDR 40/40), to become a Star Law officer. Checking the table, he sees that the Yazirian average for Intuition and Logic is 50. Therefore, Simba's scores must be at least 55 in those areas; they are, easily. His other scores are not good enough to qualify in the DEX/RS or PER/LDR areas. Luckily, the Yazirian average for Strength and Stamina is 35, so Simba is qualified to enter Star Law.

All admission procedures take place at Star Law headquarters (Port Loren, Gran Quivera), and characters must furnish their own transportation there. If this rule causes problems, it can be declared that a qualified character who is interviewed at any Star Law planetary office and passes a Personality check will be considered an excellent candidate by the Planetary Officer and will receive free transportation to Port Loren.

The admission procedure is tough. The character will be doped with Telol and psycho-probed while being examined on every facet of his beliefs, attitudes, and history. All interviews are monitored by hidden cameras and sonic analyzers so that any attempts to use Hypnotism or Persuasion skills will be detected. Any character who uses those skills, or who has a criminal record of subversive beliefs (including a "bad attitude"), will never be admitted to the academy. The referee should enforce this strictly - after all, the characters won't be able to beat a system that hasn't fail in 127 years.

If one character passes the screening, he will be granted an interview with the Admissions Director of the Academy. If the candidate makes a favorable impression (passes a Personality check), he is accepted as a cadet. If he fails, he may try again next year.

**Training**

The Star Law Academy is situated on Morgaine's World, in a huge complex which includes

hundreds of hectares of land enclosed in climate-controlled domes that simulate adverse conditions found on various worlds for the purpose of combat and survival training. The cadets undergo extensive physical and tactical training, and are taught all available information on Sathar capabilities and subterfuge tactics, the culture and history of the known races, and anything generally useful to their line of work (which means practically everything). The training period lasts one year, during which cadets receive free room and board, but no pay.

Graduates of the academy receive a number of benefits. The continual physical training improves the characters: they may add five points to one ability of the STR/STA pair and one of the DEX/RS pair. They will also have acquired extensive skills during the program, depending upon their PSA and desires. These skills are listed below.

*Technological/Biosocial*: One 5th-level skill and one 3rd-level skill from the appropriate PSA, a 2nd-level ranged weapons skill (usually beam), and 1st-level in a non-ranged weapon Military skill (usually Melee).

*Military*: Two 5th-level weapon skills, 2nd-level Martial Arts, 1st-level Demolitions.

It will be noted that these skills are rather powerful. Referees may wish to tone them down somewhat, but should keep in mind that even low-level Star Law officers are rather awe-inspiring and formidable.

Once graduated, the new Deputy Officer must be assigned to a world. The referee may pick a world at random or by design. Generally, Star Law Deputy Officers are assigned to worlds where they fit in well with the inhabitants; Dralasite agents, for example, would stand out in a world inhabited almost exclusively by Yazirians. Some exceptions are made as the need arises, and the policy is not particularly strict.

**Advancement**

In Mr. Eastland's article, it was said that "after a period of time, usually one to three years, the Deputy Officer is evaluated and may be promoted to a higher grade." A good rule, and very realistic. However, the players in all groups I've gamed with would loudly and persistently accuse the hapless referee of favoritism or maliciousness (depending upon their viewpoint) in all subjective decisions, such as the period of time before evaluation, the merits of the character under consideration, and the appropriate level of promotion.

| **Star Law rank** | **XP needed** | **Daily pay (Cr)** |
|---|---|---|
| Deputy Officer | (graduate) | 50 |
| City Officer | 25 | 75 |
| Planetary Officer | 50 | 100 |
| Deputy Agent | 100 | 125 |

| | | |
|---|---|---|
| Chief Agent | 150 | 150 |
| Ranger | 250 | 200 |
| Marshal | 300 | 250 |
| Commander | 350 | 300 |

To eliminate this inevitable dissension and also for greater consistency• with official rules for Spacefleet advancement, it is suggested that Star Law ranks be treated like Spacefleet ranks, in that• a certain number of experience points must be "spent" to achieve each rank. At least one level must be gained in at least one skill before another rank can be achieved. The table lists the XP required, and also notes the salary that each rank receives.

**Miscellaneous data**

When the Deputy Officer graduates from the Academy, he receives his dress uniform, his duty uniform (a military skeinsuit in Star Law blue), and regulation weapons for his assigned planet - typically a sonic stunner and a stunstick, but certain planets such as Outer Reach require more powerful weapons as standard issue, and perhaps a defensive screen as well. Of course, when on an assigned mission, agents will be issued whatever weapons, defenses, and equipment are appropriate and reasonable.

Star Law agents are respected throughout the Frontier. Whenever an NPC must make a Leadership check vs. Star Lawman, the agent gets a +5 bonus per rank.

Since the agents often have to rely on their own resources, Star Law encourages them to develop their personal skills. This policy has a practical side Star Law will provide hypno-training (see Expanded Rules, p. 11) for any agent wishing to gain new skills or skill levels.

Star Law agents are often called upon to perform undercover work. These assignment will be of two basic types. The first is *infiltration*, where the agent attempts to join an organization, "become" an enemy agent, or other similar action. In such a case, Star Law will fabricate a history for the agent right back to his birth records, and will alter computer databases and hypnotize key people so that almost any amount of checking will not discover anything unusual about him.

The other type of assignment is *replacement*, where an enemy agent has been neutralized, but Star Law does not wish that fact to become known or wishes to plant its own contact inside the organization. For this type of assignment, setup will include plastic surgery, voice and carriage training, and memory overlays so the agent as instant access to most of his model's memories.

Star Law agents are a special group of beings. Though the work of defending the Frontier is demanding and dangerous, Star Law agents thrive on it. Their courage and dedication have resulted in their becoming universally admired folk heroes of the Frontier.

# Day of the Juggernaut

## A Star Frontiers Knight Hawks scenario

*by William Tracy*

*Dragon* Magazine, #91, pg. 74

In the weeks following the famed Battle for Volturnus (detailed in the module SF2, *Starspawn of Volturnus*), the Sathar made no threatening moves against the Frontier. The atmosphere in the UPF was tense for weeks, but gradually calm returned and military forces were taken off their heightened alert status. Just as the races of the UPF were feeling safe again, the Sathar initiated a new attack.

While an assault scout from Scree Fron was on patrol on the outer edge of that star system, the scout came under attack from a gigantic ship that had just exited the Void nearby. The scout was able to send out a distress call before being destroyed, and it reported that the huge ship was heading for the inhabited world of Hakosoar.

Whether by pure good fortune or with the knowledge of the Sathar (who may have seen this as a test of their fighting vessel), a recently reorganized Strike Force NOVA was present at Hakosoar. Instantly, the force admiral ordered his fleet to defend the planet at all costs, and the fight was joined.

Unknown to the UPF, the gigantic ship was an experimental Sathar war machine, a prototype completely automated and commanded by onboard computer systems and robots. Its mission was to reach Hakosoar and orbit the planet three times, bombarding the major cities with space-to-ground missiles. Though of horrifying size, the war machine was the only one of its kind. The Sathar built only one *Juggernaut*, since the cost was enormous, but they were willing to consider building other robot ships if this one proved itself against the Federation's best.

**Sathar Forces**

SAV *Juggernaut* (robot warship)

HP 480 ADF 1 MR 1 DCR 300

Weapons: DC, LB (x8), PB (x2), EB (x4), T (space-to-ground missiles) (x16), RB (x20)

Defenses: RH, ES, PS, SS, ICM (x24)

The *Juggernaut* carried a new type of robotic short-range fighter, known to the Federation as the *Scorpion* (hull size 2). The fighters were programmed for launch the moment a UPFS vessel came within 100,000 km (10 hexes) of the *Juggernaut*.

20 *Scorpions*

HP 10 ADF 3 MR 3 DCR 29

Weapons: LB

Defenses: RH

**UPFS forces (Strike Force NOVA)**

UPFS *Admiral Clinton* (battleship)

HP 120 ADF 2 MR 2 DCR 200

Weapons: DC, LB (x3), PB, EB (x2), S (x4), T (x8), RB (x10)

Defenses: RH, ES, PS, SS, ICM (x12)

UPFS *Zamra* and *Grak* (heavy cruisers)

HP 80 ADF 2 MR 1 DCR 120

Weapons: LB (x2), PB, EB, DC, S (x2), T (x4), RB (x8)

Defenses: RH, ES, PS, SS, ICM (x8)

UPFS *Courage* and *Glory* (light cruisers)

HP 70 ADF 3 MR 2 DCR 70

Weapons: DC, LB, EB, PB, RB (x6), T (x4)

Defenses: RH, ES, SS, ICM (x8)

UPFS *Shimmer*, *Zz'Nakk*, *Z'Gata*, and *Driadia* (frigates)

HP 40 ADF 4 MR 3 DCR 70

Weapons: LC, RB (x4), LB, T (x2)

Defenses: RH, MS (x2), ICM (x4)

UPFS *Scimitar*, *Dagger*, *Rapier*, *Lancet*, and *Razor* (assault scouts)

HP 15 ADF 5 MR 4 DCR 50

Weapons: AR (x4), LB

Defenses: RH

**Scenario set-up**

A planet counter should be placed in hex 2819, in the center of the Knight Hawks space map; this is the planet Hakosoar. Note that Hakosoar has five natural satellites, but for the purposes of this scenario they need not be placed on the mapboard.

The *Juggernaut*, with all fighters aboard it, will enter the game map from either of the "shorter" sides of the rectangular map. Initially, it will have a speed of 5 hexes/turn, and will be decelerating so that it may enter orbit around Hakosoar. Once a spacecraft has reached a

speed of 1 hex/turn and moves into a hex adjacent to Hakosoar (without heading directly into the planet), it may take up orbit around that world at a constant speed of 1 hex/turn.

The UPFS player may place his starships anywhere on the game map; the ships may start up to 5 hexes/turn, facing in any direction. The UPFS player automatically knows in which direction the *Juggernaut* is approaching and may arrange his forces accordingly.

**Tactics and victory conditions**

The *Juggernaut* will head immediately for Hakosaor, and will (initially, at least) let its *Scorpions* take care of the UPFS ships. It will not fire any of its space-to-ground missiles until it reaches the planet, then will fire 1 missile per turn at the planet as its orbits the world, bombarding the major residential and industrial centers. The ship may, of course, fire any of its weapons systems at attacking UPFS ships while bombarding the planet.

Once it finishes firing all of its missiles, the *Juggernaut* will attempt to flee. If it leaves the mapboard, regardless of how many UPFS ships are chasing it, it is assumed to have escaped and made it into the Void without further damage. If the *Juggernaut* is destroyed or leaves the map at any time, the *Scorpions* will self-destruct and will not attempt to be picked up by their parent ship.

If the UPFS ships destroy the *Juggernaut* before it reaches Hakosoar to begin its bombardment, the Federation wins the battle. If the *Juggernaut* is able to orbit the planet but fires fewer than six missiles before it is destroyed, the Federation wins a marginal victory. If the UPFS ships cannot stop the *Juggernaut* from bombing the planet, but destroy the war machine before it can leave the map, the game is a draw. If the *Juggernaut* can escape from the mapsheet, the Sathar have won.

# Rare Wines and Ready Cash

## Agricultural trade in the frontier

*by Tony Watson*

*Dragon* Magazine, #93, pg. 82-3

Both the Alpha Dawn and the Knight Hawks rules for the STAR FRONTIERS game system touch on the subject of agricultural and trade within the Frontier Sector. Alpha Dawn describes certain worlds within that region as having agricultural economies, while Knight Hawks provides a section in its spacecraft design rules for outfitting agricultural ships. Despite this, the system for conducting interstellar trade gives cargo charts only for resource-producing and manufacturing worlds; agricultural planets and their goods are virtually ignored.

Given the assumption that the produce of agricultural worlds, especially the unique and rare items such as wines, spices, and drugs, will be viable commodities in the STAR FRONTIERS milieu, then a trade table for agricultural goods, similar to those appearing on p. 45 of the Knight Hawks Campaign Book, is needed.

The brief table on the Frontier Sector in the Alpha Dawn Expanded Rules lists eight worlds as agro-planets: Yast, Inner Reach, Rupert's Hole, Groth, Ken'zah Kit, Kidikit, New Pale, and Hakosoar. These planets are the primary sources for agricultural cargos, entitling the prospective trader to roll on the "Cargo Acquired at Agricultural Centers" table. Such cargos can be marketed at industrial and resource centers.

Players will note that these colonies represent each of the four Federation member races. Presumably the colonies offer a wide variety of agro-goods, many of them unique. Agricultural production methods in the Frontier need not follow the Terran pattern. Farming can take place underwater or in subterranean caverns. Animal husbandry can be practiced on flocks of balloon-like creatures on high-gravity worlds with a dense atmosphere.

Similarly, star color might affect the nature of crops and herds raised on planets. What sort of strange plants might flourish under the red-orange sun of Hakosoar's star, Scree Fron? For simplicity's sake, only one table of cargos is provided, but the referee is encouraged to modify the description of individual cargos to reflect the unique nature of a world, for both the sake of variety and the feeling of local color.

**Cargo Acquired at Agricultural Centers**

| | | Price per unit | |
|---|---|---|---|
| **Die Roll** | **Type of cargo** | **At source** | **At destination** |

| | | | |
|---|---|---|---|
| 01-08 | Grain | 5,000 Cr | 7,000 Cr |
| 09-16 | Vegetables | 7,000 Cr | 10,000 Cr |
| 17-22 | Fruit | 10,000 Cr | 15,000 Cr |
| 23-24 | Exotic fruit | 30,000 Cr | 60,000 Cr |
| 25-31 | Meat | 25,000 Cr | 35,000 Cr |
| 32-36 | Poultry | 20,000 Cr | 30,000 Cr |
| 37-43 | Fish | 15,000 Cr | 20,000 Cr |
| 44-46 | Cheese | 15,000 Cr | 25,000 Cr |
| 47-52 | Sugar | 15,000 Cr | 20,000 Cr |
| 53-55 | Coffee | 25,000 Cr | 40,000 Cr |
| 56-62 | Lumber | 8,000 Cr | 12,000 Cr |
| 63-64 | Decorative plants | 20,000 Cr | 40,000 Cr |
| 65-70 | Textiles | 35,000 Cr | 60,000 Cr |
| 71-76 | Liquor | 50,000 Cr | 90,000 Cr |
| 77 | Rare liquor | 75,000 Cr | 150,000 Cr |
| 78-83 | Wine | 45,000 Cr | 75,000 Cr |
| 84 | Rare wine | 100,000 Cr | 200,000 Cr |
| 85-88 | Spice | 60,000 Cr | 100,000 Cr |
| 89 | Rare spice | 80,000 Cr | 150,000 Cr |
| 90-92 | Herbs | 50,000 Cr | 75,000 Cr |
| 93 | Rare herbs | 75,000 Cr | 135,000 Cr |
| 94-96 | Medicinals | 70,000 Cr | 125,000 Cr |
| 97 | Rare medicinals | 100,000 Cr | 200,000 Cr |
| 98-00 | Furs | 60,000 Cr | 140,000 Cr |

**Notes on the chart**

The types of cargos on the chart are intended to be generic, stressing general types of goods over specific items. Hence, "grain" might refer to wheat, rice, or corn, but could be constructed to include any sort of mass-harvested staple, perhaps even algae harvested from the sea. The referee should use imagination in describing the cargo obtained. For example, a roll of 30 on the chart indicates a cargo of meat - but what sort of meat, from what sort of creature? A load of textiles could represent a sort of plant fiber analogous to cotton, or the "wool" of some strange star beast.

The rare and exotic categories were included to denote special cargos of exceptional quality, value, and rarity; they offer the opportunity to trade in high-value cargos, something that agricultural-produce charts tend to lack. The "rare liquor" and "rare spice" categories might include substances with medicinal, hallucinogenic, or age-prolonging properties. "Medicinals" represent organic materials used purely for health-care purposes or in pharmaceutical production, and might include items such as buds, flowers, pollens, and animal or plant extracts.

**Some colonies offer a wide variety of unique agro-goods.**

The prices used in the charts were set arbitrarily, using the existing Knight Hawks commodity tables as guidelines and extrapolating from modern-day pricing structures. The profit-to-cost ratios are in line with the resource and industrial cargo tables, but tend toward the lower end of the scale for most of the goods. Hence, most agricultural goods are pretty cheap, especially compared with other cargos. No one is going to get rich dealing exclusively in grain or vegetables. The upper end of the table is the exception: herbs, spices, liquors, and furs are luxuries and are priced as such.

**Farming**

The Knight Hawks rules provide guidelines for hydroponic farming aboard Ag ships. Given the information provided on the agricultural cargo table, a few modifications are in order. The kinds of crops that can be farmed aboard Ag ships should be limited to things such as grain, vegetables, fruit, and coffee. Meat and lumber can be raised, but the time required to "harvest" the produce would have to be lengthened considerably.

Liquors, wines, herbs, and medicinals should be limited to planetary cultivation; one can safely assume that singular planetary conditions create the value of these goods, and these conditions are too difficult and expensive to replicate aboard ship. Allowing characters to grow high-value crops on ships could also upset the economic balance of campaign.

Rules for on-planet farming have been omitted from this article for several reasons. First, devising a system to portray such an enterprise with even moderate accuracy is beyond the scope of this piece. More importantly, the players shouldn't be encouraged to take on the roles of farmers - after all, they're supposed to be adventures!

The prices, guidelines and commodities presented here are just suggestions. Referees should let their imaginations run free, changing things in order to derive the most in their role-playing sessions.

# From Anarchy to Empire

## Interstellar governments in the Star Frontiers game

*by David "Zeb" Cook*

*Dragon* Magazine, #94, pg. 78

*[Editor's note: David "Zeb" Cook was one of the original designers of the Star Frontiers game system. This article is "official" Star Frontiers game material, though its principles may be applied to many science-fiction games.]*

What lies beyond the Frontier? Eventually, the characters in a Star Frontiers game campaign will start probing the reaches beyond the known star systems, and the referee should keep up with them by designing new sectors of space for the group to explore.

When preparing a new sector map, the referee should think about the governments that will control the planets in the sector. How many governments will there be, and what will they be like? How will the different governments get along? These are just a few of the concerns that a referee must consider when devising interstellar governments.

**Interstellar Governments**

Interstellar governments ruling planets in several different systems (as the UPF does) may or may not exist in a sector, as the referee decides. Some basic types of interstellar governments that may be used in the referee's sector are described briefly, with notes on how they work and what their aims and goals might be.

**Trade Federation**

Under this government, each member planet rules itself and has its own laws, but all the planets will have signed a trade agreement. This agreement promises free trade between all the member planets and also serves as a mutual peace treaty. The different planets will try not to interfere with each other's business. If one planet is attacked, the other planets will join with it to fight the enemy.

Trade federations are delicate and easily upset, since each member is in the federation for a profit. If a planet or a group of planets decides it can do better on its own or with another group, it may pull out of the federation. An example of a trade federation is the European Common Market.

**Galactic Empire**

All of the member planets are controlled by one government, usually based on one planet which is considered the heart of the empire. All other planets may be treated as colonies, provinces, or states of the empire. Because an empire tries to control everything from one place, it is often corrupt or loaded with layers of bureaucracy.

An empire stays in power by keeping it subjects (the people) happy and by the liberal use of

military force. Since empires have a way of getting in trouble if they stand still, they are often trying to expand their frontiers by colonization or by military control. The ancient Roman Empire is an example after which interstellar empires may be modeled.

**Political Federation**

Each member planet rules itself; however, all planets belong to one loose governmental body, and all must follow certain standards of conduct. The United States of America and the UPF are political federations.

More possibilities exist, of course. The referee should feel free to create any other interstellar government he wants.

**Planetary Governments**

When designing a planet, the referee needs to think about the government controlling the world. Even though the planet may be part of an interstellar union, it may have its own laws and elected officials. Many sorts of governments operate among human worlds, and alien races may have governments that humans have never been able to make work. Some of the possible planetary governments are given below.

*Anarchy*: No organized government at all. Some Dralasite worlds do very well with this type (or lack) of government.

*Company-Owned World*: A planet controlled by a company or corporation and run for profit. This system is common on Vrusk worlds.

*Confederacy*: A number of smaller areas banded together under one loose planetary government. Yazirian clans often form confederations.

*Democracy/Republic*: A government run by elected representatives. Humans and Dralasites favor this option.

*Dictatorship*: Absolute rule by one leader. Humans sometimes have this government.

*Monarchy*: Rule by a king or a queen, usually of one family. Only Humans use this type of government.

*Plutocracy*: A government run by those with the most wealth - another popular government used by the Vrusk.

*Socialist State*: The state owns and controls most activities for the equal good of all people. Such states are often used by Humans and Dralasites.

*Stratocracy*: Rule by a nation's military leaders. Yazirians will often form this type of government, using the military leaders from each clan.

*Syndicracy*: Rule by an organization of the most powerful corporations on the planet. Vrusk favor this style.

*Theocracy*: Government by religious leaders, sometimes seen among Humans and Yazirians.

Many variations and combinations of these basic governmental structures are possible. A little research into Human history will turn up many more ways to rule a planet (or portion thereof).

**Human and Alien Societies**

A society is the way a group of people lives together - how members deal with each other, what they believe in, what they consider important, and how they work. Societies do not have specific natural laws to follow and seldom have written laws or regulations. People in a society generally know what is correct or incorrect; they learn this by experience as they grow up. This section gives general guidelines and suggestions on how to create interesting• societies in a Star Frontiers game.

To gain specific ideas on creating planetary societies, the game referee should check out some books on Earth-Human history and present societies. Human civilization is filled with examples of many different societies and cultures that may provide ideas for gaming.

Societies are formed from several different forces - the planet's races, governments, current laws, religions, climate, landforms, history, etc. To ask a referee to think out all these areas is far too time consuming. Instead, the referee should work with what he already knows about the planet.

The race of the inhabitants affects the society with its particular needs, likes, and dislikes; these, then, play a part in any planetary society of that race. If the referee creates a new race, he should write down what that race considers important and consider how that affects the culture.

The physical conditions on a planet affect how people live and what they consider important for their survival. If a planet has very little water, water becomes very important. People who waste water would be "bad," and bathing would be a luxury for special events. Swimming and boating might be terrifying for the average dry-lander. If a planet has a great deal of water, people who could not swim might become social misfits. The referee should think about the planetary conditions that might affect the society.

The government of a planet also affects the society's customs. A planetary dictatorship is rarely likely to tolerate free speech; people of such a planet may be unwilling to speak their minds. Under an anarchy, those citizens supporting an organized government may be considered dangerous or "strange." Atheists in a theocracy are bound to have difficulties with the local government. The laws of the planet also make a difference. A theocracy has more laws dealing with religious crimes, while a dictatorship has laws to control free speech, and a plutocracy has laws to protect the very rich.

When creating a society for a Star Frontiers planet, it helps to start by listing a few notable customs of the planet's citizens. These customs should be interesting and obvious to the player characters. The Dralasites of Inner Reach in the Frontier Sector dye their skin every day, for example. As the characters become more involved in the life on the planet, they will probably want to know why the Dralasites do this. By having the players ask such questions (and by giving them answers), the referee will slowly build a description of the society on the planet.

The referee should remember that it is not necessary to have every detail of a society worked

out in advance. Significant customs and laws should be prepared, but playing the game and having the player characters get involved with life on the planet often helps the referee focus on the social elements he needs to evolve. The referee should make each planet distinctive and unique whenever possible, to enhance the enjoyment gained in playing the game.

# The Zuraqqor Strike Back!

## Alien starships for Star Frontiers Knight Hawks gaming

*by Brian Valentine*

*Dragon* Magazine, #95, pg. 71

Knight Hawks, like any other game, needs variety to keep it exciting. This article can add some of that needed variety by reintroducing the Zuraqqor, one of the Sathar's allies. The Zuraqqor first appeared in the Star Frontiers mini-module *Assault on Starship Omicron*. They are a race of intelligent, bipedal insects, each having small, vestigial wings, two compound eyes, and two antennae. Zuraqqor are thought to originate from a world near Zebulon, as all assaults on Federation shipping have been made in that area since the new trade route was opened.

Zuraqqor culture was well described in *Assault on Starship Omicron*. Only a few relevant details will be repeated here. Zuraqqor society has five classes: worker, warrior, technician, king, and queen. Technicians perform all technological labor,• and their political power rivals that of the Zuraqqor kings and queens.

The kings rule the warriors, each Zuraqqor hive having one king. All hive kings vote on a district king, and district kings vote on a planetary king. All planetary kings vote on the planetary political organization that the kings have. Zuraqqor are very group oriented and will rarely, if ever, be found alone or acting individually.

Zuraqqor warships consist of two main types: battle cruisers and fighters. Four classes of cruisers are known to exist and are classified as classes A, B, C, and D (class A being the largest). Zuraqqor fighters are also known as "ground strafers" because of their frequent use in planetary assaults.

All cruisers are built large and slow: large because the Zuraqqor believe that their shipboard crew organization should resemble the hive organization as closely as possible, making the cruisers resemble huge, floating fortresses; and slow because the Zuraqqor see no need for speed. Cruisers use ion engines, while all fighters use small atomic engines.

Though slow, cruisers are nonetheless very maneuverable. They usually travel in groups of four, except during certain war situations in which much larger groups have been used. Because no space stations have been detected around Zuraqqor worlds, these warships are assumed to be built on small moons or asteroids. Ships the size of their cruisers could never lift off from a planet of any major size. Cruisers are thought to take years to build.

Class A are each equipped with a mine-neutralizing mechanism that deactivates all mines within 30,000 kilometers (three hexes) of the ship. This device cannot be duplicated by any other race at this time. Class A cruisers also each have one fighter bay that can carry one to five fighters.

**Zuraqqor Ship Statistics**

Zuraqqor Battle Cruiser, Class A

HS 15 HP 80 ADF 1 MR 2 DCR 150

Ion engine type A (x4)

Weapons: 2 LC, LB, EB, PB, DC, S (x2), T (x4), RB (x8)

Defenses: RH, EPS, SS, MS (x2), ICM (x8)

Zuraqqor Battle Cruiser, Class B

HS 13 HP 75 ADF 1 MR 3 DCR 120

Ion engine type B (x4)

Weapons: 2 LC, LB, EB, PB, DC, T (x4), RB (x6)

Defenses: RH, ES, PS, MS (x2), ICM (x6)

Zuraqqor Battle Cruiser, Class C

HS 11 HP 70 ADF 1 MR 3 DCR 100

Ion engine type B (x3)

Weapons: LC, LB, EB, PB, T (x2), RB (x4)

Defenses: RH, ES, MS (x2), ICM (x6)

Zuraqqor Battle Cruiser, Class D

HS 9 HP 65 ADF 1 MR 4 DCR 75

Ion engine type B (x2)

Weapons: LC, LB, EB, T (x2), RB (x4)

Defenses: RH, MS (x4), ICM (x4)

Zuraqqor Fighter

HS 2 HP 10 ADF 5 MR 5 DCR 50

Atomic engine type C (x1)

Weapons: AR (x4), LB

Defenses: RH

**Scenario 1: The Zebulon Raid**

In this scenario, the UPFS ships are making a run to a military base on Volturnus (off the right side of the star map), and they begin the game in formation near the left-hand side of the star map. They will only want to get to Volturnus and will try to escape any attacks. On the other

hand, the Zuraqqor's orders are not to return until the UPFS ships are destroyed. Ship statistics for most of the UPFS ships may be found in the boardgame rules for the Knight Hawks game.

**UPFS Forces**

UPFS *Arcturon* (destroyer)

Location: hex 0618

Speed: 5

UPFS *Arrow* (assault scout)

Location: hex 0821

Speed: 5

UPFS *Remora* (assault scout)

Location: hex 0522

Speed: 5

UPFS *Anaconda* (freighter)

HS 17 HP 85 ADF 2 MR 1 DCR 71

Weapons: T (x4)

Defenses: RH, MS (x2)

Location: hex 0521

Speed: 5

**Zuraqqor Forces**

ZMS (Zuraqqor Military Ship) *Brtz'krgr* (class-B cruiser)

Location: hex 3439

Speed: 7 (heading toward hex 3338)

All UPFS ships are heading horizontally across the mapsheet. The Zuraqqor ship is moving along a diagonal to intercept the UPF convoy.

Any UPFS ship that makes it off the right side of the map is assumed to have safely outrun the Zuraqqor cruiser. The Zuraqqor ship wins if all UPFS ships are destroyed or suffer over 50% loss of their hull points. The *Anaconda* and at least one other ship must survive for the UPFS player to win. Note that it is possible for both sides to win this scenario. (Such are the fortunes of war.)

**Scenario 2: The Volturnus Incident**

This battle occurs a month after the Zebulon Raid. The Zuraqqor are attacking the only station

in orbit around Volturnus, effectively cutting off the on-planet mines and military installations from the PGC and Galactic Task Force. The statistics for the Pan-Galactic ships were previously given in the Dragon Magazine issue #88, "Yachts and Privateers Return", but are repeated here for the benefit of those who lack that issue.

The planet of Volturnus is located in hex 1520 on the star map and does not move during the course of the game. The Tarnag is just leaving Volturnus, having undocked from the space station and pulled out of orbit.

**Pan-Galactic Forces**

PGSS *Tarnag* (*Nova*-class yacht)

HS 5 HP 25 ADF 2 MR 2 DCR 35

Weapons: LC, LB, RB

Defenses: RH

Location: hex 1921

Speed: 1 (heading toward hex 2021)

PGSS *Brigadoon* (*Condor*-class privateer)

HS 13 HP 65 ADF 3 MR 3 DCR 59

Weapons: 2 LB, EB, PB, DC, T (x4)

Defenses: RH, SS, ICM (x8)

Location: hex 1519

Speed: 0 (docked at space station, in orbit, moving counterclockwise)

PGSS *Drag Net* (*Thruster*-class privateer)

HS 2 HP 10 ADF 4 MR 5 DCR 26

Weapons: AR (x4)

Defenses: RH

Location: hex 1519

Speed: 0 (docked at space station, in orbit, moving counterclockwise)

PGSS *Miner's Central* (PGC-owned space station at Volturnus)

HP 30 DCR 23

Weapons: 2 LB

Defenses: RH, MS (x4), ICM (x4)

Location: hex 1519 (in orbit, moving counterclockwise)

**Zuraqqor Forces**

ZMS *Ktr-Bltz* (class-B cruiser)

Location: hex 5420

Speed: 8 (heading toward hex 5320)

ZMS *Drlp'mrztd* (class-C cruiser)

Location: hex 5523

Speed: 8 (heading toward hex 5423)

The first side that destroys or inflicts over 50% damage on all of the other side's ships wins, with the PGC station counting as a ship. Neither side can retreat from the star map.

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# The Coming of the S'sessu

## A new alien race for the Star Frontiers game

*by David "Zeb" Cook*

*Dragon* Magazine, #96, pg. 84

*[Editor's note: David "Zeb" Cook was one of the original designers of the Star Frontiers game system. Though future releases from TSR, Inc., may make not reference to the S'sessu, gamers may adopt them into their games as player characters if the referee so allows and if care is used in setting them up in the campaign.]*

First contact with the S'sessu occurred shortly after a brief skirmish between the S'sessu and the UPFS frigate *Hellscar*. The *Hellscar*, severely damaged in an encounter with two Sathar ships, made an emergency jump and re-entered normal space off Phri'sk, one of the two settled worlds belonging to the S'sessu. Orbital stations registered the arrival of the warship, and an interplanetary scout was sent to investigate.

The *Hellscar* established visual contact with the scout and refrained from offensive action, since the scout was of an unknown designed. Hailing signals from the *Hellscar* were returned on an unused frequency in an untranslated language. When televisual ship-to-ship communication was established, the *Hellscar*'s captain, believing he had stumbled onto a Sathar base, opened fire on the scout vessel.

Fortunately, the frigate's fire-control systems were damaged and the shots missed. The scout vessel returned fire and managed to cripple the frigate, though the smaller ship's weapons were technologically outmoded by UPFS standards. The frigate's captain broadcast a long-range distress call to the Federation, but he and his crew were unable to resist a boarding attempt by the S'sessu.

Several weeks later, an attack/rescue fleet arrived off Phri'sk. The UPFS fleet was large enough to suitably impress the S'sessu, a remarkable achievement considering their racial tendencies. Having determined by talking with the *Hellscar*'s captain that the aliens were not Sathar, the fleet commander organized the first diplomatic missions and formal contact between the S'sessu and the Federation proceeded unhindered. The S'sessu refused to give up the frigate, which they considered a prize ship; because of this and the frigate captain's familiarity with the S'sessu from his captivity, the *Hellscar*'s captain was designated temporary ambassador to the S'sessu worlds.

### Physical Appearance

S'sessu are almost identical in appearance to Sathar, the most obvious difference between them being body coloration. A Sathar's skin is yellow or brown, but a S'sessu has a bright pink- or green-tinted skin. The S'sessu do not have the patterns of dots or stripes on their heads that the Sathar have. Otherwise, all other descriptive information on Sathar can be applied to S'sessu.

## Senses

A S'sessu's sense of hearing is equal to a Human's. Its sense of taste is slightly better than a Human's, but its sense of smell is somewhat less well developed. A S'sessu's double pupils give it superior all-round vision, allowing it to see in several directions at once. A S'sessu always has a +2 Initiative Modifier because of its excellent vision.

## Speech

S'sessu speak with a hissing lisp. They have quickly learned Pan-Galactic since their existence was discovered, and they can speak it normally. They can also speak the language of their own race.

## Society and Customs

In general, S'sessu are extremely competitive and self-centered. Each individual does what it wants, caring little for others except for those who can help the S'sessu achieve its goals. Power and possessions are only for those S'sessu who can take and keep them. This would seem to create a society where murder and violence are rampant, but this is not the case. Indeed, at times S'sessu can be highly organized and cooperative, and violent crime is an uncommon occurrence among them.

If a S'sessu believes there is some sort of personal gain to be had in doing so, it will work cooperatively with other beings. A group of S'sessu might pool their money to build an interstellar spaceship, and another group might hire a police force to protect them from robbery or murder by others. However, S'sessu will have only one leader among them in most situations. Thus, a S'sessu company is controlled by one extremely powerful boss; the captain of a S'sessu spaceship is the absolute leader of all beings aboard that ship. S'sessu philosophies are based on getting and keeping power, not on what is right or wrong. To a S'sessu, the only actions that are "wrong" are those that keep it from reaching its goal in the best and safest manner possible.

The discovery of the S'sessu has presented a puzzle for xenobiologists. The S'sessu have no explanation for their similarity to Sathar and were in fact unaware of the existence of the Sathar until contact with the UPF. The current theory held among scientists is that the S'sessu are an offshoot of the Sathar race, and this seems well-supported. If this is true, the separation between the Sathar and S'sessu would have to have occurred more than 20,000 years ago, long before the Sathar or the S'sessu are known to have developed space travel. If has been speculated that an ancient unknown race of aliens (possibly the group known to xenoarchaeologists as the Tetrarchs) transplanted a small group of S'sessu to their present homeworld at that time.

S'sessu only hold claim to a small region of space, consisting of two stellar systems (each with one small inhabited planet) lying ten light-years from the Gruna Garu system, on a line running from Dixon's Star to Gruna Garu and on to the S'sessu worlds. Due to their similarity to the Sathar, it was only through luck and careful diplomacy that they were not immediately attacked as hostile aliens by the rescue force that found their homeworld. Little is known about the S'sessu's history, as friendly diplomatic relations have only recently been established.

The S'sessu are extremely aggressive business dealers. In their attempts to gain an equal footing with the other races in the Frontier Sector, they have hired adventurers to spy on, infiltrate, steal from, or suppress activities the S'sessu deem "unfriendly" in the Frontier systems closest to them. This has caused Star Law to take an active interest in certain foreign and business affairs of the S'sessu, through the race as a whole is not regarded as dangerous or hostile.

**Attitudes**

The S'sessu are essentially amoral (neither knowing nor caring about the difference between good and evil). It is a good bet that a S'sessu will always do exactly what is best for it, even to the extent of betraying others without a second thought to save itself. This "every-worm-for-itself" attitude makes the S'sessu disliked, especially by the Vrusk (who have suffered in certain business dealings from the S'sessu love for "dirty tricks").

Nonetheless, the other races have learned to work with the S'sessu, often with great success and mutual benefit for both sides. S'sessu adventurers often work well as team members, especially if they see their chances of finding personal gain and wealth are improved through cooperative effort. Of course, a better offer might always be made by someone else, leaving the door open for possibly treachery.

**Special Abilities**

*Ability Insight*. Because of the extremely competitive nature of S'sessu society, individuals have developed the ability to judge the strengths and weaknesses of opponents. All S'sessu start with a score of 5% in this ability. This is the percentage chance a S'sessu has of learning one ability score or skill level of a being he observes. The S'sessu must see his opponent actually doing something related to that ability score before he can make this judgment.

For example, Asphenomenas, a S'sessu, sees a smuggler outside a spaceport. The smuggler is trying to shoot a beam weapon at a guard robot. Asphenomenas secretly watches the smuggler, and the player tells the referee that Asphenomenas wants to use his *Ability Insight* to determine the smuggler's DEX score (based upon the smuggler's shooting ability). The referee secretly rolls percentile dice. Then if die roll is 05 or under, Asphenomenas will have learned the smuggler's DEX score. A roll over 05 would indicate uncertainty and no knowledge gained. *Ability Insight* may be increased by spending experience, just like any other ability score may be raised. This ability may only be used once per game hour, simulating the intense concentration required to use it.

**Creating a S'sessu Character**

S'sessu characters are created in the same way as other characters. The following Ability Modifiers are use when creating a S'sessu:

STR/STA: +0

DEX/RS: +0

INT/LOG: +10

PER/LDR: -10

S'sessu have the same movement rate as Sathar do. They walk 10 meters per turn, run 20 meters per turn, and move long distances at 3 kilometers per hour.

The following Racial Reaction Modifiers may also be used when dealing S'sessu:

Humans have a -5 reaction penalty to S'sessu.

Vrusk have a -10 reaction penalty to S'sessu.

S'sessu have a +5 reaction bonus to Sathar.

S'sessu have a -5 reaction penalty to Vrusk.

# The Volturnus Connection

## Building background for the Volturnus campaign

*by Stephen Bonario*

*Dragon* Magazine, #98, pg. 71

A referee starting a new Star Frontiers campaign with the Volturnus module series has many questions about the historical background of the Volturnus adventures which need to be answered. The answers provided in this article are unofficial, but are given to help the beginning referee tie up the loose ends and to help the campaign grow beyond the initial series of adventures.

This article attempts to deal only with those questions that relate to motivations or rationales important to the series. The motives of the Eorna and the Sathar are well defined in the Volturnus modules. But why are the pirates on Volturnus? What real interest does the Truane's Star government have in the planet? What follows is a possible account of what happened to cause the circumstances present when players begin SF0: *Crash on Volturnus*.

In Frontier Year 44 (for more information on the Frontier time system, see the Expanded Game Rules, page 52, and SFKH1, *Dramune Run*), there was a human merchant named Seccitte Zebulon, who regularly made shipments to the Truane's Star system. His ship accidentally misjumped when leaving that system, and Zebulon found himself in an uncharted and mysterious new star system.

Upon return to Pale, Seccitte decided to sell the astrogational information he and his crew acquired while charting their way back. He sold the location of the system to the government of Pale, which promptly paid Zebulon by giving him a private luxury island (where he lived very comfortably -under the government's watchful eye, so he could not resell the information elsewhere).

The Truane's Star system was divided at the time. Pale was the first local planet colonized because of its great mineral wealth. Pale is a cold planet with seasons defined only by the movement of polar ice over its equatorial oceans. New Pale is an Earth-like planet rich in vegetation and animal life. However, this planet is far more dangerous than Pale; huge, vicious dinosaurs roam its plains, jungles, and skies, very much like prehistoric Earth. New Pale was settled by humans to supply food to Pale.

The governments of these two neighboring worlds were independent of each other, yet cooperated well. Pale knew its existence depended on the continuation of food supply shipments from New Pale, the cheapest available external food source. New Pale relied on this demand for its food as its main source of income.

In F.Y. 45, Pale's government created a Planetary Research and Development division to open up the "Zebulon Star Route." Pale launched a deep-space probe to explore the system, now named Zebulon after its discoverer. The probe reported astrophysical data on the system and

its only inhabitable planet (now called Volturnus). When it was discovered that great mineral wealth existed on Volturnus, Pale became eager to colonize the planet. Because Pale itself was an ore-rich world, it already had many mining companies in operation on it. The Research division began taking development bids, and the resulting competition was fierce.

The contract to develop Volturnus was awarded to a healthy company called MINER (Mining for Industrial use of Natural Earth Resources). Plans and negotiations went on for a year, and MINER planned to begin settlement of Volturnus in early F.Y. 47.

Two calamities struck the project at this time, causing the whole thing to fall through. First, New Pale began to receive non-human colonists from Pale. A majority of humans on New Pale were HUSPs (a slang term for persons believing in a racists political philosophy called Human Superiority). The HUSPs preferred this racially isolated planet and did not want it "contaminated." But Pale used military force to bully the weaker government into allowing other races to settle there. Pale saw this as a way to increase food production on New Pale and perhaps drive food costs down. Several months later, the HUSPs banded together and began terrorizing the new colonists, also attacking Pale's "colonial protection" forces. New Pale thus declared itself to be in a state of war with Pale.

The result of this was Pale's transference of money from "unnecessary" projects to the direct defense of its critical food supply source. Money from the Planetary Research division was diverted to this• cause because it was felt profits from Volturnus operations would not be realized fast enough to help the war effort. Pale also believed that, if it could gain full control of New Pale, it could become a much more powerful stellar government.

The other calamity that struck was the kidnapping of the head of MINER, a Vrusk, who was later reported killed when the demanded• ransom was not paid. His body was never recovered, and his will called for the liquidation of MINER, with all moneys then deposited into a private back account. It was widely believe that a rival company was responsible for his death.

This was a turning point for Volturnus. It gave the Eorna another twenty years to fulfill their Great Mission, but it also brought the Star Devil to Volturnus. The former head of MINER secretly retained all the classified information on Volturnus and the Zebulon star system. He had rigged his kidnapping and death, then assumed a new identity as the Star Devil. His initial intent was to set up an illegal mining operation on Volturnus before the government of Pale could do so. To help realize his plans, he drew on the private bank account his will had set up. But as time went on, he instead became involved in pirating operations. He did not know then how much his "business" would affect Volturnus's future.

The war on New Pale consisted of a series of HUSP-led terrorist attacks on food service shipments to Pale. Pale was forced to continue to spend money on ensuring its food supply remained secure. This became difficult in the early 50's because Pale had an overabundance of resources that were also low in demand. It suffered an economic depression, and many Pale-based mining companies went out of business. One mid-sized corporation, based in Point True, Pale's capitol, began to acquire these small companies hoping to gain a planet-wide monopoly. The corporation was Streel; by F.Y. 53, Streel completely controlled all mining operations on Pale.

Aware of this, the Star Devil approached the Pan-Galactic Corporation and worked out an agreement with it. The Star Devil, using bases in the Gruna Garu, Prenglar, and Dixon's Star systems, ran weapons shipments from WarTech Corporation to the HUSPs on New Pale. Pan-Galactic financed the cost of the weapons, while the Star Devil furnished the ships. Gun-running proved profitable for both PGC and the Star Devil, allowing the latter to become a potent force. The Star Devil was able to develop Volturnus before Truane's Star could do it, while keeping Streel busy investing money in the war effort instead of in business projects like PGC did. This activity went on from F.Y. 54 to F.Y. 63. The Star Devil expanded his pirate bases to the Araks, Athor, and Scree Fron star systems. In F.Y. 63, he began putting his Volturnus mining plans into operation. This particular year also saw the end of the Pale-New Pale war.

Streel struggled through those nine years of war, yet continued to grow into a larger corporation despite it. In F.Y. 63, in cooperation with the Pale Militia, Streel made an effort to end the war by pouring millions into the militia's coffers. Confronted by an army of far superior quantity and quality, the HUSPs were soon crushed out of existence, despite the best efforts of PGC and the Star Devil to save them. New Pale became a stabilized planet. Its new government then joined Pale's, and the two began united rulership of the Truane's Star system.

By F.Y. 64, Streel became aware of the long-deserted Zebulon colonization attempt. It urged the new government to develop the system claimed twenty years ago. Streel even helped finance a new Planetary Research division. The division sent and exploratory team three and a half months (140 days) into F.Y. 64. Nine months (360 days) later, a second team was assembled - the player characters.

This is where your campaign is set to begin. Using the previous information, you can provide information about the past to characters who manage to gain access to the pirates' computers. You can now use the Star Devil's many bases as expansion for further adventures. It is almost inevitable that a party will want to get even with the pirates, who may have been responsible for the deaths of party members or who may have escaped Volturnus with prisoners who are player characters. What happens next will be up to the referee and players. Using the rationale provided here will flesh out the campaign and make it more logical and consistent.

It is also suggested that gamers use the following additional information:

1. The captain of the Serena Dawn was working with the pirates, but his reward for delivering the second team to them was his death and the destruction of his ship and crew. The player characters, of course, escaped.

2. PGC has been buying the Star Devil's ore mined on Volturnus. PGC knows of this operation and deals with it despite its illegality. Should characters discover this information, they could sell it to Streel for a handsome price. However, it is quite likely PGC will learn of the sale and send out a few agents to deal with the characters...

I hope this article has demonstrated the need for rationale in any kind of campaign to new and old referees alike. By having a consistent set of motives for the major influences in a scenario, the referee can draw on them and "wing it" with ease when necessary, yet remain true to the pre-planned course of events. Players are an unpredictable lot, and answering their questions

becomes easier when you know the answers.

# Tanks a lot!

## Vehicle combat in Star Frontiers gaming

*by Alex Curylo*
*Dragon* Magazine, #99, pg. 71

Simba the Yazirian and Dandel the Dralasite crested the second-to-the-last dune before the Streel outpost - and almost bumped into a perimeter guard. Simba's sonic sword cut the man in half before he even raised his weapon.

"As I was saying," the unrattled Dandel continued, "the problem with this war is that it's boring. We watch Streel, they watch us, and occasionally somebody gets shot. What we need is some excitement. We need something like…"

Suddenly, the stutter of a machine gun sounded ahead. Simba and Dandel hurriedly climbed that last dune and unslung their magnigoggles. All was clear at the base, but a firefight was in progress along the base highway.

A hover transport with Streel markings was trying to reach the base as an Explorer with GTF insignia gained on it. A jet of oil splashed from the truck; the Explorer fishtailed through the slick, barely keeping control. Slowing down, the Explorer released a guided missile from its roof rack. The transport driver tried to dodge, but the missile hit and the truck rolled over twice under the blast, landing upright but flaming.

As the Explorer approached, one of the trucks turrets turned to face it. Fire from a heavy flamethrower licked over the Explorer's roof, setting off the three remaining guided missiles in a red ball of fire and light.

"Now *that*," said Simba, "is *exciting*!"

The Star Frontiers combat rules are excellent, but some areas were omitted - the most unfortunate omission being vehicle-mounted weapons and armor. Armed and armored vehicles would be used extensively by the Frontier mega-corps, Star Law and other law-enforcement agencies, explorers of planets with hostile native life, and those earning a living by illegal means. Since these categories include virtually all player characters, the need for vehicle combat rules is obvious. This article attempts to rectify that problem.

**Defenses**

The basic vehicle defense is armor. Its effectiveness depends on its composition, method of fabrication, location, thickness, and angle of slope. For the game, all these considerations (as well as details like bulletproof windshields and wheelguards) are neatly integrated into *coats of armor*. Each coat provides a -2 modifier when rolling on the appropriate Vehicle Damage Table (Expanded Game Rules book, pp. 32-33). Every 5 coats will reduce crash injuries to occupants by -1 point per die. The cost per coat and the maximum coats applicable vary for each vehicle type; these are noted on the Vehicle Table below. Also noted (after the slash) are the number of coats that are concealable (*i.e.*, that an observer will not notice as armor on the vehicle). Likewise, the price after the slash is the price for a concealed coat.

A vehicle can be painted with reflective paint. This costs the same as an armor coat and provides an additional modifier of -10 from vehicle damage rolls due to laser attacks. Note that these coats are not concealable.

A defensive screen can also be added to a vehicle. There are two types of vehicle screens:

*Albedo*: This screen uses 1 SEU per minute of operation, and it absorbs all laser damage at a cost of 2 SEU per die of damage absorbed.

*Inertia*: This screen uses 1 SEU per minute of operation, and it reflects half the dice of damage done by ballistic attacks (and crashes) at a cost of 1 SEU per die of damage reflected.

Example: A hovercar and a jetcopter are slugging it out. The car's universal turret fires a heavy laser (set at 20d10 damage) straight up and hits the jetcopter. The jetcopter's albedo screen absorbs it at a cost of 40 SEU. The jetcopter then drops a heavy bomb (50d10 damage) which hits the car. The hovercar's inertia screen reflects half the dice (25) at a cost of 25 SEU. Its driver now rolls on the Damage table with a +25 on the dice.

Power screens are powered by the power econopack - 250 SEU, 25 kg, 1250 Credits; 4 weapons adapters, 1 screen adapter, 5 miscellaneous adapters. The cost for the screen varies with the size of the vehicle, as shown on the Vehicle Table.

**Weapons**

Many new weapons are available to mount on vehicles, as detailed on the Weapon Table below. All headings are the same as found in Expanded Game Rules statistics (p. 27), save for *spaces* and *mounting fee*, described below.

*Spaces*: Each vehicle's capacity to carry weapons is rated in spaces, as shown on the Vehicle Table. All weapons mounted in the vehicle's body or in turrets have their space rating subtracted from this number. When a vehicle's rating reaches zero, no more mounted weapon can be added to it.

*Mounting fee*: This is the cost to mount this weapon to a vehicle. All mounts are recessed, and it must be decided when mounting whether a weapon faces the front, back, right, or left side of a vehicle.

Descriptions and notes for these weapons are presented below.

*Portable weapons*: These include heavy lasers (HL), machine guns (MG), recoilless rifles (RR), and rocket launchers (RL). They can also be mounted on a post or swivel mount; this only costs 150 Credits, but these weapons cannot be fired by a gunner inside the vehicle. Normal ranged combat is used if someone hangs from a hatch to use one of these, but anybody doing that and wearing a screen will interfere with the vehicle's defensive screen (if any). Post-mounted weapons are not charged against the vehicle's space total - but reasonable limits should be placed on this by the referee.

*Flamethrowers*: These were omitted from the rules. The version here is the one-man backpack sort. Vehicle-mounted versions should not face the front of the vehicle. If fired while the vehicle is traveling faster than 40 meters/turn, the flamethrower will subject the vehicle to an attack from its own flame.

*Vehicle MG*: A large caliber (12.7 mm) weapon with a greater muzzle velocity than a portable MG. Baffles surround its barrel so that the muzzle flash is not visible at night.

*Vehicle RR*: This is similar to the version in the Expanded Game Rules book, but it has a larger caliber.

*Vehicle RL*: This uses longer, larger rockets than the Expanded Game Rules version. Note the different rocket calibers; one vehicle RL cannot fire both. Also note that in jetcopter and aircar weapon pods, the rockets are each mounted in a separate tube; any number of rockets may be fired in a single turn.

*Vehicle HL*: Lacking a clear prototype, the heavy laser statistics were designed to keep it competitive with other weapons. It runs off the same powerpack as screens.

*Vehicle FT*: The tank version. Remember the caveat above about front-mounted flamethrowers.

*Cannon*: This is your basic 30 mm cannon.

*Howitzer*: This tank weapon is included for the sake of sheer overkill.

*Guided Missile*: GM platforms come in four sizes. The smallest holds one missile, takes up one space, and

costs 300 Credits to mount. The largest holds 4 missiles, costs 1200 Credits to mount. All GMs available can be fired in one turn if so desired. They are an exception to normal combat rules. The cheap missile (1000 Credits/30d10) is guided by joystick movements of the gunner and finalizes its own aim with infrared sensors. The basic chance to hit is the gunner's DEX +20, as a percentage. All modifiers are applicable; range modifiers are reduced three categories if the gunner is wearing magnigoggles. The expensive missile (3000 Credits/6d10) is programmed with a target before launching, and is totally self-guided. Programming takes three turns during which the gunner can take no other action. The chance to hit is 95%, and no modifiers are applicable. Missile acceleration is 150 meters/turn/turn, top speed 1500 meters/turn; a jetcopter of aircar with a head start might be able to outrun a missile for its 10 km range.

*Bomb*: This is a dropped weapon, mounted on jetcopter or aircar pylons. Statistics for light and heavy bombs are given.

*Minedropper*: A shot from this weapon drops 5 mines on the road behind the vehicle. Distribution is determined by speed and maneuvers during the dropping turn. If any vehicle subsequently passes over them, the mines will detonate on a 50% activation roll. The 5d10 damage figure is per mine. This is a generally useless weapon for flying vehicles; the mines spread too much and explode on impact if dropped over 5 meters.

*Sprayer*: Various vile substances can be loaded into this. The most useful three substances are smoke, paint, and oil. A smokescreen forms a 50-meter diameter cloud, blocking vision and IR sights but not radar. It lasts 5 turns; any vehicle going through it is sightless for 1 turn.

Paint sprayers cover an area 10 meters X 3 meters behind the vehicle, and they block vision (but not IR or radar) by coating windows with paint. The paint lasts until scrubbed off. Paint will also completely ruin a coat of reflective paint; it cannot be removed without also removing the reflective paint beneath it.

Oil jets form a 20 meter X 2 meter slick. The driver of a vehicle traveling faster than its turn speed who encounters a slick must make a Reaction Speed check or lose control of the vehicle. An Explorer has a +20 on the control roll. Hover vehicles are not affected at all.

A limitation of recessed mounting is that weapons can only face one direction. To get around this, weapons are installed on turrets. Turrets have a 360º field of fire, and ca spin the full 360º and still fire each turn. Universal turrets can also elevate from -15º to +90º (straight up). Turrets have a minimum range of 10 meters due to their elevation from the ground (this does not apply to universal turrets).

Turrets come in three sizes, as shown on the Turret Table. The second price (after the slash) is for a universal turret. These prices include the mounting of a turret in a vehicle, but the regular weapon mounting fee must still be paid to mount a weapon in a turret. Concealing a turret costs double the price shown, but weapons in the turret are automatically concealed.

The maximum number of turrets on each vehicle type and their possible sizes are shown on the Vehicle Table. Note that cycle turrets are actually sidecars, and only have a 180º field of fire on one side. Also note that putting weapons in a turret does not add to the spaces in a vehicle.

Example: Simba is mounting a turret on his groundcar. According to the table, he can mount a small or medium turret. He chooses a medium universal turret (2 spaces) and decides to mount a vehicle machine gun (2 spaces) in it. It costs 3000 Credits to purchase the vehicle MG, 750 Credits to mount it in the turret, and 5000 Credits to buy a turret and mount it on his car. If he wants a pop-up turret, it will cost him another 5000 Credits. (The vehicle MG is automatically concealed.) Either way, he now has 4 spaces left to mount a cannon (or whatever) in his car.

Jetcopters and aircars are a special case. Their weapons are most commonly mounted not in the body or in turrets, but in weapon pods attached to pylons. These pods add space to a vehicle. A jetcopter can have two pods, each holding 2 spaces worth of weapons, while an aircar can have 4 pods, each holding 4 spaces of weapons. A small (1-space) pylon with post costs 200 Credits; a medium (2-space) one costs 400 Credits;

and, a large (4-space) one costs 800 Credits. (Of course, regular weapon-mounting fees must still be paid.)

Example: Dandel is arming his aircar. He mounts a vehicle MG and a vehicle FT coaxially in a large, underbody turret. This fills up the vehicle's body spaces (as shown on the Vehicle Table). However, he can still add up to 4 pylons of up to 4 spaces each, under the wings, so the total weaponry on his aircar could be 20 spaces.

Note that pods are fixed, forward-firing weapons.

**Equipment**

Other pieces of equipment that are useful in vehicle combat are given here. These are listed on the Equipment Table and described below.

*Cyberlink*: This is a direct mental hookup (by computer) to a weapon to control its firing. Up to 5 weapons can be controlled by one person (3 by a driver) at no penalty to firing multiple weapons, but each weapon requires a separate link. Each weapon also guzzles 2 SEU per turn of operation.

*Ejection seat*: Upon manual activation, this slides back a roof panel and ejects the seat 20 meters straight up, where a para-wing opens to carry the passenger to safety. Safety features prohibit activation when the vehicle is not upright.

*Infrared cameras*: IR cameras project a 360º image of heat sources around the vehicle, to permit driving without lights at night and seeing through a painted windshield. They use 1 SEU per minute of operation.

*Infrared jammer*: IR jammers make the vehicle invisible to IR sensors, and they give guided missiles a -20 modifier to hit. They use 2 SEU per minute of operation.

*Radar*: Radar enables sight through any interference, but objects show up only as blips on a screen. It uses 1 SEU per minute of operation.

*Searchlight*: One can be mounted in a turret for 200 Credits (using 1 space) and can be used as a weapon to blind opponents. Blindness duration is 1d10 turns, or 1d10-3 if the searchlight is over 500 meters away. Light range is 1 km. SEU use is 3 per minute.

**Combat**

The Combat Sequence for vehicle combat is the same as for all other Star Frontiers combat, the only difference being the procedure used to determine hit probability. This is given below.

1. ½DEX / ½DEX. The basic percentage change to hit is ½ the gunner's Dexterity, since he has no control over the aim (only when to fire). If he is controlling a turreted weapon, the base percentage chance increases to ½ his Dexterity.
2. +5% / Tech level. If the vehicle is moving, 5% is added for each Technician level of the driver, since he can position the vehicle for the most favorable shots.
3. +5% / skill level. 5% is added for each skill level the gunner has with the weapon being fired.
4. -x% range. See Expanded Game Rules book for range modifiers.
5. +x% size. Cars, Explorers, air vehicles: +5% (Large). Trucks: +10% (Giant).
6. +x% movement. -10% if speed is 10-150 meters/turn; -20% if speed is over 150 meters/turn. This applies to both attacker and target.
7. -x% cover. See Expanded Game Rules book for cover modifiers.
8. -x% dodging. The driver can weave and otherwise try to prevent a harder target. Subtraction is -5% per Tech level of the driver. This applies to attacks on and by his vehicle, and it eliminates modifier #2 above.
9. -10% / extra weapon. If firing multiple weapons, a gunner has a -10% penalty "to hit" per weapon, for

every extra weapon over and above the one weapon he considers his main weapon. A driver has a -10% penalty "to hit" per weapon on which he fires.

Example: Simba and Dandel are trying to bring down a Streel jetcopter. Simba (the driver) is firing two weapons; he has a -20% on each roll. Dandel (the gunner) is firing three weapons; he also has a -20% on each roll.

Once an attack succeeds, apply screen affects (if any), and find the number of dice of damage caused by the attack. Roll 2d10, add the number of dice, and subtract 2 for each coat of armor the vehicle has. Finally, add vehicle modifiers (+2 for cycles; -2 for Explorers), and consult the appropriate Vehicle Damage Table (pp. 32-33, Expanded Game Rules book).

Best wishes in your dueling, and may you never find yourself staring down a howitzer barrel.

**Vehicle Table**

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| Vehicle Type | Maximum Spaces | Maximum Turrets | Screen Cost Cost/Coat (Cr) | Screen Cost (Cr) | Maximum Costs (Cr) | Maximum |
|---|---|---|---|---|---|---|
| Hovercycle | 2 | 0 | 1500/n.a. | n.a. | 1 | 1 S |
| Groundcycle | 3 | 0 | 1500/n.a. | n.a. | 2 | 1 SM |
| Hovercar | 6 | 3 | 4000/6000 | 10000 | 4 | 1 SM |
| Groundcar | 8 | 3 | 4500/7000 | 10000 | 6 | 1 SM |
| Hover transport | 15 | 5 | 10000/13000 | 25000 | 16 | 2 SML |
| Ground transport | 18 | 5 | 11000/15000 | 25000 | 20 | 3 SML |
| Explorer | 15 | 5 | 7000/9000 | 15000 | 12 | 1 SML |
| Jetcopter | 12 | 3 | 8000/10000 | 15000 | 2 | 1 SM |
| Aircar | 20 | 5 | 11000/13000 | 25000 | 4 | 1 SML |

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**Equipment Table**

| Item | Mass (kg) | Cost (Cr) |
|---|---|---|
| Cyberlink | 5 | 5000 |
| Ejection | 15 | 500 |

| | | |
|---|---|---|
| seat | | |
| IR cameras | 8 | 800 |
| IR jammer | 4 | 500 |
| Radar | 10 | 1500 |
| Searchlight | 8 | 500 |

**Turret Table**

| Size | Spaces | Cost (Cr) |
|---|---|---|
| Small | 1 | 2000/2500 |
| Medium | 2 | 4000/5000 |
| Large | 4 | 8000/10000 |

**Weapon Tables**

| Weapon Type | Spaces | Mounting Fee (Cr) | Damage | Ammo | SEU | Rate | Defense |
|---|---|---|---|---|---|---|---|
| Flamethrower | 1 | 500 | 3d10 * | 10 | - | 1 | none |
| Vehicle MG | 2 | 750 | 15d10 | 20 | - | 1 | inertia |
| Vehicle RR | 2 | 750 | 18d10 | 15 | - | 1/2 | inertia |
| Vehicle RL | 2 | 750 | 20d10 | 20 | - | 1/2 | inertia |
| | 2 | 750 | 30d10 | 10 | - | 1/2 | inertia |
| Vehicle HL | 2 | 750 | 1d10/SEU | 500 | 5-30 | 1 | albedo |
| Vehicle FT | 2 | 750 | 8d10 ** | 10 | - | 1 | none |
| Cannon | 4 | 1250 | 25d10 | 15 | - | 1/2 | inertia |
| Howitzer | 8 | 2500 | 75d10 | 10 | - | 1/4 | inertia |
| Guided Missile | 1-4 | 300-1200 | 30d10 | 1-4 | - | 1-4 | inertia |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | 1-4 | 300-1200 | 60d10 | 1-4 | - | 1-4 | inertia |
| Bomb | 1 | 50 | 25d10 | 1 | - | 1 | inertia |
| | 2 | 50 | 50d10 | 1 | - | 1 | inertia |
| Mine dropper | 2 | 500 | 5d10/mine | 10 | - | 1 | inertia |
| Sprayer | 2 | 500 | variable | 10 | - | 1 | variable |

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**Range (meters)**

| | **PB** | **Short** | **Medium** | **Long** | **Extreme** |
|---|---|---|---|---|---|
| Flamethrower | 0-10 | 11-20 | 21-30 | 31-45 | 46-70 |
| Vehicle MG | - | 0-100 | 101-350 | 351-700 | 751-1500 |
| Vehicle RR | - | 0-200 | 201-1250 | 1251-3000 | 3001-5000 |
| Vehicle RL | - | 0-200 | 201-500 | 501-1000 | 1001-2000 |
| | - | 0-200 | 201-500 | 501-1000 | 1001-2000 |
| Vehicle HL | - | 0-150 | 151-750 | 751-1500 | 1501-3000 |
| Vehicle FT | - | 0-25 | 26-50 | 51-100 | 101-150 |
| Cannon | - | 100-1000 | 1001-2000 | 2001-3000 | 3001-5000 |
| Howitzer | - | - | 250-3000 | 3001-7000 | 7001-15000 |
| Guided missile | 50-500 | 501-1000 | 1001-2000 | 2001-5000 | - |
| | *** | *** | *** | *** | *** |
| Bomb | 0-10 | 11-30 | 31-60 | 61-120 | 121+ |
| | 0-10 | 11-30 | 31-60 | 61-120 | 121+ |
| Mine dropper | n.a. | n.a. | n.a. | n.a. | n.a. |
| Sprayer | varies | varies | varies | varies | varies |

| | | | | Ammunition | | |
|---|---|---|---|---|---|---|
| | **Cost** | **Mass** | **Type** | **Cost** | Mass | |
| **Rounds** | **(Cr)** | **(kg)** | | **(Cr)** | (kg) | |
| Flamethrower | 3000 | 15 | napalm | 50 | 10 | 10 |
| Vehicle MG | 3000 | 22 | bullet belt | 125 | 12 | 400 |
| Vehicle RR | 5500 | 20 | shell | 15 | 2 | 1 |
| Vehicle RL | 6000 | 17 | rocket | 25 | 6 | 1 |
| | 8000 | 20 | rocket | 40 | 10 | 1 |
| Vehicle HL | 7500 | 25 | pack | 1250 | 25 | 500 |
| Vehicle FT | 5000 | 25 | napalm | 150 | 30 | 10 |
| Cannon | 10000 | 100 | shell | 50 | 5 | 1 |
| Howitzer | 25000 | 350 | shell | 200 | 20 | 1 |
| Guided missile | 200-800 | 5-20 | missile | 1000 | 30 | 1 |
| | 200-800 | 5-20 | missile | 3000 | 60 | 1 |
| Bomb | n.a. | n.a. | bomb | 50 | 15 | 1 |
| | n.a. | n.a. | bomb | 100 | 30 | 1 |
| Mine dropper | 750 | 10 | mine | 250 | 25 | 50 |
| Sprayer | 1000 | 20 | varies | 100 | 10 | 10 |

Note: Any portable weapon may be mounted in a turret; it will take up to one space, and will have a mounting fee of 500 Credits. All other statistics are as per the Expanded Games Rules.

* Fire from a portable flamethrower will do 1d10 damage/turn to a target for the next three turns after the turn in which it was fired.

** Fire from a vehicle-mounted flamethrower will do 1d10 damage/turn to a target for the next five turns after

the turn in which it was fired.

*** The second kind of guided missile has no range modifiers, and is good out to a 10 km range.

# SilverTwin!

## High-tech crimefighters of the Frontier

*by Michael Therrien*

*Dragon* Magazine, #102, pg. 82

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**To:** All concerned planetary officials
**From:** Security Council
Star Law Laboratories
Port Loren, Morgaine's World, Prenglar

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Honored sirs:

It has come to the Council's attention that the phenomenal success of the SilverTwin project (entire background included) has led to a flood of requests for such services. It must be understood by all that such projects are extremely expensive. Most local police agencies hardly have the funds to keep themselves in uniform, let alone to pay out 2,000,000 Cr for a pair of vehicles and six more personnel, regardless of how well skilled they are!

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Captain-General Dwarg Uol has asked all planetary heads to reconsider their many requests...

**History**

After the Second Sathar War, white-collar criminals from several outlaw organizations began to stir things up in the Frontier, using gangs of moderately armed thugs. Hundreds of serious crimes were committed by these gangs each week. The crime lords behind these groups of thugs hoped to occupy Star Law's forces on an increasingly planetary level, thus reducing the organization's strength in open space and permitting the growth of piracy. Their ploy failed miserably, for their actions led to the development of the SilverTwin project.

Star Law Laboratory (Morgaine's World) reacted to the demand by officers throughout the Frontier for heavily armed combat vehicles. The SilverTwin project was revealed nearly a year ago; since then, it has been installed and activated in three Star Law planetary branches. With the widespread fame of this highly effective arm of law, the requests for many more SilverTwin units have reached the attention of the Security Council. The cities that so far have had a SilverTwin module included in their arsenal are Port Loren (Morgaine's World, Prenglar), Jancaith (Triad, Cassidine), and Tarnath's Realm (Truane's Star).

SilverTwin is the code name for a pair of all-terrain vehicles, both well armed and screened, which have been created for special missions of law enforcement. They are experimental in design and would only be used in conjunction with the law agencies of major cities, acting on orders from a Star Law Planetary Council, Planetary Officer, or higher authority.

A SilverTwin unit itself is composed of two vehicles: one car and one cycle. Both have the

capability of being able to change from hover movement to ground movement. The speed limitations (see page 30, Expanded Rules) are better than most racing vehicles. A look at the basic statistics below will reveal a greater turning speed, better acceleration, and a faster deceleration. Also noted under each vehicle description is a Vehicle Damage Modifier (VDM). When a SilverTwin vehicle has been fired upon, subtract the VDM from the dice roll before consulting the vehicle damage table on page 32, Expanded Rules. This represents the armor quality and high-stress engineering which were incorporated into the SilverTwin project.

**Talon (ground/hover car)**

Speed: Accel: 90 m/turn Decel: 45 m/turn

Top: 260 m/turn Turn: 85 m/turn

Cargo: 100 kg, 1 cubic meter

VDM: -5

**Onboard systems:**

- Two turreted laser-rifle cannons: setting of 1-20 SEU/shot, 1d10 damage per SEU, range of a laser rifle.
- Grenade launch tube: 6-grenade magazine (usually 3 doze and 3 smoke), ranges of 0/30/55/120/235.
- Standard radiophone: compatible with Gemini helmet chronocom and most local radio channels.
- Albedo defensive screen: 3 SEU/minute, plus normal drain on hits.
- Inertia defensive screen: 3 SEU/minute, half damage done to Talon.
- Holo camouflage screen with feedback loop: 2 SEU/minute, normal (20% chance) of detection.
- Hostile environment seals: protective against water (no depth over 2 meters), poison gas, and all grenade smokes. It will also function as an oxygen tent, sustaining four persons for ten hours.
- RENDER: computer system access and analysis panel.
- Public address system.

**Details:**

A Talon, as mentioned above, can use either hover or ground movement, depending on the situation. The change from one mode to another takes two turns (twelve seconds) of complete motionlessness.

Four crewmen ride inside a Talon under normal circumstances: a pilot (driver), copilot (weapons operator), coordinator (uses radiophone to coordinate actions between SilverTwin and other agencies or allies), and defender (uses RENDER to operate screens, monitor levels of ammunition, and perform damage control). The positions are listed according to where each person sits in the vehicle, moving clockwise from a left-handed driving seat. A Talon can carry two extra passengers (one of them Vrusks, though only with cramming.

The cargo storage space has a false bottom, beneath which is a hidden weapons cache containing 10 power beltpacks, 3 laser pistols, 2 space grenade magazines, a disguise hit (for four people, 2 different identities each), survival rations for 6 (lasting one week), 10 sticks of tornadium D-19 with variable timers, a freeze field, and a waterpack. This is the normal equipment carried on a Talon, though additions or changes may be made in special circumstances.

Talon will, while on a stakeout or similar operation, usually• have the holo screen either offer camouflage or the image of a normal car, depending upon the situation.

**Claw (ground/hover cycle)**

Speed: Accel: 110 m/turn Decel: 45 m/turn

Top: 270 m/turn Turn: 100 m/turn

Cargo: 20 kg, .5 cubic meters

VDM: -3

**Onboard systems:**

- 2 laser barrels: 1-10 SEU discharge, range of a laser pistol.
- 4 heavy projectiles: do 5d10 structure points, range of automatic pistol.
- Albedo defensive screen: 2 SEU/minute, plus normal drain on hits.
- Inertia defensive screen: 2 SEU/minute, half damage done to Claw personnel.
- Spur (coordination computer between Claw and Talon).

**Details:**

A Claw is a cross between a ground cycle and a hover cycle. The switch between modes can be made if the Claw is traveling over 60 m/turn or is at a standstill. It takes one turn of the pilot's actions to activate the change, during which time the Claw cannot fire (since the driver/pilot operates the sighting controls of the weapon systems) or turn more than 30 degrees in any direction. A Claw has a parabattery type 2.

A small weapons cache is included, in which are 4 power beltpacks, 2 normal laser pistols, a disguise kit (for two people, for four different disguises each), a survival kit (rations for 20 people for one day, plus 1 liter of water, toxy-rad gauge, 2 all-weather blankets, compass, everflame, flashlight, and three holoflares), and 4 sticks of tornadium D-19 and a like amount of variable timers.

The survival kit is a standard model and can be purchased for 50 Cr. However, different companies have different ideas as to what a person needs to survive, and the price will vary according to the contents.

**Twinsuit**

A Twinsuit is a special combat uniform, made exclusively for the crew of the SilverTwin modules. They are fitted to the team members, with no chance of them being usable to any

other being. The methods of creating Twinsuits are kept completely secret. Each has a lock keyed to the brainwave patterns of its host, which cannot be duplicated, permitting only the person for which the suit was fitted to use it.

**Twinsuit Equipment:**

- Exoskeleton frame: normal operation (page 48, Expanded Rules).
- Anti-shock implant: on the team member, not a part of the suit.
- Built-in albedo and inertia armor: This very special armor is a unique weave of albedo and inertia fibers into a tight mesh suit. The specifications of this weave are kept highly secret.
- Built-in holo screen: standard model.
- Gemini helmet: A specially designed helmet, with the following additions: chronocom, magnigoggles, a small infrared jammer, and a vocal print distorter (VDP). The VDP will alter the wearer's voice beyond all possible chances for identification by voice print.
- Laser/stunner: This pistol is a normal laser pistol with a sonic stunner attached. It takes one combat round to change the setting from laser to stunner or back. The stun setting will drain 2 SEU per shot.
- Sonic sword: normal in all respects.
- Four power beltpacks: normal in all respects.
- Gas mask: normal in all respects, and fastened to the front of the Twinsuit.

**Twinteams•**

Because of the limited space for seating on the Talon and Claw vehicles, Vrusks could not be considered for membership on a Twinteam. However, Vrusks do make a sizable contribution to the SilverTwin project, particularly in the area of design. Vrusks now make up nearly 45% of all SilverTwin technical crews. The Twinteams' identities are known only to the Star Law Security Council, the Planetary Council (if there is one), and the Planetary Officer.

A tight team feeling is highly stressed when developing a Twinteam. The chosen few will live together for more than two years after attaining Star Law Ranger rank, becoming accustomed to their partners. They live and train inside a special set of huge domes on Morgaine's World.

Players who wish to join a SilverTwin project must be Star Law Rangers (see Dragon issues #87 and 91). They then have the option of either joining a Twinteam missing a member or two, or beginning their own team (six people only). Those needing details on the Star Law ranking system should refer to Alex Curylo's article, "Careers in Star Law," in issue #91.

The following are the names, races abilities, and skills of the first and foremost Twinteam, which operates inside Port Loren, Morgaine's World, Prenglar. These people made the SilverTwin project a success for Star Law. The referee will note that this Twinteam is very powerful; it has trained extensively for the benefits SilverTwin has to offer.

Blarg Dramiloud: Dralasite (STR/STA 61/85, DEX/RS 56/55; INT/LOG 69/83, PER/LDR 86/86, PS 4, IM 6). PSA: Technological. Technician 6, Computer 5, Robotics 5, Beam Weapons 5, Melee 6. Talon pilot.

Yalik Califor: Female Yazirian (STR/STA 56/76, DEX/RS 65/60, INT/LOG 65/77, PER/LDR 81/81, PS 3, IM 6). PSA: Technological. Technician 5, Computer 5, Robotics 6, Beam Weapons 5, Melee 6. Claw pilot.

Lucretia Xerxes: Female Human (STR/STA 57/71, DEX/RS 76/85, INT/LOG 63/71, PER/LDR 77/77, PS 3, IM 9). PSA: Military. Beam Weapons 6, Projectile Weapons 6, Computer 5, Melee 5, Martial Arts 5, Demolitions 4. Talon copilot.

Garlib Rampous: Dralasite (STR/STA 60/84, DEX/RS 60/55, INT/LOG 64/74, PER/LDR 74/74, PS 3, IM 6). PSA: Biosocial. Beam Weapons 5, Medic 6, Environmental 4, Melee 6, Psycho-Social 4, Computer 2. Garlib works Spur, riding on the back of Claw.

Fraw Talm: Male Yazirian (STR/STA 65/70, DEX/RS 66/65, INT/LOG 71/69, PER/LDR 72/72, PS 4, IM 7). PSA: Military. Beam Weapons 5, Melee 6, Computer 6, Technician 6, Martial Arts 4, Demolitions 4. Fraw operates RENDER from inside Talon.

Johnathon Killbear: Male Human (STR/STA 85/94, DEX/RS 69/63, INT/LOG 60/65, PER/LDR 71/71, PS 5, IM 7). PSA: Military. Beam Weapons 5, Thrown Weapons 5, Martial Arts 5, Demolitions 5, Medic 6, Environmental 4. John coordinates Talon, Claw, and the local law force with a radiophone in the back of Talon.

A Twinteam member has all the legal power of a Star Law Ranger. All legal powers and restrictions are listed in Dragon issue #91. Twinteam members will not, under any circumstances other than to save a life, break the law.

**SilverTwin Scenarios**

It is readily apparent that SilverTwin is a powerful tool for the forces of planetary good. Numerous scenarios may be built around it, with the player characters either supporting, fighting against, or being a part of a Twinteam. The first encounter with a SilverTwin force should be in a large city, with the PCs watching from the sidelines as a SilverTwin force stops a major robbery or hijacking. PCs may help, though the Twinteam will prefer not to have civilians involved in their operations unless the situation is dire. The Twinteam will use all resources available (within legal limits), including calling in the local law enforcement agency and military forces if necessary.

SilverTwin is meant for adding more excitement to your Star Frontiers gaming. It represents the best that Star Law has to offer, and as such it requires special handling in adventure creation. The referee should carefully work out scenarios that will challenge Twinteam PCs, without making things entirely too easy for the team. After all, SilverTwin was created to fight a menace - and the more menacing, the better!

# Saurians

## A new race for STAR FRONTIERS campaigns

*by Jeffrey Bouley*

*Dragon* Magazine, #103, pg. ?

*[The Saurians are presented here as an NPC race, though players may use them as player characters if the campaign referee so allows it. It is assumed that the Saurians are very rarely seen, so they have little overall impact on events in the Frontier, The Saurians' history may be altered to fit the circumstances of a particular campaign. - Editor]*

The Saurians hail from the planet Kischen, an oceanic world many light-years from the Frontier. For a time they lived in peace, enjoying profitable trade with nearby races. Soon, however, the Sathar became aware of the Saurians and regarded them as both a threat and a challenge to be overcome.

The Sathar descended in waves on the unsuspecting planets, destroying whole populations in the process. The Saurians, unused to full-scale war, fought bravely against the worms, but to no avail. With their defenses decimated and racial destruction imminent, the Saurian governments prepared dozens of starships to transport hundreds of thousands of citizens on a large-scale exodus to new worlds. To save as many beings as possible, all of the starships were filled to capacity with passengers placed in stasis.

The majority of the computer-guided vessels were launched in the direction of the Frontier, although ships were sent out in many other directions. The Saurians had earlier intercepted radio signals from the Frontier that were part of a plan by the Pan-Calactic Corporation to contact other sentient races, in hopes of developing more interstellar trade. The Saurians did not send all of their ships in that direction, though, lest the signals prove to be a Sathar trick.

The main body of Saurian starships eventually entered the Theseus system and were boarded by alerted UPF vessels. Only a few thousand Saurians were brought out of stasis at first, until space could be found on other worlds on which they could settle. At present, two hundred thousand Saurians now live and work throughout the Frontier, but nineteen Saurian starships (with over five hundred thousand colonists aboard, in stasis) remain in solar orbit at Theseus. Finding space for these beings is still a problem, though plans are underway to ship them to Lossend (Timeon).

**Appearance and structure**

Saurians are bipedal reptilian humanoids that stand 2.1 meters high. Each of them has two hands, each with three fingers and an opposable thumb. Each foot has four toes; feet, as well as hand, are webbed. Saurians have small scales, as per their reptilian ancestors, but they are warm-blooded as mammals are. Saurians are omnivorous and have rather flat teeth.

Being semi-aquatic creatures, Saurian feel at home both above and below water. As part of

their aquatic adaptations, Saurians have a gill slit on each side of their throats which filter oxygen, out of fresh and salt water. Saurians also possess underwater vision of exceptional quality.

Saurians still have certain physical defenses inherited from their prehistoric ancestors. One of these is the set of claws on fingers and toes. Although these claws have degenerated, they can still be used to some effect. When a Saurian uses its claws, consider the attack to have punching damage but add 1 hp extra damage. The tail can also be used as a weapon; it has a -10 to hit any target, but it does 2d10 damage on a strike.

The internal structure of a Saurian is similar to that of a Human, with the functions and positioning of a Saurian's organs approximating those of a Human's. The respiratory system is adapted for air and water breathing, and no Saurian organ corresponds to a Human appendix.

**Saurian races**

The Saurians evolved from a highly adaptive creature that Humans have called a land dragon. This creature was found in a variety of habitats on Kischen and developed into the four known races of Saurians: the Kavak, the Kamier, the Talsoi, and the Vanar.

**The Kavak:** These Saurians have green scales, a long tail, and a short, curved horn protruding from the top of their skulls. The horn varies in color from one Saurian to another, from white to green; it is light-colored at birth and darkens gradually as the Saurian grows older. This horn can be used as a weapon, causing 1D10 damage. However, for every 0.1 meter by which the opponent is shorter than the Saurian, reduce the chance to hit by 5 (to a minimum of a 10% chance).

The Kavak evolved from a grasslands dwelling dragon that used the horn for defense and the green coloration for camouflage (allowing them to approach prey more easily).

**The Kamier:** While the other races of Saurians have small but visible scales, the Kamier have the appearance of smooth skin, their scales being visible only under magnification. Coloration is green to green-brown, and this variety of Saurian also sports a large crest of red or orange skin that runs from the base of the neck to the tip of the skull. The claws of the Kamier are more developed than those of the other Saurians, doing +2 hp damage to punching damage, as opposed to the 1 hp damage cited above. In addition, the tail of a Kamier is covered with horny spikes which add 2 hp damage to tail attacks (4-22 hp). Another unique feature of the Kamier is its snout, which is much shorter than those of the other races, being almost flat.

The Kamier evolved from a swamp dwelling land dragon that had to contend with particularly dangerous swamp predators. The head crest, which resembles a native marsh plant, was used to help the Kamier with concealment.

**The Talsoi:** A Talsoi has beige to dark brown scales, a heavy tail ( +1 hp to tail damage), and a horny ridge running from its extended snout to the tip of the tail. They developed from the forest and plains-dwelling land dragons, that used the coloration for camouflage to improve their hunting skills. Talsoi enjoy freshwater rivers, seas, and lakes.

**The Vanar:** Vanar are bright to dark green and have a very narrow, whiplike tail (1d10+1 hp

damage). They are descendants of the land dragons that were native to the jungles and rain forests of Kischen. Vanar have thin limbs and are lighter than other sorts of Saurians.

**Senses**

Saurian senses are roughly equivalent to those possessed by Humans. They have a slightly more acute sense of vision and, as noted before, can see well underwater. Saurians do have a more acute sense of smell than humans, about equal to a Vrusk's.

**Speech**

Saurians are able to speak in the same manner as Humans, and many can communicate in Pan-Galactic, Human, and Yazirian languages with ease. Saurians tend to lisp, though their hissing voices are distinctly unlike those of the Sathar. When angered, Saurians hiss loudly and bare their teeth.

**Society and customs**

Saurians stress two beliefs above all others in their society: individuality and the freedom of choice. Saurians detest dictatorships and prefer very loosely structured governments, having an uncaring attitude for authority, though they will obey it if convinced it is for the common good. Their belief in self reliance made it hard for the Saurians to accept the aid of the UPF at first, though they really had little other choice. Saurians in the Psycho-Social field will not hypnotize unwilling beings; only the most evil and vile of Saurians would do so.

Saurian have large, extended families. Because their young develop so rapidly (reaching adult size in five years), "nuclear families" would be short-lived. Education and socialization of the young are handled within each clan, or svik, which may consist of hundreds of individuals living within the same general area. Saurians are interfertile despite their racial types, and a svik may have members of all four races within it. Svika may compete with each other over business or personal matters, but violent crime among them is almost unknown; they are too aware of their own near extinction as a race from the Sathar's attacks.

Saurians are extremely touchy about comments regarding them as a species. Any insult against a single Saurian is easily taken as a slur against the race as a whole, even if the Saurian in question belongs to another svik. Saurians tend to be overprotective of their fellow clan members, even as they recognize the importance of standing on one's own two feet. This causes such stress for them that they will not willingly discuss it with someone of another species, such as a Human or Yazirian.

Saurians are something of a paradox to other races, as they are both gentle and kind as well as vengeful and brutal. Among friends and their svik, a Saurian is pleasant, cheerful, and absolutely loyal. But in the presence of a hated enemy such as the Sathar, a Saurian's rage and fury can be frightening (although Saurians do not receive any bonuses for rage in combat). A wrong done to a Saurian will not be forgotten by any of them, and making amends can be difficult (or impossible, depending on the offense). Should the offending party make an appropriate apology, the Saurians will grudgingly accept it and continue with the business at hand though forgetting about the incident will -take months or years.

The horrifying losses that they took in their war with the Sathar have made Saurians a militant race. They tend to purchase large quantities of arms, and groups of them have expressed interests in creating their own military force, with which to raid Sathar bases and ships. Saurians hope to someday locate the Sathar homeworld and destroy it; they also wish to return to their old homeworld of Kischen and retake it from the Sathar. For cultural reasons, Saurians have a marked fondness for weapons that others see as archaic (swords, pole arms, crossbows, etc.).

Saurians have from three to four names. The first two are the common and svik names, comparable to a first and last name. If the Saurian performs an important deed, he or she may receive an honorific to signify this accomplishment. The most important of all names, however, is the tarish satimu ("sacred name"). According to Saurian religious beliefs, the tarish satimu is a part of the owner's very soul. Only the individual Saurian and his svik will ever know the Saurian's sacred name. Should someone somehow discover a Saurian's tarish satimu, it is considered an insult of the most terrible kind, and the Saurian will try to regain his honor through a duel of some sort, often to the death. This practice has eroded under contact with the races of the Federation, though sacred names are still considered very important.

**Attitudes**

Saurians are respectful of the other races, but they particularly enjoy and are fascinated by Dralasites. They respect Vrusk for their drive, but find it hard to make friends with them; the Vrusks are too practical and structured. Saurians find Humans fairly easy to get along with.

Yazirians are another matter. Though Yazirians and Saurians are alike in certain social, political, and family matters, the Saurians find the former to be rude, insulting, and pushy. Fights between individuals of the two races have tended to turn into widespread brawls as clan members from either side are drawn into the conflict, and even in the short time that Saurians have been in the Frontier, several remarkable feuds have developed. When it happens that a Yazirian and a Saurian become friends, however, they become friends for life.

Saurians dislike Ssessu greatly (see DRAGON issue #96), because of the latter's similarity to Sathar and amoral business practices. Ssessu dislike Saurians in turn. Other races are generally friendly toward the Saurians, despite their touchiness) but some Humans are slightly nervous around Saurians, particularly if they have an aversion to reptiles. This reaction is fortunately rare.

**Special abilities**

Because of their nervous structure, Saurians have a pronounced resistance to hypnotism or mind control of any kind. A Saurian will receive a + 15 bonus in his favor to resist the control, depending on the exact nature of the niind-affecting power. In addition, a Saurian has a + 15 bonus to any roll enabling him to notice the control attempt (or to a normal Intuition roll if the noticing roll is not normally allowed). Note that if experience is used to increase this resistance, the bonus to notice the attempt will not automatically be increased (and vice-versa). Each ability must be given experience separately.

**Miscellaneous information**

Average size: 2.1 m tall
Average mass: l00 kg (male), 90 kg (female)
Average lifespan: 240 years
Reproduction: Heterosexual; oviparous
Body temperature: 260C * - Vanar are 15 kg lighter.

Saurians have the following ability modifiers, regardless of sex and racial type.

STR/STA: +10
DEX/RS: -10
INT/LOG: +0
PER/LDR: +0

Saurians walk at 10 m/turn, run at 30 m/turn, and move at about 5 km/hour.

Racial reaction modifiers follow.

| | **Saurians** | |
|---|---|---|
| **race** | **reaction to Saurians** | **reaction to race** |
| Human | -5 | 0 |
| Dralasite | 0 | +20 |
| Vrusk | 0 | 0 |
| Yazirian | -10[1] | -15[1] |
| S'sessu[2] | -5 | -20 |
| Zethra[3] | 0 | -5 |

1 - If favorable reaction is gained, discard the use of this modifier on future rolls regarding the individuals in question.
2 - See DRAGON issue #96.
3 - See DRAGON issue #84.

## Concluding notes

All Saurians encountered in the Frontier will be able to speak Pan-Galactic, since they were hypno-trained in its use after they were released from stasis. They were also taught some of the common cultural idiosyncracies and customs in order to integrate them into society. Some Saurians have remained aboard their old starships which are hull size 16-20, and are using them as transports in their own commercial dealings.

# Tanks Again

## More Material on Star Frontiers vehicle weapons

*by Alex Curylo*

*Dragon* Magazine, #103, pg. ?

*["Tanks a lot!" (DRAGON issue #99) proved to be one of the most popular STAR FRONTIERS articles we've run in a long time. Alex Curylo, the author of the piece, sent us a few corrections, clarifications, and bits of new material to add to the original article. 'These are given below. -Editor-]*

**Corrections**

The power econopack holds 250 SEU, as stated in the article, not 500 SEU (as stated on the charts under "Ammunition").

Mines from a mine dropper weigh 5 kg apiece, not 25 kg as given on the charts under "Ammunition."

The heavy version of the guided missile weighs 45 kg, not 60 as given on the same chart.

Bombs cost 500 Cr (light) and 1000 Cr (heavy), not 50 and 100, respectively, as given on the ammo chart.

**Clarifications**

The vehicle MG only fires bursts of 20 bullets apiece. This could have been deduced from the charts (the vehicle MG has 400 rounds of ammo, but only 20 shots), but should have been stated explicitly.

Reading the descriptions of the sprayer, one gets the impression that one multipurpose sprayer fires smoke, oil, and paint. This is not so. Each type of sprayer is a separate weapon, but all are the same size and cost. Also note that sprayers on jetcopters and certain air vehicles will have their jets broken up by the rotor wash, making them ineffective at best.

The ranges given on the charts for cannons and howitzers are both for indirect tire. Both weapons can also be used in the direct-fire role; a cannon has the range of a vehicle rocket launcher, and a howitzer has the range of a vehicle recoilless rifle.

The programmed guided missile cannot be used to hit a moving target. It can be aimed at where you think your target will be, but this subtracts two levels from the firer's GM skill.

Cyberlinked weapons all fire at the same time. Weapons not able to aim at the gunner's target will miss automatically, but still fire and use ammo.

**Extensions**

The dimensions given for oil and paint jets assume that the vehicle is traveling at its turn speed.

If the referee wishes the extra work, he can assume that traveling slower widens and shortens the slick, and traveling faster extends and narrows it. No more than 50% alteration of either length or width should be allowed.

The question of applicable weapon skills was basically left untouched in the article. Obvious extensions of Expanded Rules weapons use the same skills as used for their smaller cousins. Cannons and howitzers use Projectile Weapons skill; if either is used as an indirect fire weapon, use the new Military skill of Indirect Fire. (This skill could also be used to fire mortars, rifle grenades, and other indirect-firing weapons.) Flamethrowers use Flame Weapons skill. Bombs use Dropped Weapons skill, which is applicable to anything dropped from a moving air vehicle. Sprayed weapons and mine droppers don't require a weapon skill; add 5% per Technician level of the driver to half of his DEX for an attack roll if these weapons are being aimed at a pursuer.

For greater consistency with these rules and official game rules, guided missiles should use skill-oriented rolls also. The wire-guided missile should then have a base chance to hit equal to the gunner's DEX, + 5% per level of Guided Missile skill. The programmed missile should have a base chance to hit of 35%, +10% per level of Guided missile skill. Note that absolutely no one without at least one level of Guided Missile skill has any chance at all to hit with these weapons.

# Star Law Returns

## A new look at a Star Frontiers agency

*by Matt Bandy*

*Dragon* Magazine, #104, pg. 71

Over the past year or so, Star Law has been the subject of much attention in the Ares Section. *[See Dragon issues #87 and 91. - Editor]* Some of these articles, however, seemed to• sacrifice a bit of reality for the sake of playability. Star Law, as previously presented, is ideal for campaigns in which player characters are members of the organization, as PCs are granted more freedom of action as individual Rangers.

A law enforcement agency with the responsibilities of Star Law, managing an area the size of the Frontier, needs to be larger and more tightly organized. The Star Law agency presented here may be useful for campaigns in which player characters are not members of the force, so the lawmen of the Frontier serve as NPC encounters. Parts of this article may be incorporated into an ongoing Star Frontiers campaign as desired.

**General Information**

Star Law was created during the First Sathar War as a counterintelligence agency, to check the Sathar espionage organization. After the war, when the Sathar retreated to lick their wounds, the number of enemy agents in the Frontier was reduced significantly; this left Star Law overstaffed. The United Planetary Federation (UPF) Security Council chose to take advantage of the situation by expanding the scope of Star Law's responsibilities to include the control of marauding pirate bands that had arisen in the Sathar's wake. At the present time, Star Law also intervenes in minor corporate skirmishes on occasion.

One of the provisions for membership in the UPF is that Star Law be allowed to carry out its duties on member planets and their territorial possessions without interference from their governments. It must, however, obtain warrants to search private property in situations not covered by the "hot pursuit" exception.

If the investigation of a suspected Sathar agent, escaped convict, or other lawbreaker threatens to turn into a gun battle in a densely populated area, Star Lawmen are trained not to fire upon the suspect if there are innocent beings about. Agents must follow the suspect to a deserted area or arrange for getting innocents out of the line of fire. Threats against fugitives (in hopes of making them surrender) are generally useless, as most lawbreakers are aware of the limitations placed upon Star Law personnel by the regulations of their organization.

Freelance law enforcement (bounty hunting) without proper training and licensing, is not encouraged by Star Law. To obtain a bounty hunter's license, a character must have at least one fourth-level ranged-weapons skill. Bounties are almost never awarded for dead bodies; suspects must be brought to the proper authorities alive and relatively unharmed. Anyone with a bounty hunter's license may obtain a list of all beings wanted by Star Law and the rewards

offered for their capture. Bounties are set by the referee.

The rarity of treason cases recorded within Star Law is due to the intense screening of Academy applicants. Any disobedience of orders is dealt with swiftly. Severe disobedience results in the offending party being relieved of duty and court martialed (the results of which are decided by the referee).

The Star Law Academy, located on Morgaine's World, offers one of the best educational programs in the Frontier Sector. In order to apply for admission, a being must complete a series of forms at a local Administrative-branch office and pass a personality check. The applicant must also have four ability traits higher than his or her racial average, and must never have been convicted of a criminal act. The applicant will be notified within two months of acceptance or rejection by the Academy, and must provide his own transportation there if accepted.

Once at the Academy, the being must select a PSA, if he has not already done so, and make a Logic check. Failure to make the check indicates that the being has washed out of the Academy. After four years of study, the cadet gains one first-level spaceship-related skill, one second-level skill within his PSA, and one other first-level skill. All skills required in order to possess the spaceship-related skill chosen are also granted. After graduation, the being emerges at the lowest rank of his chosen branch, and is then posted on a planet of the referee's choice.

**Organization**

Star Law is split into four branches: Administrative. Penal Intelligence, and Special Forces. Each has its own responsibilities integral to the workings of the agency.

Administration coordinates the other branches of Star Law, organizes the information given over by them, and by other law enforcement agencies, and recruits and trains agents in the Academy. Most Star Law offices which are open to the public are Administrative in nature; the whereabouts of other bases are generally kept out of public view.

The rank structure within the Administrative division is fairly simple. The Coordinator is in charge of the workings of the branch. It is not necessary to go into depth about the ranks within this branch, as PCs will not become heavily involved with it on most occasions. Some of the more important and most often encountered ranks are given below.

| **Rank** | **XP needed** | Pay (Cr/day) |
|---|---|---|
| Coordinator | 300 | 350 |
| Department head | 150 | 150 |
| Data processor | 0 | 100 |
| Computer | 0 | 80 |

| | | |
|---|---|---|
| operator | | |
| Radio operator | 0 | 60 |
| Secretary | 0 | 40 |

The Coordinator, as the head of the Star Law organization, answers to no one but the UPF Security Council. There are three department heads within the Administrative branch, one for each of the other three Star Law branches. Each person reviews all ingoing and outgoing information of major importance, and personally handles all internal directives for his branch.

Data processors sort relevant information from irrelevant material. Any data deemed to be of importance is entered into the Administrative information pool. Computer operators are responsible for entering this data into computer systems and later retrieving it for persons who request it and possess the proper security clearance. Radio operators communicate with personnel on a particular planet or planets, taking information from them and giving orders to them; as no interstellar radio exists, radio operators (using the term "radio" loosely, to include other forms of electromagnetic communication as well) are grouped by planet, as are many computer operators. Secretaries, of course, are responsible for compiling appropriate reports, maintaining correspondence, filling out purchase orders and requisition sheets, and running accounting and payroll.

The Penal branch oversees the punishment of beings convicted of major felonies by UPF-member planets, through their judiciary systems. Only certain major felonies, such as mass murder, major arson, interstellar piracy, mass counterfeiting, espionage for unfriendly powers (such as the Sathar or Mechanons), nuclear or biochemical extortion, kidnapping which involves murder, major industrial espionage (classed as a felony due to the wide-spread influence of corporations in the Frontier), treason, spacecraft or metropolitan sabotage with loss of life, assassination of law enforcement or government officials, and the like, are considered here. Sentences are rarely commuted after conviction, except in extraordinary circumstances, and parole is virtually unknown. It must be demonstrated that rehabilitation is not possible for the criminal in question. If death is the penalty for a crime, the prisoner is executed on the world where he was tried and convicted, and is not shipped to a penal colony. Sentences for penal colony inmates range from a minimum of 5 years to life.

Penal colonies are established by Star Law on unihabited or sparsely populated worlds. The perimeter of a penal colony is lined with guard towers which project an energized field between them. This barrier is powerful enough to stun anyone touching it into unconsciousness, and it will disrupt the electrical field of any vehicle passing through it, causing the vehicle to stop (or crash, if it was in flight). Each tower (standing about 100-200 meters apart) is heavily equipped with laser weapons to discourage attempts by pirates and criminal gangs with starships or air cars to free prisoners. The guards themselves are heavily armed, and the entire compound is kept lit by ground and air light systems. It is not uncommon to have a small town spring up a few kilometers from the prison, housing the prison officers and their families as well as all support personnel. A small military base, funded by a local government, may also be present.

The ranks and pay scales of penal officers follows.

| **Rank** | **XP needed** | Pay (Cr/day) |
|---|---|---|
| Coordinator | 350 | 300 |
| Senior Warden | 250 | 250 |
| Junior Warden | 150 | 150 |
| Guard | 0 | 150 |

The Coordinator is the top authority in the Penal branch of Star Law. A Senior Warden directs the activities at each of the penal colonies. Each Senior Warden is assisted by a number of Junior Wardens, each of whom supervises the staff and operations at a guard tower. Each tower has 2-4 guards. Academy graduates in the Penal branch of Star Law begin their tours of duty as guards.

Each penal colony has a reserve staff of 10-20 guards to replace those on leave or who are injured. Unit guards perform administrative duties when not serving directly as guards. The guards themselves are rotated from active (tower) duty to reserve (desk) duty once every 30-60 days.

In order to become a guard, one must graduate from the Academy with one technical skill and one ranged-weapons skill. To attain the status of a Junior Warden, a guard must acquire a fourth-level skill as a technician, for a Junior Warden pilots the air car assigned to his guard tower.

The Intelligence branch of Star Law is concerned with the gathering of information for the purpose of sniffing out Sathar agents (and other unfriendly spies). On occasions, the information is useful in preventing unwanted occurrences like a corporate war or smuggling operation. The ranks in the Intelligence branch of Star Law are as follows:

| **Rank** | **XP needed** | Pay (Cr/day) |
|---|---|---|
| Coordinator | 300 | 300 |
| Deep-cover agents | 150 | 200 |
| Agents | 0 | 150 |

The Coordinator runs the Intelligence branch of Star Law and answers only to the Administrative Coordinator and the UPF Security Council. Deep-cover agents are those who have been hypno-trained to know all there is to know about the organization that they are infiltrating, so they quickly arise to positions of authority. They must spend years developing their cover and will be reluctant to jeopardize their missions.

An agent is a generic operative of the Intelligence branch and must have a second-level skill as a computer operator. In the course of normal duties, an agent may be called upon to perform a breaking-and-entering mission or interrogate prisoners.

Star Law is believed to have several deep-cover agents in every major organization in the Frontier, though it has been estimated that only 200 such agents exist in all. Typically, the number of agents is related to the population level of a world, though in systems such as Outer Reach, the number is proportionately higher.

The Special Forces is the largest branch of Star Law, and is responsible for nullifying the activities of pirate bands in the Frontier Sector. Ranks for Special Forces are as follows:

| **Rank** | **XP needed** | Pay (Cr/day) |
|---|---|---|
| Coordinator | 400 | 300 |
| Marshal | 300 | 260 |
| Captain | 200 | 220 |
| Lieutenant | 150 | 180 |
| Sergeant | 75 | 140 |
| Trooper | 0 | 100 |

The Coordinator is the Supreme Commander of the Special Forces branch. Thirteen marshals are in existence, each commanding two captains. A captain is in charge of two lieutenants; each lieutenant is in charge of two sergeants, and each sergeant is in charge of five Troopers (fresh from the Academy). The term "Ranger" is a generic designation for all Star Law personnel in Special Forces.

Special Forces uniforms are grey skeinsuits with blue marking to denote rank and deployment; dress uniforms are dark blue with red markings. Typical armament for a Ranger includes a laser pistol, a stunstick, and a belt pack with two power clips each. Extra weaponry is assigned to the Rangers as befits individual missions. Rangers are organized into strike forces,

battalions, squads, and units, as follows:

| **Force** | Commander | Assigned Spacecraft |
|---|---|---|
| Strike Force | Marshal | 2 frigates |
| Battalion | Captain | 1 frigate |
| Squad | Lieutenant | 2 assault scouts |
| Unit | Sergeant | 1 assault scout |

Planets are assigned different organizational groups depending upon their needs and populations. An outpost world might receive only one unit, while a moderately populated world might host a battalion. About 50 personnel are assigned to Morgaine's World as staff and security elements for Star Law Academy.

A unit must include at least one Ranger with each of the spaceship skills. All Special Forces personnel must be accomplished in at least one technical and one military skill area.

Equipment assigned to planetary stations includes one vehicle, usually an aircar fitted with a heavy weapon, a small arsenal, and a spacecraft. Other equipment, such as toolkits, are supplied to each individual Ranger.

These variations on the Star Law organization are offered as an aid to game play, and may be altered as desired. Hopefully, they will serve as an alternative or supplement to previous articles on the subject.

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# Expanding the Frontier

## Exploring new worlds in the Star Frontiers universe

*by William Tracy*

*Dragon* Magazine, #105, pg. 82

One of the most exciting challenges in the Star Frontiers game comes with the exploration of an uncharted planet, facing dozens of unexpected dangers. This can be a great source of adventure, and there is a chance that the characters will make a pretty good profit - if they survive.

Of course, the characters will need a spaceship to get to the planet. If they do not own one, there are still some ways to get one legally. The PCs might buy or get a starship on loan, if they have enough money. If they do not, their financial backers will purchase or rent a ship for them. In any case, if a starship is rented, all characters concerned will be required to accept a tracer implant (p. 41, Knight Hawks Campaign Book). The procedure for renting a spaceship and getting a financial backer is the same as that for getting a loan (pp. 40-42, Campaign Book).

An expedition team to an unexplored planet must contain at least one character who has Environmental skills. But if the characters are financially backed by someone else, the character with Environmental skills must have a skill level of at least 4, or the backer will refuse to finance the expedition. If this happens, the characters will have to employ an NPC with the proper qualifications, who should then receive an equal share in the profits.

**Financial Backing**

It takes a relatively large amount of money to finance such an expedition. If the characters are not able to support such an expedition themselves, they can be financed by a corporation, government, or a group of private citizens. The *Eleanor Moraes* (from the "Beyond the Frontier" module series, SFKH 2 through SFKH 4) was financed by the United Planetary Federation, with a little megacorporation assistance.

If the characters have their own ship, they still might want to find a backer who can pay for the special equipment needed to explore a planet. The backer can also pay for any special modifications to the characters' ship that are needed to explore planets. A backer always requires that the characters accept a tracer implant.

Characters will often be granted funds for exploration work by megacorporations. Corporations are usually on the lookout for planets with valuable commodities, such as mineral ores, new types of drugs or food delicacies, or habitable land. Of all the corporations, the Cassidine Development Corporation backs the largest number of expeditions to unexplored planets, since this is the company's specialty and main source of income. Pan-Galactic Corporation also sponsors a number of trans-Frontier expeditions to new worlds, and a generally friendly rivalry has developed between agents of the two companies.

The UPF, as noted in module SFKH 2, has become more aggressive about exploring newly-discovered planets since the Sathar Wars. Worlds with colonization potential and those with potential (or existing) Sathar bases are of special concern. The Planetary Survey Administration was created to govern the exploration of such new worlds, but the PSA is rumored to have been infiltrated by agents of PGC and CDC, who funnel off selected information for use by their megacorporations.

Planetary governments, eager for colonies which can supply them with new resources (as was Pale in "The Volturnus Connection," in Dragon issue #98), also finance certain exploration missions. However, such missions are almost always crewed by members of that world's space navy and armed forces, and are considered to be extensions of the government's space fleet.

Sometimes a group of private citizens might back an expedition. They are generally interested in establishing a special political, religious, or anti-establishment colony with their pooled resources, and hire the characters to find a suitable planet for them. Such groups are usually called "pilgrims."

**Joining an Expedition**

Sometimes characters are hired by a ship captain who needs a crew for a planetary expedition. They are promised an equal share in the profits. Unfortunately, this does not happen often. The competition is tough to win a berth on such an expedition, since such trips have been known to enable a character to permanently retire on his earnings. A character must have at least one skill level of 4 before he or she can even be considered for the position.

The type of ship used for such expeditions are called exploration ships (page 8, Campaign book). Occasionally different types of ships are used; the *Eleanor Moraes* was a modified exploration ship that resembled an assault scout ship. Referees may invent new starships and deck plans as they desire.

A variety of special exploration equipment can be found on pages 21-22, in the Campaign Book. Some of this equipment can be rented, but some of it (like atmoprobes) must be purchased outright, as they are one-use-only devices. Any rental equipment that is destroyed must be paid for by the characters, unless prior arrangements are made by the persons backing the expedition. Anyone renting equipment must accept a tracer implant, if the equipment costs more than 100,000 Cr.

To explore a star system and its planets efficiently, three new pieces of equipment need to be introduced. These new items are the Radar Mapper (RM), the Planetary Scanning System (PSS), and a special Planetary and Star System Exploration (PSSE) computer program.

The RM package contains both a special attachment for a ship's radar system and a special computer program. The whole package costs 15,000 Cr, and it cannot be rented. The computer program is considered to be level 2 and takes 12 function points. The RM package produces an accurate relief map of a planet's surface, using the ship's computer and special program. It takes 1d10+5 GST days to produce this map while the ship orbits a given world. Pilot expertise may speed things along; subtract the pilot's skill rating from the number of days needed to make the map. It always takes a minimum of three days of checking and rechecking to map a world accurately.

The PSS package consists of a special sensor attached to the outside of the ship's hull and a special computer program. The sensor itself is too small to affect a ship's ADF or MR. The computer program is level 3 and takes up 25 function points. The whole package costs 50,000 Cr, and it cannot be rented. Like the MR system, the PSS is used while the ship is in orbit.

The sensor scans and photographs the planet, feeding the data into the computer. The special computer program uses the data to forecast the planet's climate and general weather patterns, and to pinpoint areas where one is likely to find deposits of mineral ore. Colonization sites may be located, and evidence of existing civilizations may be found. Natural hazards, such as volcanoes, fault lines, geysers, swamps, waterfalls, landslide zones, and so forth may also be detected. Energy sources such as natural radioactive ores and artificial power stations may be found, too.

To find out how many days of orbiting it takes to get a complete scan of the planet, roll 2d10+8. This roll cannot be reduced by the pilot's skill level, as bad weather (obscuring details of the ground) is beyond his control.

The Planetary and Star System Exploration (PSSE) computer program is considered to be level 3 and takes up 35 function points. This special program data-links the computer to all the equipment used to explore and classify star systems and their planets. This includes the geoscanners, vaporscanners, bioscanners, the RM and PSS components, atmoprobes, laboratory equipment, landing drones, remote probes, energy sensors, and any special information typed in by the characters. The program correlates all the data from these sources and organizes it into a hardcopy *Star System and Planetary File*. The characters must have this information for ground exploration they perform.

**Exploration Procedure**

Upon entering a new system, an exploration team follows a general basic procedure. Each planet in the system is orbited long enough for the Planetary Scanner System and the Radar Mapper to do a complete job. Atmoprobes are then launched at each planet, and other standard observations are made.

Meanwhile, the pilot and astrogator make navigational observations and feed them into the computer. This includes information such as the jump program to the system, descriptions of the astronomical bodies in the system, and the stellar type and nature of background radiation (as it applies to communications and radio interference) - in other words, all the astronomical information that an astrogator and pilot need to travel to and through this system.

Any planets indicated by scanning that are capable of supporting life must be explored further by a landing party. Remember that only ships with a hull size of 3 or less can land on a planet with an atmosphere. If an exploration ship is not able to land on a planet, the characters must use a shuttle or lifeboat to descend, or they must use landing drones or remote probes to explore the planet's surface.

The expedition's environmentalist must land on several different regions of the planet so that a total view of the planet's eco-system can be obtained. To find out the number of different regions the characters must visit, roll 2d10 and subtract the skill level of the chief environmentalist. At least two different regions must be visited. To find out if the character has

successfully analyzed the ecosystem in each region, see pp. 15-16 of the Star Frontiers Expanded Rules Book. Be sure to add all the bonuses due to mechanical aid, especially if the character has a laboratory.

If the planet has a previously undiscovered intelligent species living on it, the PCs have their work cut out for them. They are responsible for making first contact (and making sure the contact is peaceful and positive), and their actions could literally make or break all future contact with that culture. The UPF emphasizes to its research crews that one thing the Frontier does not need is another enemy race like the Sathar to fight. Megacorporations emphasize the loss in profits taken when a potential customer and ally turns into a threat.

A character with a Psycho-Social skill of at least fourth level is required to study the species adequately. The character must study the species for 10d10 days to develop a first impression for the race and to establish minimal contact with them, if such is desired. At the end of the time period, the character must roll his Logic score or less. If he succeeds, the character is able to give a complete description of the race, including all relevant customs and superstitions. If he fails, he has the impression that he has not missed anything important, but (of course) at least one thing of critical and vital importance might have escaped his notice (*e.g.*, Dralasites are spitting images of the local beings' most beloved deity, and Humans appear to be "demons" from ancient myth, bent on destroying the world).

After receiving all the data, the computer prints a complete System Brief, Alien Creature Update File, Alien Culture Background Reports, and maps of the planet. An incomplete report results in a deduction in the character's profits, as well as possibly causing terrible problems later on for other research crews.

**Planetary Types**

The variety of planetary types is endless, but very few planets are capable of supporting carbon-based life-forms. Of course, planets unable to support carbon-based life might support a new type of life form, such as silicon- or fluorine-based life. On such strange planets, the characters may have to wear spacesuits in order to survive. Even if a planet is not habitable, it might still have large deposits of valuable ores which can be mined by enclosed colonies or by robots.

Planets that can support carbon-based life-forms possess many types of terrain. Occasionally, a planet is discovered that is almost completely covered by one type of terrain, such as water, desert, swamp, forest, or jungle, but this is very rarely seen. Referees should map out these new worlds before the PCs arrive, and should have detailed descriptions of each planet's particular features. Global maps may be patterned after those used for Alcazzar in SF 4, *Mission to Alcazzar*. More detailed surface maps may be generated of particular features that the referee believes the PCs may want to investigate (such as alien ruins).

The peculiar nature of each planet dictates the sort of special equipment needed by exploratory crews. High-gravity worlds required the use of exoskeleton suits; all-water worlds obviously require scuba gear or the like. Certain other pieces of equipment may need modification, as desired by the referee.

**Hazards of Exploration**

Many dangers face the explorers on strange planets. Characters have to deal with carnivorous or annoying animal and plant life, geophysical disasters (volcanoes, earthquakes, hurricanes, etc.), astrophysical disasters (solar flares, meteorite strikes, radiation increases from various sources, etc.), and even new alien races and cultures. The planet might already be inhabited by Sathar and their agents, or it might be used as a base by pirates, Mechanons, Zuraqqor, or other unfriendly forces. Crews can mutiny, equipment can break down, and ships and vehicles can run out of fuel or spare parts.

Even after leaving the planet, the characters might still face unusual threats. Their financial backer might try to get rid of them after getting their report. A rival of the characters' backer might try to bribe or steal the report from the characters. If the characters try to hold an open auction, any of the participants might try to steal the report. If the characters attempt to cheat their backer, a price may be put on their heads. (Remember the tracer implant?)

**Rewards and Pay**

The final payment for a System Report, including the coordinates and the calculations for the jump route to the world, varies a great deal. There is no set formula for figuring out the price because of a variety of factors. On the average, a complete System Report (noting the location of valuable ore deposits and a habitable planet) goes for 250,000 Cr.

This sum can be modified according to the situation, due to a variety of factors. The amount of valuable ores that can be safely mined, the presence of pirates, Sathar, or other hostile races in the system, the completeness of the report, and the presence of dangerous life forms (of the unintelligent sort, including bacteria and viruses) that would inhibit colonization are all taken into consideration.

If the characters hold an open auction for the report, they can usually get a 1-10% increase in the price. If the characters work for the Cassidine Development Corporation, add 15% to the characters' final profit. Future sources of income from the report might even include being hired to transport equipment and people to the new planet. And if the characters gain a monopoly on transport to the world, they may be able to set themselves up for life.

# "Tote that barge!"

## A short guide to interstellar economics

*by Matt Bandy*

*Dragon* Magazine, #107, pg. 80

In the futuristic and business-oriented society of the Frontier Sector, trade is essential, and freighters, being the instruments of trade, are very important. Freighters are the Frontier's answer to the middlemen of modern society, buying goods in one star system and transporting them to another for resale.

The life of a freighter captain is a gamble: he either becomes very wealthy or very bankrupt. A good captain can predict price swings in a star system's economy and use that knowledge to further his own ends.

Rules regarding the purchase and resale of cargo in the Star Frontiers Knight Hawks rules are well-conceived, but fail to take into account the laws of supply and demand and all the factors that influence it. This article attempts to revise the existing system to consider supply and demand, and at the same time to provide a framework upon which an individual referee may construct the intricate interplanetary economics of his campaign.

**Supply and Demand**

Supply and demand is simply a comparison between the available supply of a certain material object with the consumer's need or desire for it. Whenever the supply of a substance exceeds the demand for the same, the market is glutted and prices of the material plummet. The opposite is true when demand exceeds supply. If a shortage of said substance occurs, a bidding war begins and prices rise.

In many ways, freighter captains resemble players of the stock market. They purchase items at a low price and transport them to a location where prices are high, making a hefty profit in the process. Often, many freighter captains will begin buying low-priced materials simultaneously, creating an increase in demand and subsequent price rise. In this way, freighters aid the economy of the Frontier by saving many small companies which could have become bankrupt had the glut lasted much longer. On the other side of the coin, freighters occasionally converge on a high-price center and begin selling, glutting the market. Most freighter captains are experienced enough either to arrive at the center before the glut occurs or to anticipate the effects of a glut on other planetary economies, predicting the resulting price changes. By these methods, freighters have an equalizing effect on the economy of the Frontier, causing economic fluctuations to be short-lived.

A glut usually results in a 2-40% (2d20) price decrease and a shortage in a 2-40% price rise. Both phenomena last only a short while, returning 1-10 percentage points toward the base price every day. The base price is listed in the Star Frontiers rules. The point of departure price in the Knight Hawks rules is the base price for bulk loads.

The direct results of an excess of supply or demand on local economies are fairly obvious, but what about the economies of those planets that purchase from the victim of a shortage? (Gluts do not effect prices of the afflicted planet.) If an industry were forced to pay a high price to obtain raw materials, would not the finished product price be raised to cover the companies' initial purchase of raw materials? An agricultural shortage could result in inflated food prices, which in turn could force unions to demand cost of living raises from their employers, who could raise the prices of their products to cover the raises they had given their workers. Inflation along this line is often irreversible. To prevent it from occurring, governments of agricultural planets buy up most of the surplus crops and then sell them when a food shortage exists. This way, they also prevent agricultural gluts and shortages from developing.

**Import and Export**

When a glut or shortage occurs, it is essential to know what and to where the victim exports in order to determine the effect these events have on economies of other planets and solar systems. The web of export-import connections along major shipping lanes is illustrated in the following table.•

**Import Table**

| **Planet** | Imports | Origin |
|---|---|---|
| Hentz | 15% agricultural products | Hakosoar |
| | 50% agricultural products | Yast |
| | 90% raw materials | Hargut |
| Yast | 90% industrial products | Hentz |
| Rupert's Hole | 85% raw materials | Outer Reach |
| Triad | 25% agricultural products | Rupert's Hole |
| | 25% agricultural products | Kdikit |
| | 40% agricultural products | Inner Reach |
| | 75% raw materials | Outer Reach |
| Laco | 95% industrial products | Gran Quivera |
| Inner Reach | 85% raw materials | Outer Reach |
| Outer Reach | 95% agricultural products | Inner Reach |

| | | |
|---|---|---|
| Groth | 90% industrial products | Terledrom |
| Terledrom | 20% agricultural products | Groth |
| | 75% raw materials | Zik-kit |
| Hargut | 30% agricultural products | Hakosoar |
| | 30% industrial products | Gran Quivera |
| | 30% industrial products | Hentz |
| | 15% agricultural products | PGC Ag Ships |
| Ken'zah Kit | 70% industrial products | Zik-kit |
| Zik-kit | 20% industrial products | Kdikit |
| Kdikit | 70% raw materials | Gollywog |
| Gran Quivera | 60% raw materials | Gollywog |
| | 50% agricultural products | Ken'zah Kit |
| Morgaine's World | 100% industrial products | Gran Quivera |
| | 50% agricultural products | Ken'zah Kit |
| Hristan | 60% industrial products | Hakosoar |
| Hakosoar | 40% raw materials | Hargut |
| Minotaur | 75% raw materials | Gollywog |
| | 20% agricultural products | Kdikit |
| Lossend | 10% agricultural products | Kdikit |
| | 30% raw materials | Gollywog |
| Pale | 90% agricultural products | New Pale |
| New Pale | 85% industrial products | Pale |

| | | |
|---|---|---|
| Gollywog | 40% industrial products | Lossend |
| | 20% industrial products | Minotaur |
| | 10% industrial products | Triad |
| | 30% agricultural products | Kdikit |
| | 10% agricultural products | Ken'zah Kit |

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These percentages assist the referee in determining the result of a shortage or a glut on his campaign's economics. For instance, if accelerated pirate activities exist in the White Light system, a smaller than usual amount of raw materials will be processed and shipped resulting in a shortage. This shortage will in turn cause a price increase of 35% (shown by die roll) on all raw materials exported by Gollywog. The recipients of these materials are revealed to be Lossend, Minotaur, Gran Quivera, and Kdikit by a quick glance at the Imports Table.

Lossend imports 30% of its raw materials from Gollywog. This means that 30% of its total raw materials stock is increased in price by 35%. 30% X 35% equals 10.5% (rounded off to 11%) net cost increase on all incoming goods. To make up for this cost increase, industries on Lossend increase the price of other products by 11%. This cost increase affects Gollywog in turn because it imports 20% of its industrial products from Lossend.

Minotaur imports 75% of its raw materials from Gollywog. The shortage results in a 26% (75% X 35% = 26.5%, rounded off to 26%) net price increase, which in turn affects Miniature's industrial prices. This price increase affects Gollywog, which imports 40% of its industrial products from Minotaur.

Gran Quivera imports 60% of its raw materials from Gollywog, so the shortage results in a 21% (60% X 35% = 21%) net cost increase on its raw materials. This cost increase would be passed on in varying degrees to Laco, Morgaine's World, and Hargut.

**Economic Fluctuation Types**

Random economic fluctuation generation and the random determination of victim planets are accomplished through the use of the following tables.

**Economic Fluctuation Table**

| d100 | Event |
|---|---|
| 01-40 | No event |
| 41-55 | Industrial glut |

| | |
|---|---|
| 56-70 | Resource glut |
| 71-85 | Industrial shortage |
| 86-00 | Resource shortage |

**Resource Planetary Table**

| d100 | Planet |
|---|---|
| 01-20 | Outer Reach |
| 21-40 | Hargut |
| 41-60 | Zik-kit |
| 61-80 | Pale |
| 81-00 | Gollywog |

**Industrial Planetary Tale**

| d100 | Planet |
|---|---|
| 01-08 | Hentz |
| 09-16 | Rupert's Hole |
| 17-25 | Triad |
| 26-33 | Inner Reach |
| 34-42 | Outer Reach |
| 43-50 | Terledrom |
| 51-58 | Zik-kit |

| | |
|---|---|
| 59-66 | Kdikit |
| 67-74 | Gran<br>Quivera |
| 75-82 | Hakosoar |
| 83-90 | Minotaur |
| 91-95 | Lossend |
| 96-00 | Pale |

Roll on the Economic fluctuation table once every 20 days. Once the type of fluctuation is determined, roll on the appropriate planetary table.

The referee may find it useful to decide upon the cause of a specific fluctuation. This makes the game more enjoyable to players traveling in or through the affected solar system. A detailed example follows.

Day 1: A roll of 63 on the Economic Fluctuation Table indicates a resource shortage on the planet of Hargut (Selected by a d100 roll on the Resource Planetary Table). A price increase of 21% (2d20 roll) results on all raw materials on Hargut

Day 2: The 21% price increase reaches the planets of Hentz and Hakosoar. Hentz imports 90% of its raw materials from Hargut, so 90% of its raw materials are increased in price by 21%. This results in a 19% (90% X 21% = 18.9%, rounded off to 19%) net cost increase on all raw materials on Hentz. The planet's industries are forced to raise their prices by that amount to cover their purchase of raw materials and retain the same profit margin. Hakosoar imports 40% of its raw materials from Hargut, so a net cost increase of 8% (40% X 21% = 8.4%, rounded off to 8%) results on all raw materials bought or sold on the planet. This forces its industries to raise the prices of their finished goods by a similar percentage. The initial cost increase of 21% on Hargut is reduced to 14% (21% - 7%, the result of a d10 roll).

Day 3: Yast and Hargut receive industrial price increases from Hentz. Yast imports 60% of its industrial products from Hentz, so a net price increase of 11% (60% X 19% = 11.4%, rounded off to 11%) falls upon all industrial products on the planet. Hargut, the one that started it all, imports 30% of its industrial goods from Hentz, so a 6% (30% X 19% = 5.7%, rounded off to 6%) net cost increase on this type of product results.

Hristan imports 60% of its industrial goods from Hakosoar, so a net cost increase of 5% (60% X 8% = 4.8%, rounded off to 5%) results on that type of goods on the planet. The inflation on Hentz and Hakosoar is reduced to 13% (90% X 14% = 12.6%) and 6% (40% X 14% = 5.6%), respectively, as the reduction of the price variation reaches them. The raw materials cost on Hargut is reduced by another 9% to only 5%.

Day 4: The inflation on industrial prices on Yast, Hargut, and Hristan is reduced to 8% (60% X 13% = 7.8%), 4% (30% X 13% = 3.9%), and 4% (60% X 6% = 3.6%), respectively, because the first reduction of the price variation finally reaches them. The industrial and raw material inflation on Hentz and Hakosoar is reduced to 5% (90% X 5% = 4.5%) and 2% (40% X 6% = 2%), respectively, as the second reduction of the economic fluctuation arrives. The raw material inflation on Hargut is reduced to zero by a roll of 8.

Day 5: The industrial price increases on Yast, Hargut, and Hristan are reduced to 3% (60% X 5% = 3%), 2% (30% X 5% = 1.5%), and 1% (60% X 2% = 1.2%) as the second reduction of the fluctuation reaches them. The industrial and raw material price increases on Hentz and Hakosoar end.

Day 6: The industrial inflation on Yast, Hargut, and Hristan ends.

**Some Closing Notes**

For the sake of simplicity, I have ruled a time lapse of one day for price increases (and reductions on those increases) to move from planet to planet. In actuality, it would take one day for every light year between the planets - a change that referees may make in their campaigns.

A flow chart or procedure table was not included for the simple reason that it would be complicated into incomprehensibility. It is much easier to deduce the procedure from the examples. (I tried to create a procedure table, but it was too long and indecipherable.)

For an added touch of realism, referees may want to include an availability modifier in certain systems. This is a price change of +5% on all imported goods.

Each type of cargo may be obtained only at a center of the appropriate type (*e.g.*, raw materials at resource centers).

Since agricultural gluts and shortages are very rare, agricultural cargoes are bought and sold by the prices given in Tony Watkin's article "Rare Wines and Ready Case," in Dragon issue #93.

Readers will notice that this system requires a great deal of work on the referee's part, but it pays off, especially in one of the PCs owns a freighter. It's much more challenging than the system in the Knight Hawks rules, thus proportionately more fun to use.

# Old Yazirians Never Die

**(They just get permanently grounded.)**

### Age and aging in Star Frontiers gaming

*by Peter C. Zelinski*
*Dragon* Magazine, #108, pg. 86

One question unanswered by the Star Frontiers rules is this: What happens when a character gets old? Average lifespans are given for all four player character races, but nothing is said about the effects of aging and growing up.

This is unfortunate, for aging adds to the fun and realism of the campaign. What is the point of turning to the aged for advice when they are no wiser than the young? How realistic is a 230-year-old Dralasite who can still bench-press 145 kilograms? What about a 150-year-old Vrusk who can dodge missiles just as well as the time he was knee-high to a winged ripper? True, such examples are always possible, but they should not be the norm.

Presented in the text below is a solution to the problem. Players of the AD&D game will recognize its aging system as the inspiration and source of reference used in compiling this article.

Note: Time is given in Galactic Standard Years throughout the article. One GSY is about 91% as long as one of our Earth years.

| Race | Starting Age | Age at Death | Mature | Middle Aged | Old | Venerable |
|---|---|---|---|---|---|---|
| Dralasite | d10 + 24 years | 195 + 10d10 | 25-75 | 76-115 | 116-175 | 176+ |
| Human | d10 + 19 years | 156 + 8d10 | 20-60 | 61-90 | 91-140 | 141+ |
| Vrusk | d10 + 17 years | 136 + 7d10 | 18-50 | 51-80 | 81-125 | 126+ |
| Yazirian | d10 + 13 years | 107 + 6d10 | 14-40 | 41-60 | 61-100 | 101+ |

## Starting Ages

Before a player character enters a Star Frontiers campaign, his starting age must be known.

NPC starting ages need not be so restricted. An NPC Human adventurer could stow away on a star freighter at age 14 or give up a cushy desk job in favor or a daring life in space at 43.

## Age Brackets

When a character enters a certain age bracket, his ability scores must be modified according to the instructions given in the age categories table below. This is not to say that all Humans receive additional strength and stamina along with their presents on their twentieth birthday. Instead, ability score modifications are a simulation of the effects of gradual maturity, with the

resulting benefits or deterioration.

Modifications due to age are as follows:

*Mature*: Add 5 to STR, STA, INT, and LOG scores.

*Middle-Ages*: Subtract 5 from STR and STA; add 5 to INT and LOG scores.

*Old*: Subtract 10 from STR, STA, DEX, and RS; add 5 to INT and LOG.

*Venerable*: Subtract 5 from STR, STA, DEX, and RS; add 5 to INT and LOG scores.

No young-adult bracket is given because, unlike the AD&D game, no Star Frontiers PC can ever fall into this category (see starting age above).

**Death Due to Aging**

Except in a very long campaign, the prospect of a PC dying of natural causes is not something to worry about, because of the long lifespans of all four races. Nonetheless, when a player rolls up a character, the referee should randomly determine the age at which that character will die and keep it a secret from the controlling player. This may prove useful if the character is unnaturally ages by technological devices or processes, or by disease or infection. The results are based upon the average lifespan figures given in the Alpha Dawn Expanded Game Rules.

# Patriots, Terrorists, and Spies

## More Frontier cults for Star Frontiers gaming

*by Kim Eastland*

*Dragon* Magazine, #109, pg. 80

As noted in *Zebulon's Guide to Frontier Space*, Volume 1, "cult" is the term used for any radical political, terrorist, religious, or other self-interest group. Some cults are legal and some are not, but too often they present a real threat to the harmony of the Frontier and provide extra fork for law enforcement and security personnel.

The year FY 111 marked the Grand Celebration of the Frontier. Social events, political rallies, fund raisers, and so forth were planned for all the planets on the Frontier that year to celebrate the 111th anniversary of the signing of the UPF treaty. What was not planned was the sudden appearance of dozens of new cults that decided the year of the Grand Celebration was the perfect time for them to make themselves known to the public. Though hundreds of cults "went public" in FY 111, the following ones seem to have grown the fastest and have the most clout.•

**The Alliance for the Right of the People**

This cult is a legal, liberal, political organization dedicated to upholding the rights of the citizens of the Frontier. While this appears to be a noble cause, the ARP has recently enacted a policy of political pressure to limit the authority of Star Law and other local law-enforcement groups. This campaign includes holo-vid promotions portraying law-enforcement agents as looming shadows that are always waiting for the average citizen to slip up.

The ARP also feels that the practice of maintaining penal colonies (currently located on asteroids) is cruel and that criminals should at least be kept planetside, within the influence of civilization. On the other hand, ARP also has been the leading organization defending Rim immigrants who wish to live in the UPF space against those cults who want them deported.

The ARP has its headquarters on Laco. It sometimes allies itself with the Frontier Peace Organization.

**The Defenders of the Divine Will**

This cult is a unique conglomerate of various religious groups that believe that the divine will of their individual deities formed and evolved planets perfectly. They are vehemently opposed to GODCo's terraforming practices and some members have even threatened violence if it does not cease. Currently, they are considered a legal organization. Mega-corps are worried that the DDW's beliefs may spread to eventually encompass any business that alters the original form of nature (including mining, forestry, and other operations that alter a planet's surface; cosmetics, plastic surgery,• and other products or services that alter the body's appearance; etc.).

**The Supporters of Mechano**

This is a growing political organization that includes members of all the Frontier races. The Mechanites, as they are called, believe the Mechanons are a sentient, sapient race (though of artificial origin) that deserves full citizenship in the UPF. Though the Mechanites began as a completely peaceful organization, their many encounters with the Silver Death Cult and Anti-Satharian League have resulted in the death of many Mechanites and the formation of their own security forces. It is rumored that some extremists within the organization are forming a radical splinter group that believes the end justifies violent means.

Since one of the charges constantly being leveled against the Mechanons is their cooperation with the Sathar in subversive activities, many Mechanite investigations are aimed at discovering the truth behind these terrorist activities, with an eye on clearing the Mechanon name.

The Mechanites have centers on every civilized planet. Their leader, a human named Mathias Pritchard, is extremely charismatic (PER/LDR = 99/99) and the driving force behind the cult.

**The Liberators**

This is a terrorist organization that is dedicated to "liberating the oppressed masses from the chains of mega-corporation tyranny." This is an extremely violent, illegal, quasi-political/economic cult that has already taken credit for hundreds of deaths due to bombings and terrorist raids, usually on mega-corporation headquarters. Star Law suspects the Liberators are backed by a few rich individuals or another cult, but they have no leads yet on who or what finances them. Though the identity of the leader of the Liberators is also unknown, certain terrorist members have been identified and their faces and descriptions are broadcast regularly throughout the Frontier.

**The Clear Thinkers**

This is a reactionary political group with militant leanings that seek to banish (or destroy) Mentalists and enlightened characters in the Frontier. They have strong financial backing and fund projects that will develop items, drugs, and robots designed to thwart mental disciplines or seek out discipline users. This group has the most political savvy of all the cults, has been careful to stay inside the law with its public activities, and is starting to run Clear Thinker candidates for various political positions, including seats on the Council of Worlds. The leader of the Clear Thinkers is a smooth Yazirian politician named Hased Kor. He is one of the most powerful individuals on Yast/Astor and expects to be President of the Council one day.

**The Free Thinkers**

This is a new cult that has grown in response to the Clear Thinkers movement. This non-profit organization is made up of various races and individuals, both psionically gifted and non-gifted. The organization fights its battle in a legal, honest, and public manner. It funds promotional campaigns aimed at educating the masses about the benefits of having psionically gifted individuals in society. It has established legal aid clinics, educational grants, help lines, and other programs to aid both Mentalists and enlightened characters. It works with the authorities whenever possible to aid in the location of psionically gifted individuals who can held solve crimes. The Free Thinkers have recently begun to open small offices in every major city,

but their headquarters is on Morgaine's World.

**The Zenk**

The Zenk (Vrusk for "family") is a Frontierwide criminal organization that currently is responsible for most high-credit criminal activities on the Frontier. The Zenk sells its services to anyone, but it nearly always operates in its own best interests. There is no criminal activity that the Zenk cannot perform, though it prefers to stay away from anything directly relating to Star Law, Spacefleet, or Landfleet. No one knows who governs the organization, but referees should create NPCs who run local operations, as player characters may want (or be forced) to tangle with them at some time.

The Zenk is divided into eight different sections:

- *Acquisitions*: robbery, forgery, embezzlement, etc.
- *Administration*: executives, crime planning, accounting, etc.•
- *Eliminations*: murder, arson, body disposals, etc.
- *Enforcement*: strong-arm activities that do not usually involve killing, security, etc.
- *Information*: blackmail, bugging, spying, computer crimes, etc.
- *Leisure activities*: providing illegal intoxicants, entertainment, etc.
- *Research and developmen*t: creation of new items or methods that held the other sections, maintaining the Zenk's equipment, etc.
- *Support services*: activities that support the other sections but that are not included in the definitions of those sections, such as fencing stolen goods, buying off the authorities, etc.

An interesting note on the Information section is that it supposedly has personnel working within most law-enforcement agencies. On the other hand, most law-enforcement agencies, especially Star Law, have personnel working within the Zenk. Consequently, information obtained by both sides is sometimes planted or altered in efforts to flush out spies on either side.

**The Firsters**

This cults is a quasi-political/terrorist faction that believes• all of the Rim races should be sent back to the Rim. Their slogans are such cliché s as "The Frontier for the Founders" and "Kick a Rimmer Today." At first this organization was not taken seriously by most inhabitants of the Frontier and become the butt of many a joke, but recent militant activities aimed at members of the Rim races and their businesses have sobered the public to the reality of violent racial prejudice. The ARP organization is the greatest opponent of the Firster movement.

No Firster headquarters is known to exist, as its operations are completely covert. While none of the leaders are known, a rallying figure is known to be a dead Vrusk named G'rch B'on. B'on was a member of the Firsters when they were still a tiny cult. He attacked an Ifshnit couple one night, but died in the assault. The coroner's findings indicated B'on tripped over his own feet and broken his neck in the fall. The Firsters insist that witnesses (other Firsters, incidentally) saw the Ifshnits pick a fight, then kill B'on. B'on is now a martyr for the Firster cause and a rallying symbol for anyone who dislikes beings from the Rim.

# Going for a swim?

## Underwater action in Star Frontiers gaming

*by William Tracy*

*Dragon* Magazine, #110, pg. 88

During the course of a Star Frontiers campaign, a group of adventurers might want or need to enter an underwater environment. Unfortunately, the rule books contain no rules for underwater play. This article attempts to rectify that situation, and some additional equipment usable in undersea environments is also presented.

Using these rules, adventures could be created in which characters must reach an underwater city covered by a pressurized dome, escape from a damaged submarine, or swim in search of a sunken ship or crashed spacecraft. They might also encounter a sentient race that lives underwater, and they could trade, fight, or otherwise interact with that race.

**Artificial Gill Suits**

To survive underwater for long periods, characters must employ a breathing apparatus known as an artificial gill suit (AGS), which covers the wearer's entire body. It is made of a material that is similar to that used in skeinsuits, and it may be left transparent or colored as the manufacturer desires. Normal goggles may be worn by Humans, Vrusk, and Yazirian divers. The AGS will absorb one-fourth of all damage caused by projectile and gyrojet weapons, fragmentation grenades, explosives, and melee weapons. It cannot be worn with any other suit of armor, but a screen may be used with it. When the AGS has taken 35 points of damage, it will be ruined and useless as armor.

The AGS for Humans, Yazirians, and Vrusks conforms to their basic physical shape. The AGS for Dralasites will stretch to accommodate their shape-changing abilities. A Yazirian AGS covers the glide-wing membranes without hampering their use in swimming (see below).

Much of the exterior of the AGS is covered by a series of microfilters, all made of tough, translucent plastic. These microfilters draw oxygen from the water, pumping the gas mixture through small tubes to the area of the body where the wearer inhales air. The waste gases produced are released directly from the suit. The whole system is regulated by a computer chip and powered by a small energy cell good for five hours before it needs to be recharged.

The AGS also has a small digital display which can easily be seen by the wearer. The display shows the diver's depth, time in the water, and the amount of power left in the suit's energy cell. The suit also has a built-in low-frequency radio system, which has a range of one kilometer.

The AGS weighs five kilograms and costs 800 Credits. The suit can be safely used at a maximum depth of 110 meters on Earth-like planets. If a deeper dive is attempted, there is a cumulative 5% chance per 10 meters below the safe limit that the AGS will malfunction. This chance must be rolled for every five minutes, with an additional 1% chance of failure added for

every additional five-minute period spent beyond the first.

The wearer will also take one point of damage for every 10 meters he dives past the maximum safe depth. This damage will be taken every minute and is caused by increased pressure. Dralasites will not start taking pressure damage until they reach a depth of 160 meters, due to their elastic abilities.

There is also a 10% cumulative chance per 10 meters of depth beyond the maximum safe limit, check for every 10 minutes, that a Human of Yazirian character will have vivid hallucinations for five minutes as a result of nitrogennarcosis. A check against the character's Logic score lets him disbelieve the hallucinations.

If the AGS malfunctions, the character wearing it must hold his breath until he can reach the water's surface. A character can hold his breath for a number of turns equal to the character's Stamina score divided by five. If the character is still underwater after running out of breath, the character will take 2d10 damage for every turn spent under water until death occurs from drowning.

If a character dives deeper than 10 meters, the character must ascend slowly (at a rate of five meters per turn) or risk getting a case of the bends. Bends are caused by nitrogen bubbles forming in the bloodstream, due to the quick change in pressure. This can cause intense pain, doing one point of damage per round until the character is placed in a freeze field or a decompression chamber to stop the loss of Stamina points. The damage from decompression will never exceed 40 points, though death can still occur as a result of it. Note that there is a chance of dying as a result of the bends, independent of the amount of damage taken, as per the table below. Dralasites do not get the bends.

**Chances for contracting the bends**

| **Rate of ascent** | Chance to get bends | Chance of Death |
|---|---|---|
| 6 m/turn | 10% | 8% |
| 7 m/turn | 40% | 16% |
| 8 m/turn | 60% | 24% |
| 9 m/turn | 80% | 32% |
| 10+ m/turn | 100% | 40% |

If death is indicated, it will occur in 10 minutes. During these 10 minutes, the character will lose one-tenth of his current Stamina points (rounded up) every minute. This procedure can be stopped by a freeze field or a decompression chamber.

A character must stay in a decompression chamber for a number of minutes equal to the lowest depth in meters that the character reached. If a character dives below 60 meters, even it he did not contract the bends, he must spend some time in a decompression chamber. If the character does not do this, he will get a case of the bends, like that described above, within 1d5 hours.

Dralasite characters will never contract the bends due to their unique physiology. If characters need to dive deeper than their limits, they will have to use a submarine or an AGS designed for greater depths.

**Movement**

Characters can swim at a rate of 10 meters per turn (or one kilometer per hour). If a character swims longer than one hour, he will lose five Stamina points for every 30 minutes he continues swimming. These movement rates can be affected by obstacles such as seaweed or coral (or alien equivalents thereof).

If a character swims through seaweed, he must move at a rate of four meters per turn. If a character tries to move faster than that, he may become entangled (a cumulative 10% per turn of movement). This should be checked for every third turn. The character will be entangled for 1d10 turns (1d5 if the character has a sharp instrument with which to free himself).

If a character swims through areas containing coral reefs, he must swim at a reduced rate of five meters per turn. Faster speeds allow for a 10% chance per turn traveled that the character will be cut by the sharp edges of the coral, causing 1d10 damage (half of which can be absorbed by an AGS suit).

Another factor that might affect movement is the presence of underwater currents. Such currents usually have speeds ranging from 1-12 meters per turn, but they can only be found at a depth of 60 meters of less. Characters may enter a current on purpose to increase their speed. To get out of a current, a character must roll his Strength (minus 2% per meter/turn of speed the current has) or less on percentile dice. The character can attempt to leave the current once every five minutes. After a number of attempts equal to the characters' Stamina score divided by five and rounded down, the character must rest 30 minutes before making any more attempts to escape the current.

The characters' movement rates might also be increased with special equipment, such as jet scooters, jet fins, and submarines. A jet scooter is a streamlined cylinder made of light alloys, one meter in width and two meters long.. It has a built-in jet turbine which enables it to go 20 meters per turn. The character lies on top of the scooter and steers it with a steering rod, which controls small fins on the sides of the scooter. The scooter weighs five kilograms and costs 300 Credits. It is powered by a small rechargeable energy cell, which can power the scooter for five consecutive hours.

Jet fins work on the same principle as the scooter. Jet fins enable a character to move at a rate of 13 meters per turn without requiring rest breaks every hour. A pair of fins weigh .5 kilograms and cost 50 Credits. They are powered by two small, rechargeable energy cells good for two hours of use.

A submarine can also be used by the characters, but it can only be operated by a Technician

with a skill level of five or better. This article will describe the most common type of submarine, which can be bought or rented by non-military characters. If the characters want larger or armed submarines, they must either be working with the government or willing to acquire one illegally. A typical explorer submarine costs 20,000 Credits, but usually rents for 100 Credits per day, plus a 250 Credit deposit. The submarine has a top speed of 25 kilometers per hour, with an average cruising speed of 20 kilometers per hour. Six passengers may be accommodated aboard it, though in very cramped comfort. The sub carries four in relative comfort. The cargo limit is 1000 kilograms, within a space of two cubic meters.

This submarine is powered by a parabattery (type II) which has to be recharged every 200 hours of use. The submarine's movement rates are not affected by coral reefs of seaweed, though visibility is affected.

This type of submarine can be used to a maximum depth of 200 meters. If it is used at greater depths, there is a cumulative 10% chance per 10 meters below the maximum depth that the submarine will spring a leak. This chance should be checked for every five minutes spent below the maximum depth. If a leak occurs, a person with Technician skills can repair it, but first the submarine must move to the surface. If the leak is not fixed, the submarine fills with water in 10 minutes. The submarine contains six AGS suits in case of emergencies, but donning one in a cramped, sinking submarine can be tricky.

Structural damage of 100 points or more to one area will cause a leak in the sub, which has a total of 400 structural points. If a submarine is involved in undersea combat, a referee might want to create a modified form of the Vehicle Damage Table, found on page 32 of the Expanded Games Rules book, which would cover the sub's specific shape and details.

**Character Effects**

The characters will be entering a new type of environment beneath the sea, and will be affected by it mentally and physically. First of all, a character's ability scores change while underwater. A character's Dexterity and Reaction Speed scores are reduced by 25 points; also a character's Strength score is reduced by 35 points when figuring the effects of melee on the Punching Table (page 25, Expanded Games Rules). A minimum score of 10 applies in all cases.

The Star Frontiers races are each affected differently by the underwater environment. Dralasites do not care for adventuring undersea, because the AGS does not let them use their senses of touch and smell. They are not greatly affected by increases in pressure (and never get the bends). Humans are not bothered by the new environment, but Vrusks are very nervous underwater. Vrusks swim awkwardly and, when dealing with underwater races, a Vrusk's chance to comprehend social dealings is halved. Yazirians are uneasy at first, but they come to enjoy swimming because it is somewhat like gliding. Their glider membranes grant them great maneuverability while underwater. This will be discussed later.

A character's skills and their results are also affected while underwater. The effects on Weapon skills is discussed later. The Demolitions skills work as long as the timers used are built to work underwater. The Martial Arts skill will work underwater with a 30% reduction on the success rate. Technician skills work if the equipment and tools are designed to work underwater. Environmental skills work normally underwater if they apply to the situation. There will be a

20% reduction on their success rates while underwater. None of the Medical skills work underwater, except for Diagnosis which has a 30% reduction on the success rate. All Psycho-Social skills work when applicable, with a 30% reduction on success rates due to communications problems.

**Underwater Combat**

While underwater, characters will have to deal with various modifications to the combat system. The Ranged Weapon Combat Procedure Table, on page 22 of the Expanded Game Rules book, should have the following additions and modifications when combat occurs underwater.

| | |
|---|---|
| Swimming target | -5 |
| Dodging target | -8 |
| Dodging Yazirian target | -10 |
| Target using jet fins | -3 |
| Target riding jet scooter | -6 |
| Attacker using jet fins | -2 |
| Attacker riding jet scooter | -5 |

Sighting distance is also modified while underwater. The AGS is designed to enhance the wearer's vision so that it is not distorted. Even so, a character's vision will not be as good as when on the surface. Visual range can also be affected by the amount of sediment and plankton in the area, the amount of light shining on the surface of the water, the depth, and passing schools of fish or other lifeforms.

It can be assumed that within 10 meters of the surface, a character will have a maximum visual range of 40 meters, if the view is not obstructed and if it is daylight. If it is at night, the character will only be able to see one meter away at best. The referee should use this as a basic foundation when trying to decide a character's visual range underwater. The final visual range is left up to the referee.

For 50 Credits, a wide-beam underwater flashlight can be found. The flashlight will be attached to the AGS, around the character's chest. The flashlight's energy cell can go for 100 hours before needing a recharge. The flashlight enables the character to always have a minimum

visual range of two meters, except in extremely murky water. It illuminates a cone-shaped area, ranging from 0.5 to 2 meters at the widest part of the cone.

When fighting underwater, characters must use modified versions of the ranged weapons they usually use. These weapons cost 50 Credits extra for underwater modification. Such weapons act normally above water unless otherwise noted. Laser weapons are not used underwater, as they are too inefficient.

Underwater versions of gyrojet weapons are available. When used underwater, they have the following alterations made in ranges (the rest of the statistics are normal when used underwater).

| **Weapon** | **PB** | Short | Med | Long | Extrm |
|---|---|---|---|---|---|
| Gyrojet pistol | - | 0-3 | 4-30 | 31-60 | 61-90 |
| Gyrojet rifle | - | 0-3 | 4-50 | 51-90 | 91-130 |

Sonic disruptors and sonic stunners are both produced in versions that can be used underwater. These weapons have double normal ranges undersea, because of the effects of denser medium through which the sound waves pass. The damage of the sonic disruptors is doubled accordingly.

Modified versions of grenades can be used underwater. They cannot actually be thrown, but they may be dropped on characters that are at a greater depth than the attacker. Unless surprised, the victim may be able to get out of the grenade's blast radius. The grenades will drop at a rate of six meters per turn. Grenades can also be delivered with grenade rifles modified to work underwater. Such weapons have the following ranges when used underwater: NIL/0-15/16-30/31-55/56-100. Underwater grenades will not work in air, but the grenade rifle can fire the regular type of grenades when used on land.

Underwater versions of the poison grenade and the doze grenade can be found, but they only have a blast radius of one meter. They release a colorless liquid into the water, which enter the microfilters of an AGS and then affect the wearer as per normal. For 50 Credits, special filters can be attached to an AGS which will keep poisons from getting to it wearer.

Underwater versions of tangler grenades and smoke grenades can also be found. They work like the regular ones, but they only have a one-meter blast radius. The smoke cloud produced by the smoke grenade has one a 15-meter blast radius, clouding the water, and it could be broken up by underwater currents.

The underwater version of the fragmentation grenade works just like the regular version, except that it only has a three-meter blast radius.

Finally, underwater characters may make use of a new projectile weapon: the spear gun, which uses compressed air to shoot a heavy arrow. A compressed-air clip can fire four arrows before becoming empty. The spear can be fitted with a special head that explodes upon impact like a grenade. A regular spear does 1d10 damage, while a spear with an exploding head does 2d10 damage. The spear gun has the following ranges: 05/6-10/11-20/21-30/31-40. A cost and weight table follows:

| Device | Cost (Cr) | Weight (kg) |
|---|---|---|
| Spear gun | 100 | 4 |
| Spear/arrow | 5 | 1 (for 5 spears) |
| Compressed air clip | 10 | 1 (for 3 clips) |
| Exploding warhead | 30 | 1 (for 3 spears w/heads) |

Melee combat is also greatly affected while underwater. Characters cause no damage with punches, and a character's punching score should not be added to the damage caused by non-powered weapons while underwater. Only sharp melee weapons are useful underwater: short axes, knives, stabbing polearms (spears) sonic knives, sonic swords, short stabbing swords, and vibroknives. A person using a sonic weapon underwater will not be able to surprise an opponent. The damage done by these weapons is reduced by half because of the friction of the water. These modified versions of melee weapons cost 30 Credits extra and function normally above water. Electrical weapons are not produced for underwater use because water is such a good conductor for electricity. Modified power screens that work above and below water cost 100 Credits extra for the water-proofing.

Final notes: Any combat which draws blood might also draw any nearby predators in the area (like sharks or beings with similar temperaments and appetites). While refereeing underwater combat, a referee should take into account the different altitudes of the combatants; those attacking from above gain a +5 bonus. A referee might wish to use the rules for weightless combat (page 26 of the Expanded Games Rules book) when conducting underwater combat, if high-recoil weapons are used without bracing.

**Underwater Equipment**

When going underwater, characters can take a variety of equipment modified to work in that environment. A water-proofed compass can be found for 20 Credits. A special underwater flashlight, which works like the one attached to the AGS, can be bought for 10 Credits. An underwater version of the toxyrad gauge costs 25 Credits; its functions are slightly different from the regular type, and it will not work above water. If the red light shines, it means that

there is a chemical in the area that can affect the character through his AGS, but the special filters mentioned earlier can filter them out before they reach the character. A flashing blue light indicates that there is dangerous radiation nearby. A flashing yellow light indicates that there is a chemical in the area that is so powerful that even the special filters mentioned above cannot filter them out.

An underwater version of the exoskeleton can be found for 2500 Credits; this version also works above the water. While wearing the exoskeleton, a character is able to swim 20 meters per turn without having to rest. While underwater, the character has a +10 bonus to hit in melee, and does five additional points of damage. The exoskeleton is designed to be worn outside the AGS without hampering any of the suit's functions.

Because of the heat-absorbing properties of water, and AGS cannot have built-in infrared vision capability. Freeze fields cannot work underwater, either.

An underwater radiophone can be bought for 550 Credits, and will work regularly above water. It only has a range of 50 kilometers underwater, and is connected to the communications system of the user's AGS.

Underwater Solva-Way comes in small plastic bulbs which must be crushed by the entangled victim. It then spreads out and dissolves the threads, remaining potent for one turn. A bulb of underwater Solva-Way costs 15 Credits, and it will not work above water.

Regular Tornadium D-19 works underwater, but special waterproofed Variable/Timer Detonators must be used. They cost 7 Credits each and work above water too.

Finally, special power backpacks (300 Credits) and powerclips (150 Credits) can be bought that work underwater.

**Final Notes**

This article assumes that the area where the characters are diving has a fairly comfortable climate. If the characters dive in water with extremes in temperature, an AGS can be bought with a heating/cooling system. This modification costs 100 Credits extra and adds two kilograms of weight to the AGS. This system is powered by a small energy cell which works for four hours before needing a recharge. The system protects the character in water with temperatures ranging from -35º C to 70º C.

Special AGSs may be created if the characters are going to dive in waters which contain dangerous chemicals or poison. These AGSs must be tailor-made for the body of water in which the characters are going to dive. Such suits cost an average of 1000 Credits.

The modified weapons and equipment mentioned earlier have a tendency to malfunction due to powerful pressure from deep dives, as do AGSs. Weapons and equipment must be further modified if taken into water containing powerful chemicals; this modification will cost a further 50 Credits.

The natural gravity of a planet will also effect the pressure at deeper depths. For every tenth of a gravity less than one, the AGS is able to dive 10 meters deeper before a chance for malfunction occurs. The opposite is true if the gravity is greater than one. This rule applies to

the weapons and equipment, too.

This article may be used as the basic foundation for running an adventure underwater. It should not be considered a strict set of rules. The final judgments are up to the individual referee.

# For a Fistful of Credits

## Extra equipment for the Star Frontiers game

*by David "Zeb" Cook*

*Dragon* Magazine, #112, pg. ?

Editor's introduction - We've received a lot of requests for more equipment that can be used on star-faring expeditions, and this article will hopefully fill in some of the gaps. The following material was produced before SFAC3, *Zebulon's Guide to Frontier Space*, was released. It fits in with the original Star Frontiers game system, and it may be used by gamers who do not have access to the former product. Some modification will be required if the *Zebulon's Guide* revisions are being employed in a campaign.

### Gyrojet Ammunition

### Doze Jetclip

The doze jetclip is loaded with 10 rockets, each carrying a small amount of doze gas. The rockets burst on impact, causing no damage, but filling a one-meter area with doze gas. The target must pass a current Stamina check or fall unconscious for 1-100 turns. The doze gas is only effective on the round it is fired. These rounds are often used by police or security forces to take suspects alive.

### Poison Jetclip

The poison jetclip also has 10 rockets, each carrying a small dose of poison gas that will affect a one-meter area. When the target is hit, no damage is done, but a current Stamina check must be made. Those that fail will be affected by a S5/T10 poison. If the character passes the check or is wearing a gas mask or spacesuit, he will not be affected. A shot of antitox will neutralize the poison so no further damage is taken.

### Tangler Jetclip

This jetclip has 10 rockets filled with tangler fluid. No damage is caused when a target is hit, but a one-meter area is filled with tangler threads. The target may avoid being caught in the threads if a Reaction Speed avoidance roll is made. Otherwise, the threads will last for 30 minutes. Creatures with more than 100 Stamina points may break free in one turn.

### Defensive Suits

### Slipsuit

A slipsuit is a tight-fitting suit made from a special low-friction polymer. It covers the entire body. The hands and feet are made from normal material, allowing the character to grip, punch, and walk normally. The slipsuit makes its wearer harder to hit with most weapons in melee combat. The attacker is -20 on his chance to hit a character wearing a slipsuit, unless he is attacking with a sonic knife or sonic sword. Tangler grenades and tangler rockets will not stick to a

character wearing a slipsuit, making it impossible to tangle a character wearing one. A slipsuit will be ruined once it has taken 100 points of damage.

**Organic Computers**

Organic computers are cousins of the standard Star Frontiers computer. Like normal computers, they are used to store and analyze information. However, they have many important differences.

Unlike a normal computer, which is made of electronic circuits, superconductors, and specially formed crystals, the organic computer is grown from molecules. These are organic molecules, the same kind that form the building blocks of plants and creatures. This makes organic computers much smaller than the normal computers. Organic computers, however, are not considered to be living consciousnesses.

Since the organic computer is grown, it cannot be expanded like a regular computer (by adding function points). Instead, an organic computer has a function point potential. This is the maximum number of function points an organic computer can use at one time (and therefore the maximum number of programs that can be used at one time). However, programs can be entered and then later removed from an organic computer without damage to the computer or the program. It takes one turn to change the program of an organic computer. Unlike normal programs, when a character buys• an organic computer program, he is buying a set of pre-recorded instructions that tell his organic computer what to do. He is not buying the hardware needed to run the program. Different programs may be used at different times, but the potential cannot be exceeded by programs that are in use. The function points used by programs are the same as those listed for standard computer programs.

For example, Zir-zak, a Vrusk adventurer, has a level 2 organic computer. Its function point potential is 30. He is using the computer to manage certain areas of his spaceship. He could have a level 4 security program (16 function points), a level 2 life support (8 function points), and a level 2 installation security (6 function points) running at the same time. If he landed on a planet and wanted to use a language program, he would have to change one of the programs in the organic computer to do so. In this case, he decides life support is not needed and replaces it with a level 4 language program.

An organic computer may either be housed or implanted. A housed organic computer is much like a normal computer. The actual processing part of the computer is kept in a small tank filled with nutrients. Connections to it allow the computer to be interfaced with other computers and machinery. Its advantage is its extremely small size. An implanted organic computer is much different from a normal computer; it is surgically placed inside a person or creature and becomes part of that person's brain. Its power is obtained from the food the person eats. An implanted computer interfaces with other computers by a micro-transmitter/receiver that is part of the implant. The computer interfaced to will require a similar transmitter/receiver as part of its equipment. Programs for an implanted computer are read by the person and "stored" in his memory. The implanted computer then draws these programs out of the person's memory. A character may have as many programs memorized as his Logic Ability divided by 10. These programs may be of any level. If the character is ever injured to zero Stamina points or below, the implanted organic computer is destroyed. This is true even if the character is placed in a

freeze field and later revived.

For example, Zir-zak (our Vrusk friend) has an implanted level 1 organic computer. His Logic Ability is 65, so he may store up to seven programs in his mind. The programs can be of any level, but Zir-zak may only use 10 function points at any one time.

*Important*: Characters with implanted organic computers do not become supermen! They simply have access to a computer at all times. If a character attempts to have his computer solve something with too many variables, it will be beyond the abilities of the program. With any program, the character must still supply exact instructions and data. Computers cannot guess outcomes or predict events without a great deal of information.

Organic computers may only be implanted at the largest of hospitals with the most advanced of techniques. The process is very expensive and requires one month of hospital time for each level of the computer. The table below lists all the information on function point potential, size, and costs.

**Organic Computer Information Table**

| **Computer Level** | Function Point Potential | Cost (Cr)/Mass (kg) Housed | Implanted |
|---|---|---|---|
| 1 | 10 | 10,000/- | 100,000/* |
| 2 | 30 | 35,000/1 | 400,000/* |
| 3 | 100 | 125,000/2 | 1,000,000/* |
| 4 | 250 | 300,000/2 | 2,000,000/* |
| 5 | 600 | 700,000/3 | 5,000,000/* |
| 6 | 1500 | 2,000,000/3 | 10,000,000/* |

Implanted computers are extremely small. They will have no effect on the carrying capacity, health, or appearance of the character.

**Computer Receptor Implant**

The computer receptor implant will allow the user of the implant to be in contact with his computer at ranges up to five kilometers. The user simply "thinks" his request to the computer. The computer (if it has the proper program) will then send an answer to the user, where it will be "heard" as a thought in his brain. So long as the user stays within range, he will be in contact with his computer.

When a character buys a computer receptor implant, he is actually buying a special implant, an attachment to his computer, and a special transmission program. The implant is a micro-transmitter/receiver with special connections that attach to the nerve cells of the user. This implant must be surgically attached to the character (just under the skin). This work can only be done at an advanced hospital (referee's decision where) and takes two weeks. The computer attachment is a similar transmitter/receiver that connects to the computer. The transmission program allows the two transmitter/receivers to talk to each other, and uses one function point. This program has no levels. The computer receptor implant costs 50,000 Cr. Transmitter/receivers that attach to other computers cost 2,000 Cr each.

**Computer Programs**

**Infiltration**

Infiltration programs are designed to help a person with computer skill defeat the security on other computers and detect security overrides. There are six levels of infiltration programs. Each level will add 5% to the character's chance of success. The amount of time needed to defeat security or perform a security override when using an infiltration program is changed to 10-100 minutes. To be used, the computer with the infiltration program must be successfully interfaced to the other computer. Defeat Security is not required to make this interface. Infiltration programs require the same amount of function points as computer security programs.

**Medical Technology**

The following are new pieces of medical equipment and new medical processes. The processes may only be performed at hospitals with sophisticated medical equipment.

**Accelerator Drug**

This drug speeds up the body's actions. Only a medic may administer this successfully. When under the effects of the drug, a character adds +2 to the initiative die roll (in addition to normal bonuses) and can make one extra attack per turn in melee combat. The effect will last for a number of turns equal to the character's Stamina score (at the time the drug is taken) divided by 10. Each turn the character is accelerated, the person will lose four Stamina points. Lost points are healed like normal wounds.

**Anesthetic Drug•**

This drug works exactly like a doze grenade, except that it must be injected into the target. Anyone may give the injection.

**Cloning**

This process is very rare, performed at only the most advanced hospitals. When a character is to be cloned, tissue samples are taken of various parts of the character's body. These may be held for any length of time. From these samples, a new body may be grown when requested. Growing a clone takes 500 days and costs 1,000,000 Cr. Physically, the clone will be identical in appearance to the character from which the tissue samples were taken, save for scars and

other uninherited physical traits. The clone will have average scores in Strength, Stamina, Reaction Speed, and Dexterity. It will have no Intuition, Logic, Personality, Leadership, or Special Abilities. A clone may be supplied with these abilities through an experiential matrix (giving the clone the scores recorded in the Matrix, see below). If a matrix is fed into a clone different from the person from whom the matrix was taken, the Strength, Dexterity, Reaction Speed, Personality, and Leadership scores are reduced by 20 points. No score may be reduced below a level of six in this case. Clones and cloning are illegal on some worlds.

**Experiential Matrix Analysis**

Living characters may undergo an experiential matrix analysis. This process will record all memories and experiences of the character up to the time of the analysis into a special computer storage. The process is mainly used to transfer memories to a clone, and may only be done at an advanced hospital. This process is dangerous as it involves severe strain on the character; there is a 20% chance that the following abilities will be permanently reduced whenever an analysis is made: Stamina, Logic, Intuition, Reaction Speed, Personality, and Leadership. One check is made for each ability. If an ability is to be reduced, the character will lose 10-50 points in that ability. All abilities (except Stamina) may not be lowered to less than six points. If the Stamina ability is reduced to zero or below, the character is permanently dead. The referee should record the reduced Ability Scores of the character analyzed and keep this information for later use. Reduced abilities may only be increased by use of experience points. The analysis takes one week and costs 50,000 Cr.

**Intensive Healing**

Intensive healing may only be done at sophisticated hospitals. The referee should decide if a hospital is able to do intensive healing. Intensive healing will allow the character to heal 40 Stamina points a day. The cost is three times the number of points healed per day plus 500 Cr. Healing 85 Stamina points would take three days and cost 755 Cr.

**Oxy Drug Injector**

This slowly releases oxygen into the bloodstream, supplying all needs for twelve hours. Oxy drug injectors are usually worn on the wrist, feeding the drug directly into the blood. The injector must be attached at a hospital. Once the injector is attached, the character may refill it with oxy drug as needed. The cost of a refill is noted on the price list. Note that an oxy injector will not protect a character in space; a spacesuit must be worn.

**Regeneration**

This process allows lost arms, legs, fingers, and toes to be regrown by the use of special medical stimulation procedures. It may only be done at the most advanced hospitals. The patient, obviously, must be alive (or in a freeze field) when brought to the hospital. Regeneration takes 30 days for a finger or toe (costing 50,000 Cr) or 90 days for a complete arm or leg (costing 200,000 Cr). How the character lost the limb in the first place is left entirely up to the referee. If the referee does not want to deal with this, the game problem of limb loss and regeneration may be ignored. Since Dralasites do not have any specific limbs, they do not need regeneration.

### Universal Antibody

This antibody helps protect the person from any type of disease. It may only be injected at a hospital. Characters with the universal antibody have a +20% chance to resist any disease (if the chance to resist the disease is 0% (nil), the character is given a 20% chance). This product is a great boon to galactic tradesmen and explorers of new worlds.

## Vehicles

### Cloud Flyer

The cloud flyer is an atmosphere craft specially designed for use in hostile environments. It has a completely pressure-sealed cabin and cargo area to protect the occupants and equipment from the environment. A cloud flyer's main wings are swept back, and it has a shorter pair of wings, or canards, mounted near the nose.

Cost: 40,000 Cr (rental fees - 200 Cr down, plus 100 Cr/day)

Top/cruise speed: 400 kph/150 kph

Passengers: 6

Cargo limit: 3,000 kg, 3 cubic meters

## Miscellaneous Equipment

### Density Scanner

This device consists of a bulky backpack connected to a large cameralike set of goggles. The user wears the goggles, which show the scene in front of him. The density scanner checks emissions from the electromagnetic spectrum and computes the density of the items observed. It can only give very general readings. The scanner is often used for locating hidden cables and wiring for repairs. The scanner does not really "see through" things. It only gives the density reading of the surfaces of things. The density scanner must be supplied with SEU to operate, and it uses 1 SEU for every 10 minutes of operation.

### Environmental Suit

This suit is designed to protect its wearer from the weather and other conditions on habitable planets. It is made of lightweight, quilted cloth. The suit covers the entire body and has a built-in gas mask, goggles, and a small heating/cooling system. This will keep the suit cooled to a comfortable temperature on hot planets and warm on cold planets. The suit also protects against tainted atmospheres, airborne irritants, and dust- and sandstorms. Any field may be used with the suit, and it may be worn under an albedo suit or skeinsuit. It may not be worn under a slipsuit. The environmental suit itself gives no protection from attacks. The suit may be powered from a power pack or powerclip. It uses 1 SEU per day, if the heating/cooling system is used.

### Enviro-Proofing

This treatment may be given to any article of equipment or vehicle except hover vehicles.

Enviro-proofing protects these items from the extremes of heat, cold, dust, submersion, tainted atmospheres, and vacuum. The referee should note that there are no specific rules for equipment failure in the Star Frontiers Expanded Rules. Enviro-proofing is provided to protect equipment in situations in which the referee feels weather may affect the item. It is up to the referee to create other planets and situations where it would be useful. Enviro-proofing may be done when the item is bought or at some later time. The cost to enviro-proof an item is 10% the cost of the item.

**Portable Space Welder**

The portable space welder is an all-environment welder. It will work in all conditions, including in vacuum, underwater, and in poisonous or tainted atmospheres. It is similar to a modern oxyacetylene torch and uses an open flame for its welding and cutting. It may be used to weld metals and hardened plastics or to cut through these materials. It takes the welder one turn to make a weld or cut 50 cm (0.5 meters) long. The welder may cut through up to 3 cm of material. The welder may only be used in melee combat and no bonus is added for Melee Weapons skill. If a hit is scored, the target will suffer 5d10 points of damage from the flame. A fuel tank is required to operate the welder. One tank will fuel the portable space welder for one hour.

**Thermosign Generator**

The thermosign generator is an advanced form of the infrared jammer. It creates an infrared image of something that is not actually there by generating the proper heat patterns. This image will be seen on all infrared goggles and sensors. The thermosign generator has a 10-meter radius; it may create nothing larger than this radius. Creatures and items inside this radius will not be seen on infrared sensors. In image disc is required for the generator to create the infrared image. These discs must be custom made and cost 100 Cr each. The generator is approximately a one meter cube. It requires a parabattery to operate. The generator uses one SEU each hour of operation.

**New Equipment: Cost and Mass Table**

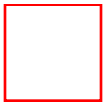
| **Item** | **Cost** | Mass |
|---|---|---|
| Gyrojet ammunition | | |
| Doze jetclip, pistol | 20 | - |
| Doze jetclip, rifle | 30 | - |
| Poison jetclip, pistol | 50 | - |
| Poison jetclip, | 100 | - |

| | | |
|---|---|---|
| rifle | | |
| Tangler jetclip, pistol | 30 | - |
| Tangler jetclip, rifle | 60 | - |
| Defenses | | |
| Slipsuit | 600 | 1 |
| Computers | | |
| Organic computers | * | * |
| Computer receptor implant | * | * |
| Computer programs | | |
| Infiltration | * | * |
| Medical technology | | |
| Accelerator drug | 10 | - |

| **Item** | **Cost** | Mass |
|---|---|---|
| Anesthetic drug | 5 | - |
| Cloning | * | * |
| Experiential matrix analysis | * | * |
| Intensive healing | * | * |
| Oxy drug injector | 500 | - |
| Oxy drug refill | 30 | - |
| Regeneration | * | - |
| Universal antibody | 100 | - |

| | | |
|---|---|---|
| Vehicles | | |
| Cloud flyer | 40,000 | 4,000 |
| Miscellaneous equipment | | |
| Density scanner | 500 | 5 |
| Environmental suit | 100 | 2 |
| Enviro-proofing | * | * |
| Portable space welder | 300 | 20 |
| Thermosign generator | 1,000 | 100 |

* See description.



# An Interstellar Armory

## New defenses and weaponry for STAR FRONTIERS Knight Hawks gaming

*by Gus Monter*

*Dragon* Magazine, #115, pg. 85

Veteran Knight Hawks gamers may find the usual fare of interstellar combat goes better with a touch of the unexpected. This article presents a number of new devices for starship battles in the STAR FRONTIERS game setting, all of them experimental in nature but certainly worth a try.

### New Defenses

**Energy shield**
Energy shields (E-shields) do not so much deflect attacks as absorb them. This defense activates a plasma field that neutralizes destructive energy entering it. However, the plasma itself is neutralized when it absorbs the barrage. In this way, the shield overloads and becomes useless after so many attacks. E-shields are effective against all laser weapons, shatter drones, and disruptor-beam cannons. An E-shield acts as a reflective hull when activated.

The shield must tap energy directly from the ship's generator in order to function. The total amount of SEU that can be drawn for a shield is equal to the ship's hull size (HS) times 50. The following table indicates how many SEU are required to absorb one hull point of damage from a weapon. Weapon types are from this article and from the Knight Hawks Tactical Operations Manual, page 14.

| | LP[1] | LB | LC | SD[2] | DC |
|---|---|---|---|---|---|
| SEU | 5 | 10 | 20 | 40 | 30 |

[1] Laser piston (see below)
[2] Shatter drone (see below)

For example, a light cruiser finds itself in the unfriendly company of two corvettes, which promptly fire their laser cannons at it. The player of the light cruiser announces that he is activating his E-shield at an SEU of 200. The corvettes both roll hits, then damage is rolled and totaled to the sum of 10. The shield can absorb (200/20 = 10) 10 hp damage, so the shield is wiped out in absorbing the full barrage. However. the ship still has 400 SEU to place in the E-shield (HS 12: 12 x 50 =600; 600 - 200 = 400).

**Masking field**
This is a form of cloaking device that effectively camouflages a ship from detection systems. However, due to the delicacy of its effect, the field instantly drops if the masked ship moves or fires any weapons (this includes the launching of probes, decoys, shuttles, and fighters). It cannot be reactivated until two turns later. Also, the field has a tendency to create 1-4 ghostly holographic images of the hidden ship within a one-kilometer radius of the ship, on a 1% cumulative chance per turn of operation. These images cannot jam detectors, but they work well in fooling them. Of course, once the enemy sees a "ghost ship," it knows that a real ship is in the area as well....

**Mine damper**
The mine damper is essentially like an E-shield, except that it is only effective against mines. It must be activated before the player's ship enters a mined hex. For a normal mine, 20 SEU are required to absorb a point of damage. It takes 100 SEU to absorb a screen mine.

**Reinforced hull**
This additional internal framework of struts and bulkheads adds greatly to the ship's ability to handle internal stress. When a ship is down to half its hull points. a - 15 modifier is added to the ship's chance to break apart (see Tactical Operations Manual, page 13, "Hull Hits").

**Seeker jammer**
A seeker-missile jammer is a device that broadcasts a charge which causes a seeker missile to detonate in its current hex. The device has 1-3 charges and has an effective range of 20,000 km per charge (i.e., it can have a range of 60,000 km if all the charges are used up). The jammer works as long as it is in range of the seeker missile. A charge only affects one seeker missile.

**Armor plating**
This is a relatively common form of protection on warships. The armor is made up of two layers of plasteel beneath tritanium surfacing. It is effective against laser pistons, laser power torches, rocket batteries, and mines, giving these weapons a - 15% chance to hit. It adds 200 structural points to the hull.

The heavier form of armor is essentially the same as the lighter one, except it has a special ceramic alloy between the two plasteel layers. It adds 300 structural points and is also effective against laser cannons, laser batteries, and electrical beam batteries, giving these weapons a -15% chance to hit and penetrate, -20% against the attack forms affected by the lighter armor plating described above.

**Contact deflectors**
This is a precautionary device used by starships entering combat, asteroid belts, gas clouds, and uncharted regions. Basically, it insulates the ship from contact with minor asteroids, meteorites, crashing ships, and other forms of space debris. When passing through an asteroid belt, a ship with contact deflectors adds a bonus of 30 to the result in step A in the asteroid movement procedure (see the Knight Hawks Campaign Book Expansion Rules, page 34).

In other cases (including ramming), dice are rolled, and a score of 15 or less indicates the ship has been hit -- but the contact deflectors were useless because the ship was hit head-on. This outcome can be avoided by using the pilot's evasive maneuver ability (3% x pilot skill level) or a ramming pilot's chance to maneuver (10% x pilot skill level). However, if the roll was higher than 15, the deflectors have a 20% chance to avoid ramming damage. For this rule to apply, the ramming ship must be HS 4 or less.

For example, a fighter is down to 2 hull points and the ship's level -4 pilot decides to ram a destroyer head-on, thereby making the destroyer's contact deflectors useless. The base chance is 15%; after adding the pilot's skill (10 x 4 = 40, 40 + 15 = 55), it becomes a 55% chance, but the destroyer's level -5 pilot attempts to evade (3 x 5 = 15). Therefore, the ramming pilot has a 40% chance to hit head-on. He fails his rolls; the destroyer player rolls a 15, so the fighter ship explodes harmlessly against the destroyer's hull.

## New Weaponry

**Laser piston**
The laser piston is essentially a miniaturized version of the laser cannon. This weapon is often used on vehicles, from fighters to hovercycles. A fighter using a laser piston must forsake any other weapons except a fusion bomb or an assault rocket.

**Tractor beam**
The tractor beam is not really a weapon. It is a powerfully energized electromagnetic beam which draws large metallic objects toward it. The object is held just within the beam's range and can be drawn in at a rate of two hexes per turn. The beaming ship must cut its speed to zero before it can draw in the "tractored" object. Spaceships can use this device on any ship eight hull sizes less than the beaming ship's own hull size. The beam must make a roll to hit (modified by the defending ship's pilot's chance to evade), after which the tractored ship can only break free by accelerating to a rate of 10 hexes per turn, at which point the captured ship moves away at one hex per turn. Accelerating to further multiples of ten allows the captured ship to move away at rates reduced to 10W of the ship's acceleration; thus, a ship accelerating at 20 hexes per turn moves at two hexes per turn, etc.

For example, a light cruiser chasing an Imp-class yacht comes into beaming range and, after a successful roll, locks onto the yacht. Because it was not at top speed and its ADF matches the light cruiser's, it is doubtful that the yacht can escape in time before it is boarded. Instead, it fires its laser battery at the beaming ship, which will draw the yacht into boarding position in about one turn.

**Maxi-missile**
The maxi-missile is essentially a rocket with 3-5 warheads. Therefore, while it has a lesser chance to hit than an assault rocket, it does more damage on contact.

**Fusion bomb**

The fusion bomb is so deadly a weapon that it is "dropped" rather than fired at an enemy. The bomb's unstable nature is such that reaction drives places near it could trigger the bomb before it reaches its target. Thus, the range of this weapon is merely the same hex as the launching ship. A popular fighter ship tactic is to make repeated bombing runs along a larger vessel, with the result being a chain of explosions eventually consuming the target.

**Screen mines**
Screen mines operate like other mines, save that their effect upon contact is to destroy any activated screens, fields, or E-shields.

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## New defenses: Table of equipment

| Defense | Cost (Cr)* | MHS** | Availability | Program level | Function points |
|---|---|---|---|---|---|
| Energy shield | 3,000 | 6 | 1 | 3 | 12 |
| Contact detectors | 1,000 | 5 | 1,2,3 | 2 | 9 |
| Masking field | 4,000 | 3 | 1 | 5 | 18 |
| Seeker jammer | 1,500 | 4 | 1 | 3 | 6 |
| Armor plating | 1,500 | 6 | 1,2 | NA | NA |
| Armor plating (heavy) | 3.000 | 12 | 1 | NA | NA |
| Reinforced hull | 800 | 1 | 1,2,3 | NA | NA |
| Mine damper | 2,000 | 1 | 1,2 | 2 | 9 |

* The price listed must be multiplied by the ship's hull size for the final cost.
** Minimum hull size

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## New weapons: Table of equipment

| Weapon | Cost | MHS | Avail. | PL | FP | DTM | HDR | FF | RD | MPO | LTD | RA |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Laser piston | 1.5K | 1* | 1,2,3 | 1 | 3 | 0 | 1-5 | FF | RD | - | - | 6 |
| Tractor beam | 35K | 6 | 1 | 4 | 5 | 0 | 0 | - | RD | MPO | - | 3 |
| Fusion bomb | 3K | 1 | 1 | 1 | 2 | -20 | 5d10 | - | - | MPO | LTD | 0 |
| Screen mine | 5K | 7 | 1 | 4 | 3 | 0 | 0 | - | - | - | LTD | 0 |
| Maxi-missile | 3K | 5 | 1,2 | 1 | 2 | -5 | 3d10 | FF | - | MPO | LTD | 5 |

Abbreviations at the top of table are: cost in credits, minimum hull size (MHS), availability, program level (PL), function points (FP), damage table modifier (DTM). hull damage rating (HDR), forward firing (FF), range diffusion (RD). moving player only (MPO), limited supply (LTD), and range (RA).
* Maximum hull size of 2

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## New combat table

| Weapon | Percentage chance to hit against this defense | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | No | RH | PS | ES | SS | MS | AP | AP(h) |
| Laser cannon | 75 | 60 | 75 | 75 | 75 | 25 | --- | -15 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Laser battery | 65 | 50 | 65 | 65 | 75 | 20 | --- | -15 |
| PB battery | 60 | 60 | 25 | 70 | 40 | 50 | --- | -15 |
| EB battery | 60 | 60 | 70 | 25 | 40 | 50 | --- | -15 |
| Disruptor cannon | 60 | 60 | 50 | 50 | 40 | 50 | --- | --- |
| Torpedo | 50 | 50 | 50 | 50 | 75 | 50 | --- | --- |
| Assault rocket | 60 | 60 | 60 | 60 | 60 | 60 | --- | --- |
| Rocket battery | 40 | 40 | 40 | 40 | 40 | 40 | -15 | -20 |
| Mine | 60 | 60 | 60 | 60 | 80 | 60 | -15 | -20 |
| Seeker missile | 75 | 75 | 75 | 75 | 90 | 75 | --- | --- |
| Laser piston | 60 | 45 | 60 | 60 | 60 | 15 | -15 | -20 |
| Fusion bomb | 70 | 70 | 70 | 70 | 80 | 70 | --- | --- |
| Screen mine | 60 | 60 | 60 | 60 | 80 | 60 | --- | --- |
| Maxi-missile | 50 | 50 | 50 | 50 | 70 | 50 | --- | --- |
| Tractor beam | 60 | 60 | 60 | 60 | 50 | 60 | --- | --- |

| **Weapon** | **Percentage chance to hit using gunnery skills** | | | | | |
|---|---|---|---|---|---|---|
| | **No** | **RH** | **PS** | **ES** | **SS** | **MS** |
| Laser piston | 55 | 40 | 55 | 55 | 55 | 10 |
| Fusion bomb | 60 | 60 | 60 | 60 | 70 | 60 |
| Maxi-missile | 40 | 40 | 40 | 40 | 60 | 40 |
| Tractor beam | 50 | 50 | 50 | 50 | 40 | 50 |

# Here Comes the Cavalry!

## Conventional warfare in the Star Frontiers game

*by Matt Bandy*

*Dragon* Magazine, #120, pg. 70

Some gamers (myself included) are attracted to the idea of combining role-playing with wargaming. For the most part, however, we are given only tantalizing bits of such a combination that leave us hungry for more. "The Battle of Volturnus" in Star Frontiers module SF2 is a good example. The module is great fun, but it ends too quickly. There is Alex Curylo's article, "Tanks a lot!" which appeared in Dragon issue #99 which deals with modifying civilian vehicles for combat. But would there not exist vehicles designed solely for combat purposes? This article presents• just such vehicles, based on Alex's article noted above.

**Cavalry**

Four basic divisions exist in any well-balanced military organization: infantry, cavalry, artillery, and command. This article deals with cavalry - that branch of an army organized and equipped for missions requiring a great mobility. Statistics for particularly important cavalry vehicles are listed in Table 1. Airborne vehicles are also considered cavalry. Particularly important airborne vehicles are shown on Table 2.

The effects that different types of terrain have on cavalry vehicles is important in the calculation of realistic rates of movement. These effects are shown in Table 3. Detailed explanations of terrain types are given in the Alpha Dawn expanded game rules.

**Bumping Maneuvers**

The vehicles dealt with in this article may take any action, such as bumping and slipping, that normal vehicles can. The battlewagon is an exception to this rule, as its actions may be limited by its size. Some examples of bumping seem pretty unlikely, such as a hovercycle running an explorer off the road. To correct this situation and to integrate cavalry vehicles into the game, each vehicle has been assigned a "bump number." These• numbers are listed in Table 4.

When a bumping situation occurs, the referee finds the difference between the two vehicles' Bump Numbers and multiplies that number by five. The result is added to the modified Reaction Speed score of the driver of the higher-valued vehicle, then subtracted from that of the driver of the lower-valued vehicle. A percentile-die roll is made for each driver to resolve the success or failure of the bump. Rolls of 01-05 will always indicate success, just as rolls of 96-00 always indicate failure.

For example, a hovercycle is trying to run a ground car off the road. A quick look at Table 4 shows the difference between the two vehicles' Bump Numbers to be four. The hovercycle driver's score of 63 minus 20 (4 x 5 = 20) is 43, and the ground car driver's score of 81 plus 20 (for being the driver of the higher-valued vehicle) and minus 30 (for being the vehicle bumped) is 71. The hovercycle driver makes a 1d100 roll of 26, meaning he maintained control of his vehicle. The ground car driver, however, is not so fortunate: a roll of 95 indicates loss of control. The referee now consults the Control Table in the Alpha Dawn expanded rules (page 31) and continues play.

When a driver loses control of his vehicle, standard procedures governing this situation apply. The

exceptions to this rule are the tank (ground) and the battlewagon. Due to their low centers of gravity and width, these two vehicles do not roll over. Treat a result of either "roll" or "roll and burn" as a spin.

**Armaments, Defenses, and Sensors**

Defenses and sensors, instrumental in locating and dealing with the enemy, are shown according to vehicular type on Table 5. Power screens may be of any type covered in the Alpha Dawn rules, the most common being albedo, inertia, and holographic screens. Albedo and inertia screens are detailed in "Tanks a lot!" Holographic screens are described in the following paragraph.

For use in sneak attacks, vehicles are commonly fitted with holo screens equipped with camouflage feedback loops. In certain terrains,• however, this tactic is not effective. In passage over sand dunes, vehicles tend to raise a cloud of dust that the holo screen cannot hide, creating suspicion among observers. In these instances, it is best to disguise the vehicle as something more regionally appropriate, such as a thundering herd of camels. Holo screens cannot disguise or hide a vehicle from radar or infrared sensors. Holo screens use three SEU per minute.

Armaments are shown according to which turret they occupy in each type of ground vehicle on Table 6. The same is done for airborne vehicles on Table 7.

The following section regarding bombs is the only part of this article that deviates from the rules set forth in "Tanks a lot!" That section of Mr. Curylo's article over-simplified the topic.

Bombs do damage of varying severity according to the distance an object is from them when they explode. This is illustrated on Table 8. The chance of a bomb hitting its target is equal to one-half of the bomber's Dexterity score, modified. In the event of a miss, use the Grenade Bounce Diagrams on page 24 of the Alpha Dawn expanded rules book. The asterisk represents the target and the arrow represents the direction the bomber is traveling. The distance by which the bomb misses its target is dependent upon the altitude of the bomber, as shown on Table 9.

The bomb explodes one turn after being dropped, giving the bomber that amount of time to vacate the blast radius. Failure to vacate the blast area results in damage to the bomber.

Due to the increased sophistication involved in the engineering, manufacture, and application of futuristic vehicles, a great degree of skill will be required to operate these machines. Skill requirements for operating the vehicles dealt with in this article are shown on Table 10.

**Targeting Systems**

Numerous targeting systems are in use throughout the Frontier Sector. The most common are the eye-weapon coordination (EWC), manual, and cyberlink systems. The cyberlink system is explained in "Tanks a lot!" The remaining two are described in the paragraphs that follow.

"Eye-weapon coordination" means that the gunner's eyes and weapons are linked in such a way that they move in tandem. This is accomplished through the use of a special helmet fitted with a low-power laser. The laser follows the movements of the wearer's eyes and, through a complex circuitry link, brings the weapons to bear along the wearer's line of sight. When the weapons are aimed at the target, the gunner has only to push a button, flip a switch, or pull a trigger to fire any combination of weapons. The helmet can be switched from infrared to normal vision and can be turned on or off. The gunner need not expose himself to enemy fire, for each helmet is also linked to a set of infrared and video cameras. The images these cameras receive are projected onto the inside of the helmet visor.

On all the vehicles detailed in this article, the weapons are controlled by EWC. The vehicles have one gunner operating each turret who may fire any combination of the weapons mounted on the turret in any direction on a given turn. Of course, weapons firing once every two or four turns must respect their limitations. EWC gives the user a +30 modifier to hit. The gunner receives no additional bonuses due to weapons skills.

"Manual" operation means the gunner operates the weapon by hand. This is by far the most common targeting system in civilian use. The gunner using this system must expose himself to enemy fire but will have hard cover if the weapon is mounted on a vehicle. Skill bonuses apply when using this system.

**UPF and Sathar Use**

The UPF and Sathar war machines have little use for cavalry vehicles, as they are expensive and easily destroyed by planetary defenses in any attempted landing. Nevertheless, each faction does maintain a small component of cavalry vehicles aboard assault transports, in case the attackers happen to cripple the enemy's planetary defenses.

Planetary governments, however, are a different matter entirely. Being fast and durable, cavalry is an important factor in any planetary engagement and constitutes a large part of all planetary governmental armies in the Frontier. For what it is worth, large Sathar biogenetic constructs are also considered cavalry.

On a final note, EWC systems, all weapons, and all defenses presented in this article are banned from civilian use (except by UPF Grant #739) by the Arms Proliferation Act.

**Table 1: Land Vehicles**

| Vehicle | Top speed | Turn speed | AC/DC | Crew | Parabattery | Mileage |
|---|---|---|---|---|---|---|
| Hover vehicles | | | | | | |
| Hovertank | 200 | 70 | 60/40 | 3 | 4 | 4 SEU/km |
| APC | 230 | 80 | 70/60 | 2 (20) | 3 | 2 SEU/km |
| Battlewagon | 150 | 50 | 40/30 | 5 | 5 * | 8 SEU/km |
| Ground vehicles | | | | | | |
| Tank | 130 | 100 | 70/60 | 3 | 4 | 4 SEU/km |
| APC | 130 | 100 | 60/50 | 2 | 3 | 2 |

| | | |
|---|---|---|
| | (20) | SEU/km |

* A parabattery type 5 costs 8,700 credits, weighs 400 kg, and produces 8,000 SEU.

**Key to Table 1**

*Speed*: Given in meters per turn.

*Turn speeds*: Because of their low centers of gravity, most vehicles shown here have high turn speeds.

*AC/DC*: Acceleration/Deceleration

*Crew*: Minimum number of crew members required for the vehicle to operate at maximum efficiency. Value in parentheses shows passenger capacity.

*Mileage*: The mileage properties of the vehicles are given because all the systems of said vehicles (*i.e.*, weapons, defenses, sensors, and targeting systems) as well as the engine draw power from the vehicle's parabattery. A tally of SEU used should be kept by the players or referee.

*Hovertank*: A large, armored vehicle that floats 50 cm above the ground on a cushion of air. It resembles the tanks of today sans treads.

*APC*: Armored Personnel Carrier. Both ground and hover APCs look like large, armored transports and can carry 18 passengers. These passengers can all vacate the APC in two turns via the 10 hatches in the ceiling of the passenger compartment. These hatches may be opened to serve as firing ports.

*Battlewagon*: A huge, armored vehicle wide enough to take up two lanes of a highway, and designed to carry out extremely hazardous missions individually.

*Tank*: A large, armored vehicle much like modern-day tanks in appearance and locomotion.

**Table 2: Airborne Vehicles**

| **Vehicle** | **Top speed** | Turn speed | AC/DC | Turns | Crew | Parabattery | Mileage |
|---|---|---|---|---|---|---|---|
| Attack helicopter | 600 | 100 | 120/120 | 8 | 2 | 5 | 8 SEU/km |
| VTOL fighter-bomber | 1500 | 650 | 120/120 | 6 | 2 | 5 | 8 SEU/km |

**Key to Table 2**

*Turns*: The number of 45 degree turns the vehicle can make in one game turn.

*Attack helicopter*: An armed and armored jetcopter designed to combat enemy ground forces.

*VTOL fighter-bomber*: An armored aircar with exterior weapon• mounts that is designed for high-speed bombing runs. However, it is versatile enough to hold its own in a dogfight.

**Table 3: Effect of Terrain**

| **Vehicle** | **Clear** | Broken | Rugged | Bog | Water | Highway | Hazard |
|---|---|---|---|---|---|---|---|
| Hover vehicles | | | | | | | |
| Hovertank | 1.0 | 0.8 | - | 1.0 | 0.9 | 1.2 | 0.8 |
| APC | 1.0 | 0.7 | - | 0.9 | 0.9 | 1.3 | 0.8 |
| Battlewagon | 1.0 | 0.8 | - | 1.0 | 1.0 | 1.2 | 0.8 |
| Ground vehicles | | | | | | | |
| Tank | 1.0 | 0.9 | 0.8 | 0.7 | - | 1.1 | - |
| APC | 0.9 | 0.7 | 0.3 | 0.6 | - | 1.2 | - |
| Airborne | | | | | | | |
| Attack helicopter * | 1.0 | 0.9 | 0.6 | 1.0 | 1.0 | 1.0 | 0.6 |
| VTOL fighter-bomber * | 1.0 | 0.9 | 0.5 | 1.0 | 1.0 | 1.0 | 0.4 |

* Modifiers apply only if the vehicle is within 100 meters of the surface. Above that altitude, movement is at 1.0.

**Table 4: Vehicle Bump Numbers**

| **Vehicle** | **Bump Number** |
|---|---|
| Hovercycle | 1 |
| Ground cycle | 2 |
| Hovercar | 4 |

| | |
|---|---|
| Ground car | 5 |
| Hover transport | 6 |
| Ground transport | 7 |
| APC (hover) | 9 |
| APC (ground) | 10 |
| Hovertank | 12 |
| Explorer | 13 |
| Tank | 14 |
| Battlewagon | 16 |

**Table 5: Defenses, Sensors, and Turrets**

| **Vehicle** | **Sensors** | Defenses | Turrets |
|---|---|---|---|
| Hover | | | |
| Hovertank | IR,V,SL | IRJ,S,A20 | 2 (L) |
| APC | IR,V,SL | IRJ,S,A15 | 1 (M) |
| Battlewagon | IR,V,SL | IRJ,S,A25 | 3 (L) |
| Ground | | | |
| APC | IR,V,SL | IRJ,S,A20 | 1 (M) |
| Tank | IR,V,SL | IRJ,S,A25 | 2 (L) |
| Airborne | | | |
| Attack helicopter | IR,V,SL,R | IRJ,S,ES,A20 | 1 (M), 4 (Pods) |
| VTOL fighter-bomber | IR,V,SL,R | IRJ,S,ES,A20 | 1 (M), 4 (Pods) |

**Key to Table 5**

*IR:* Infrared cameras *V:* Video cameras *SL:* Searchlight

*R:* Radar *IRJ:* Infrared jammer *A:* Armor (# of coats)

*S:* Power screen(s) *ES:* Ejection seat•

**Table 6: Armaments for Ground Vehicles**

| | Turret | | |
|---|---|---|---|
| **Vehicle** | **One** | Two | Three |
| Hover | | | |
| Hovertank | VMG,VHL | GMx6 | - |
| APC | VMG | - | - |
| Battlewagon | VMG,VHL | C,FT | GMx6 |
| Ground | | | |
| Tank | VMG,VHL,FT | GMx8 | - |
| APC | VMG,FT | - | - |

**Key to Table 6•**

*VMG:* Vehicle machine gun *VHL:* Vehicle heavy laser

*C:* Cannon *FT:* Flamethrower

*GM:* Guided missile (Type 2) *B:* Bomb (heavy)

**Table 7: Armaments for Airborne Vehicles**

| | | Pod Number | | | | |
|---|---|---|---|---|---|---|
| **Vehicle** | **Turret** | One | Two | Three | Four | Pylons |
| Attack | VHL | GMx4 | VMG | GMx4 | VMG | Bx2 |

| | | | | | | |
|---|---|---|---|---|---|---|
| helicopter | | | | | | |
| VTOL fighter-bomber | VHL | GMx2 | VMG | GMx2 | VMG | Bx6 |

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**Key to Table 7**

*VMG:* Vehicle machine gun *VHL:* Vehicle heavy laser

*C:* Cannon *FT:* Flamethrower

*GM:* Guided missile (Type 2) *B:* Bomb (heavy)

**Table 8: Bombs**

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| **Distance** | Damage | |
|---|---|---|
| **from bomb** | Light | Heavy |
| 0-20 m | 25d10 | 50d10 |
| 21-50 m | 20d10 | 40d10 |
| 51-100 m | 15d10 | 30d10 |
| 101-200 m | 10d10 | 20d10 |
| 201-300 m | 5d10 | 10d10 |
| 301-400 m | - | 5d10 |
| 401+ m | - | - |

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**Table 9: Distance of Miss**

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| **Altitude of bomber** | **Miss Distance** |
|---|---|
| Point blank | 20 m |
| Short | 50 m |

| | |
|---|---|
| Medium | 150 m |
| Long | 250 m |
| Extreme | 350 m |

**Table 10: Skill Requirements**

| Vehicle | Driver Skill Requirement |
|---|---|
| APC | Technician 1 |
| Hovertank | Technician 2 |
| Tank | Technician 3 |
| Battlewagon | Technician 4 |
| Attack helicopter | Technician 4 |
| VTOL fighter-bomber | Technician 5 |

*[Defensive screens could come in varying types, with the more powerful types being able to absorb more damage before collapsing, but possibly requiring more energy when active.]*

# The Leader of the Pack

## Leadership abilities in the Star Frontiers game

*by Steven E. Williams*

*Dragon* Magazine, #122, pg. 58

It is a Saturday afternoon, and you and a group of friends are enjoying a Star Frontiers game. Take a moment to step outside the game and observe your fellow players. Is one known for the ability to crack a joke at just the right time? Does another come alive in a situation involving a no-nonsense decision to accomplish a specific task?

Some players steer a group socially. Others steer a group toward a predetermined goal in the adventure. In real life, these types of behavior have been separated by psychologists into two kinds of leadership: social and task-oriented. This division is drawn in the Star Frontiers game universe as well, and is indicated by the PER/LDR ability pair.

A PER score, or personality score, measures a character's ability to adapt in interpersonal situations. Wit, charm, comeliness, and a sense of humor contribute to a high PER; gravy stains on a shirt and bad breath do not. All of these characteristics - both good and bad - are reflected numerically in a character's PER score.

A great use for PER lies in replacing the Carousing skill that Traveller game players miss in Star Frontiers games. To accommodate this need, the referee should roll a PER check in any situation in which a PC socializes with an NPC.

For example, consider Rico the Snake, a 20-year old Human military specialist (thug) whose PER/LDR score is 30/40. He enters a bar in an unsavory section of the city and tries to make a new friend, upon whom he hopes to unload a hot hovercycle. The referee modifies Rico's PER according to his familiarity with the setting: Since the bar is in his home city, the referee gives the roll a modifier of +20, adding an additional modification of +10 for the stranger's receptive mood (*i.e.*, slightly drunk). That gives Rico a chance of 60 (30 + 20 + 10) on the percentile dice of befriending the stranger. A 43 is rolled; Rico makes a good first impression on the stranger. The stranger tells Rico that his name is Carlos.

When the referee rolls a PER check, he should observe the table of racial reaction modifiers (Star Frontiers Expanded Rules, pg. 60). Because both Rico and Carlos are Human, there is no racial modifier. But only highly intelligent societies have eradicated stereotypes. Therefore, racial modifiers usually belong in calculations involving personality. Otherwise, the referee should restrict the modifiers to the general mood of the NPC and to the PC's familiarity with the setting.

Having gained Carlos's confidence, Rico decides to tell his new friend that he has acquired a new hovercycle. The outcome here depends on the PER as well. In addition to the ability to win friends, PER determines a character's persuasive abilities. When a PC tries to persuade a group of NPCs, regardless of whether or not he has learned Persuasion, the referee should roll

a PER check.

As a rule, a PER check should accompany any negotiations for money or seduction attempts. Successful or unsuccessful rolls do not necessarily mean success or failure in negotiations, although they may influence just how much a PC can get. Charm, or the power of personality, can swing a deal to the advantage of either participant.

Rico, rolling against the same modified chance of 60 that allowed him to rub elbows with Carlos, now tries to persuade Carlos to buy the hovercycle. The roll is 32; Carlos is interested. Unfortunately, he lacks the cash to put forth even a trifling offer. In return for 50 Cr, however, Carlos offers the name of someone who needs a hovercycle. Rico the Snake accepts the lead. He gets up to leave the bar to find his prospective client.

In meeting strangers or settling a business deal, a high PER score can be a great asset. Social grace and magnetism help characters in many situations. In a crisis, however, a different brand of leadership emerges. Measured in LDR, this type of leadership involves the no-nonsense communication taught to military officers.

Task-oriented leaders are less interested in cordial relations than are social leaders. Whether Human flesh or Vrusk hide is on the line, danger affords no time to crack a joke. While in command, task-oriented leaders are more direct and more controlling. In fact, a good task-oriented leader may have a lousy personality.

So how does recognizing task-oriented leadership spice up the game? By way of rolling against the value of LDR, characters can advise others under pressure.

Suppose Rico and Carlos, while carousing in the bar, find themselves caught up in a brawl. Three upset Yazirians have started a fight. Rico, who holds Skill Level 3 in Martial Arts, yells, "Slap them in the eyes - they're sensitive!" Rolling against his LDR score of 40, Rico rolls a 29; he has told Carlos, who knows nothing about the martial arts, what to do. In the melee phase, Carlos tries to whomp his aggressor's reflective goggles. He• succeeds and escapes being hurt. In this example, Rico has lent his Martial Arts skills to Carlos.

Translated into figures the referee can understand, the lending of a skill requires verification that the prospective listener can hear the speaker and a LDR check for the speaker. If both conditions are met and the LDR check succeeds, the listener borrows the skill. In all cases, the borrowed skill is received at Skill Level 1 on a temporary basis. In the case of Rico slapping the eyes of the Yazirian, the temporary basis was one round.

Keep in mind several limitations for lending and borrowing skills. A PC must reach Skill Level 2 in a skill before being able to lend it. Skills that may be shared include only military skills and the most basic in the remaining categories (such as Operating Computers, First Aid, Operating Vehicles, Stealth, and Concealment). Furthermore, a skill is received at Level 1 despite the expertise of the lender. It is impossible for a PC to make everyone nearby an expert in these skills.

Consider another application of skill-lending at the scene of the barroom brawl. Eventually, the fighting subsides and the Yazirians stumble out the door. Rico has suffered 20 points of damage from being clubbed with a Yazirian paw and a broken bottle. Even though Rico

possesses First Aid at Skill Level 2, he cannot perform First Aid on himself; that skill can be performed on others only. But he is still conscious and decides to lend First Aid to Carlos. To succeed, Rico must roll less than his LDR score: 40. He rolls 84; as a result, he has failed to communicate the remedy effectively. Carlos, who finds himself unable to set the bandage, could try again, but getting his friend to the hospital might be more helpful.

Skill-lending, though limited in itself, can really improve an adventure on the whole by encouraging players to cooperate. An injured medic can advise another person on treating wounds. A vehicle specialist can coach non-drivers in the ways to use various kinds of transportation. By pointing out solid cover, a military character can help his friends evade enemy fire. Using LDR in this way justifies characters of different interests and professions coming together in the first place.

# The Whole-Earth Ecology

## Building a better alien in the Star Frontiers game

*by Danny Kretzer*

*Dragon* Magazine, #125, pg. 73

( or possibly *Dragon* Magazine, #123, pg. ?)

*Glakket and his Yazirian companion slashed their way through the dense jungle. Suddenly, a gigantic bird swooped down, claws flashing. In an instant, the Yazirian was gone, leaving the Vrusk explorer alone…*

*"Whaaaaat?!" cried the player. "How could a giant-sized bird even budge something with a Yazirian's mass? And how could it find room to fly, much less swoop, in the middle of a dense jungle?"*

*"Well, I guess there was a break in the branches," replied the referee, nervously ignoring the first question.*

*"This jungle is miles in diameter! Why would a creature spend time flying above it in hopes that another creature would be in one of the few clearings at the same time it flew over?"*

*The referee simply shrugged.*

*"Well, where is its natural habitat?"*

*"Um…in the mountains to the south. But sometimes it goes hunting over the woods," said the referee.*

*"So, it does fly over this extremely dense jungle in hopes that a meal will conveniently pass through the clearings. But it's a fact that birds need to eat their weight or more in food each day, so there's no way that a giant flying bird could survive in these circumstances and have strength to pick a hireling out of a jungle. In real life, that bird would not have the strength to lift its own head off the ground due to lack of nourishment!"*

*The referee sighed. Perhaps it was time to try a fantasy game. No one ever questioned giant flying birds there.*

All too often in Star Frontiers games, I see creatures that are so poorly adapted to their environment that players begin to wonder how these creatures manage to survive. Referees create exotic plants and animals which could never really live together in one environment. The presence of unrealistic alien ecologies often• causes players to wonder if there is any special reason for the flaws they perceive. The first things players will suspect is that Sathar may have tampered with the ecology of the planet, sending the PCs off the track of the actual adventure in search of a Sathar base. Keeping the game on track and keeping the game balanced and believable are good reasons for a well-planned ecology.

When designing other-worldly creatures, the referee should add the following guidelines to those given in the Star Frontiers Expanded Game Rules. Note that these are very general guidelines, and numerous exceptions could exist for each such suggestion.

**Appearance**

Creatures often have the same colors on their dorsal sides as their surroundings ("dorsal" means the back of a creature), with white or pale colors on their ventral sides (*i.e.*, the underbelly of a creature). Many small creatures, such as insects, are brightly colored when concealment is of minor concern or color is important for social identification. How well any natural camouflage works is completely up to the referee, though it should usually be helpful.

Consider, too, the location of a creature's eyes. As a general biological rule, predators have eyes on the fronts of their heads (to coordinate their attacks with binocular vision), and their prey have eyes on the sides of their heads (to detect predators over wide visual areas). The location of the eyes helps the referee determine how easily a creature can be surprised.

Nearly every mammal has fur or hair, serving as insulation for the creature and if thick enough, as armor (to a limited extend). Fish, birds, and amphibians have no fur, but the referee may wish to have lizards, for example, grow fur in arctic regions. Some dinosaurs are believed to have had fur or feathers.

**Physical Form**

Certain creatures might not be completely solid in form. Invertebrates such as the slug, worm, jellyfish, and medusa have no rigid internal structure; some creatures could almost be liquids. Such creatures would usually dwell in oceans or other mediums which would support their weight.

**Attack Forms**

Almost all creatures have one or more methods of attack. Carnivores would usually attack with jaws or claws, and sometimes with a tail slap or sting. Herbivores generally attack only with limbs (like a horse's hooves) or by ramming and goring (like a rhino's horn). Sometimes, if large enough, herbivores can trample. Herbivores may bite but rarely do so by preference.

Plants that attack might have mouthlike leaves like those on a Venus flytrap. Alien plants would likely "attack" with thorns (perhaps poisoned) or with poisonous spores.

The referee should feel encouraged to create brand new attack forms, such as an acid spray, special venom, or maybe a sonic boom. However, attack forms should be suited to the creature using them, and should reasonably be expected to work against the creature's worst biological enemy. Avoid completely ridiculous attack forms unless you can find an analog for them in Earthly biology.

**Defense Forms**

All creatures have one form of defense or another. Herbivores and omnivores usually have more effective defenses since they need them the most. Defense forms include protective shells, thick hides, heavy fur, increased speed, and sharpened senses. The referee should

decide what bonus the creature should get from a defense; for example, a creature with a fur coat 5 cm thick might get a bonus of -15 to the attacker's hit roll with melee weapons, and it could take 5 points off the damage from non-energy weapons. Large carnivores living on a planet that has no intelligent weapon-wielding predators will likely not be well defended - unless they need protecting from their preys' attacks or from other carnivores.

**Speed**

Small creatures would usually be fast or very fast. The referee should keep in mind that defenses like armor plating or heavy fur impede the speed of a creature and should only be given to large creatures that usually move slowly anyway.

Herbivores that are medium- to small-sized should never be any slower than medium speed, unless the predators are equally sluggish or unless the herbivores have a powerful defense form. Likewise, this rule should apply to carnivores. Giant- and large-sized creatures are usually slower (unless they can fly), as are herbivores of this size, since they have more weight to move around.

**Flying**

Carnivorous flying creatures usually hunt prey on the open ground or on the surface of water. The terrain over which they are found usually helps determine their size. In the opening instance with the Yazirian-eating bird, the creature's size would impede its flight capabilities through the branches to catch its prey. In the woods, flying carnivores should never be larger than medium at best, and only that large in extreme cases. Larger flyers generally stick to the mountains or open areas. Smaller flyers will stay away from exceptionally windy areas, since they would be blown around like leaves. And please note that even the largest creatures in existence today would be unable to lift a medium-sized dog, much less a grouchy Yazirian with full combat/exploration gear!

**Numbers**

Tiny and small creatures are often found in large groups if they are social, especially if they have attack forms which are combined to be dangerous to large creatures. Medium-sized creatures might also be found in packs and herds. Medium carnivore numbers vary, since some travel in packs (like wolves) while others will hunt alone (like mountain lions). Hunting techniques may thus dictate group sizes.

Large- to giant-sized creatures might be found in smaller groups if they are herbivores, but carnivores will rarely be found in groups larger than packs or prides of eight individuals or less. This is because large carnivores that must hunt and bring down prey cannot stand great competition for food. Imagine the food requirements of a herd of tyrannosaurs!

On a planetary scale, there should be a great many small creatures serving as prey, a good number of medium prey and small predators, few large prey and medium predators, and very few large predators. The referee should remember this when he is making a random encounter table and make large predators a less likely encounter. This guideline, the food-chain ratio, is rarely applied but is critical if a realistic ecology is desired.

## Special Abilities

When a referee decides to give any creature a special ability, he should take into account the following: size, special attacks or defenses, intelligence, and dietary type (carnivore, herbivore, or omnivore). A large intelligent carnivore with a poison sting should have few and limited (if any!) special abilities. A small herbivore of low intelligence without any attack or defense to speak of can have more and better special abilities. Herbivores or omnivores that are preyed upon will usually have special abilities keyed toward defense or camouflage.

## Restrictions

Most, if not all, creatures have some type of restriction. If a carnivore has a restriction (which it should), they its prey is bound to take advantage of it. To give a modern example, killer whales cannot survive on land. When one attacks a group of penguins, they quickly swim to land or a floating ice floe. This prevents the whale from completely wiping out the penguins, though a few penguins are usually caught anyway, thus allowing the orca to survive; both prey and predator benefit from the restriction, since a loss of prey means a loss of predators. The restrictions do not always have to be as obvious as this example. Restrictions should never allow every member of the prey's group to survive, or else the predator dies out. Of course, clever characters will observe the restrictions of different creatures and use them in their favor.

## Intelligence

Almost every highly intelligent creature I have seen in any game adventure has been roughly man-sized and humanoid in design. Just because it happened that way on Earth does not mean it has to be that way on other planets. I have never seen a tiny creature or an aquatic or fishlike creature be the most intelligent race on a planet. And look at Vrusk and Dralasites! Challenge your players with a civilization of tiny lizard creatures that can talk and fight.

I have also rarely seen a newly created race of intelligent aliens that have developed firearms or motor-powered transports. It is likely that sooner or later the UPF will uncover a planet with beings that have developed technology to a point where they have sophisticated inventions and weapons or even early space exploration. Hours of exciting role-playing are possible when a group of PCs uncovers a technologically advanced planet and tries to get them to join the UPF. For example, a group of PCs and NPCs exploring a remote star system in a game I ran discovered a crude exploration satellite with primitive photography equipment attached to it. This led them to a medium-sized planet, second from its sun. When they passed over it, they discovered the world was covered with settlements - some as large as cities. When they landed, the PCs met the planet's military forces. Once their poly-voxes were adjusted to the aliens' language and they had established•  their peaceful intentions, they were brought before the world's ruling council. This was an interesting point in the game, as the PCs discovered that they had allies and enemies on the council. They worked to convert those who were opposed to them. In the end, after much intrigue, the PCs got the planet to join the UPF. This got the PCs promoted in the UPF fleet. More important, it gave the players hours of fun. Now they knew how the aliens who come to Earth in the movies might feel!

The above example is one of several adventures in which I had the native aliens possess firearms. On another occasion, the Sathar got to the planet first and armed the natives, giving

orders to kill anyone in UPF uniforms. To further complicate matters,• the Sathar also told the natives that Sathars were gods who had to be obeyed. It was a challenge for the PCs to take on a bunch of armed alien religious fanatics who were not talking and could easily beat the PCs in combat.

**Parasites**

Parasites are found on all planets. These are creatures that feed on larger creatures called hosts. Parasites have many ways of entering or attaching to a host; one way is through the digestive system (swallowing). Once inside, the parasite feeds off one or more of the host's natural features (blood, flesh, etc.). The parasite's feeding should affect the host in at least one way; for example, a parasite might lower a character's Reaction Speed by 10. The parasite should rarely be capable of killing its host, since this is against its best interests. If the host dies, then the parasite dies with it. Parasites should be a minor annoyance to the PCs and not a fatal threat.

**Microorganisms**

Earth is crawling with bacteria and other organisms that are microscopic. It seems very likely that other planets would be host to similar organisms. Only a relative few microorganisms on Earth cause harm to humans; this resistance evolved over millions of years of exposure to these organisms. However, microorganisms on planets that humans or other PC races have never visited before have a greater likelihood of being harmful to PCs (remember *War of the Worlds*, by H.G. Wells?). I have only seen one occasion on which a microorganism was a threat to the PCs in a Star Frontiers game adventure.

Microorganisms can become a very interesting problem for the PCs and can affect them in several ways. The first and most obvious is to have an effect similar to poisons, diseases, or infections, as shown in the Expanded Rulebook. The second is to give exposure to the microorganisms a bizarre effect, such as causing insanity or psychological deterioration. The third and most terrifying effect is (obviously) swift onset of illness and death. This should only be used when the bacteria are in an area in which PCs would not normally encounter them: a depressurized drifting hulk, for example. If this type of effect is used, the referee may wish to introduce new anticontamination equipment to the campaign. The effect should usually become obvious upon exposure to NPCs or lab animals (do not kill off PCs too rapidly). In a recent adventure I ran, the PCs discovered a hulk full of dead bodies. When they brought a corpse back to their own ship, a careless NPC exposed himself to the body and its bacteria, and subsequently died. The PCs spent the rest of the adventure fighting faulty equipment and each other in an attempt to find a cure for the disease.

The last type of effect that microorganisms can have is to damage equipment, weapons, or even starships. This can leave the PCs stranded on a planet if the referee chooses. *The Andromeda Strain*, by Michael Crichton, makes useful reading.

Microorganisms do not have to affect all races. In fact, there may be a type of microorganism that only affects the Sathar. The UPF would want to get their hands on it so they could use it to make new weapons (like grenades) for the Star Law Rangers to use against their foes. Corporations may also want to market a new pesticide and send PCs to collect samples.

The native animals on certain planets should have a very small chance of being affected by the microorganisms of their own planet since they probably would have developed immunity. But, if exposed to PCs or brought to another planet, aliens may die from contact with seemingly harmless microorganisms (again, as in *War of the Worlds*).

Microorganisms are almost always found in great numbers, and they usually move by wind or water currents. Some microorganisms cause harm only under certain circumstances. For instance, an alien bacteria may only take effect when inhaled, but attach itself to skin and be carried by the victim even if he is wearing a gas mask. Other microorganisms are only effective when they are swallowed or enter the bloodstream through a cut.

Not all microorganisms have to be dangerous. Some may even act as a cure for the damage done by others. They can even be a mixed blessing, like one that raises a PC's Stamina but impedes his vision ("Hey, who turned out the lights?").

**Lairs**

In nature, a lair usually serves as a place to raise young, sleep, and eat food. Some creatures may store items that they consider valuable in their lairs. If the creature lives on a planet where there are large deposits of a valuable mineral, it may collect that mineral and even compete with prospecting PCs for control of a mineral deposit. Unintelligent aliens might keep valuable items for odd reasons, like the Australia bowerbird that builds a nest of shiny objects to attract female bowerbirds.

**Uses**

When the referee creates a creature, he should decide if there are any possible ways in which PCs could use that creature. Wild animals could be ridden by the PCs or used as pack animals on overland trails. The referee should decide how fast a creature moves while burdened with a rider or gear (or both), and what penalties are assessed against encumbered beasts.

A creature can also be used for food. Some creatures that are preyed upon (most notably insects) have toxic chemicals in their bloodstreams that are most effective against their natural predators. These poisons may or may not affect the PCs.

Intelligent creatures may act as guides or mercenaries, but the PCs must have something of value with which to pay the creatures. Credits are not likely to be accepted by aliens who have no contact with the UPF!

**Summary**

By using the guidelines above, referees should be able to create more realistic alien lifeforms. The referee should use the following rules in particular:

1. There should be more weaker creatures than powerful ones in a world's ecology.
2. The ecology should allow both predator and prey to survive.
3. Intelligence should not be restricted to man-sized creatures, nor should technology be restricted.
4. Most important, just because something has not happened on Earth does not mean that it

cannot happen on other planets. In other worlds, the referee should not allow his imagination to be limited by the way things are here on Earth. If a creature is believable and consistent in its own environment, the game will be improved.

*[Note: One excellent reference book for ecology- and alien-builders is Dougal Dixon's* After Man *(New York: St. Martin's Press, 1981), which depicts a future ecology on Earth, 50 million years after the extinction of mankind. It is hard to beat for imagination and detail. - Ed.]*

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# A Shot in the Arm

## A special damage system for Star Frontiers games

*by Jason Pamental and David Packard*

*Dragon* Magazine, #124, pg. ?

The combat system used in the Star Frontiers game is generally realistic and simple, but the damage system lacks that realism. You never see anyone with a broken limb, a wound, a concussion, etc. The only damage taken is to one's Stamina. The following rules make the damage system more realistic and provide information about broken limbs, wounds, and cuts, and how this damage can be healed. It also provides realistic damage to robots, computers, weapons, and equipment. Vehicle damage is already covered in the game rules.

**The System**

Each character has a percentage chance to cause special damage to an opponent when that character performs a "to hit" roll. This chance is figured out by the formula: 3% + (skill level X 2), where the skill level refers to the appropriate weapons skill. For example: Fl'remp, a female Vrusk, fires a laser pistol at a Human. She has a level 4 Beam Weapons skill, so her chance to cause special damage is 11%. She rolls a 06 on her "to hit" roll (less than her chance), so she has scored special damage. A character can add 1% to his special-damage chance for each round spent aiming at a target. A maximum of 10% may be added this way. If a character's chance to hit an opponent is less than the chance to cause special damage, then special damage cannot be scored.

After a character has caused special damage, the player must find out the type of damage done (this special damage is in addition to normal Stamina-reducing damage). To determine damage, the player rolls 1d10. Add or subtract any applicable modifications to this roll, as shown on Table 1. The referee may modify this number with modifications not found on Table 1 as seen fit. Note that a target in an activated defensive screen cannot take special damage. There are two damage-type tables: one for living beings and one for robots. Computer damage is explained elsewhere.

To read the damage tables, go from left to right. The first column on the left is the number a player rolled. The next column shows how much extra damage is taken to the target's Stamina score. The third shows what kind of special damage is taken, and the final column shows how many pieces of equipment have been destroyed. There is a 10% chance that a weapon will be destroyed instead of equipment. The victim's player can pick which piece of his equipment has been destroyed. If the character has more than one unit of a certain type of equipment, then two units of the equipment are destroyed (two clips, two rations, etc.).

Special damage need not only occur due to an attack using weapons. Vehicle accidents, falling, and fires are just a few of the other possibilities, although this article is only concerned with weapon-related damage.

The referee should keep track of damage for NPCs, creatures, robots, and computers, while players should keep track of their own damage themselves (unless the referee does not trust them). If the referee feels that damage to a character might greatly lessen the other players' chances for completing their mission, then he may alter the damage taken by that character.

**Computer Damage**

Computer damage is easy to determine because a computer has no major moving parts. Take the modified 1d10 roll generated above and divide by 5, rounding down; this represents the number of programs which have been destroyed. The lowest-level programs are destroyed first, highest level last. If the computer has a Computer Security program which has not been destroyed, then any alarms it controls are set off.

A computer may be repaired, but the programs may not be brought back unless a computer specialist knows them (as per the Computer skill). A computer which has more programs destroyed than it possesses will explode, causing 6d10 damage points to anyone within 5 meters of it (Reaction Speed check defense). A computer destroyed in this way cannot be repaired.

**Healing Special Damage**

Adventurers may find it necessary to heal damage caused to themselves. To heal a wound, all Stamina points of damage caused by the attacking weapon must be healed, and 1d10+1 hours of game time must pass until penalties caused by the wounds are nullified.

A cut may be healed as a wound, but it takes 4d10 hours until the penalties are nullified.

A deep cut may be healed in this way, but it takes 1d10+1 days until those penalties are nullified.

A broken limb may be mended if all the Stamina points are healed and the limb is set in a cast or splint. If it is not set within two hours, the limb does not heal until the character enters a hospital (costing 50 Credits per day for 3d10 days). A limb set in a cast or splint takes 3d10+1 days until the penalties are nullified.

A concussion may be mended if all Stamina is healed and the PC rests at least 10 hours per day for 1d10 days. Hospital fees for this time amount to 200 Credits.

The back wound is special. It may be mended if all Stamina is healed, major surgery is used to repair paralyzation damage, and the PC rests for 2d10 hours. Otherwise, it heals in 3d10 days. A hospital charges 200 Credits for these services.

A Dralasite cannot have a broken limb, but it loses the ability to grow one until the spot heals where it was hit. This healing takes 3d10 days. The Dralasite still suffers the same penalties as if it had broken limbs.

If a character has multiple damage, such as a chest wound and a broken leg, it still takes 1d10+1 days for the leg to heal. Healing times are not cumulative.

A Vrusk with a damaged arm requires a 1d10 roll to find out which arm was hit: 1-5 is the left

arm, 6-10 is the right.

A Dralasite is not able to absorb a paralyzed leg until it is healed. Because of this, the Dralasite suffers the special penalties caused by the paralyzed limb.

An electrostunner does not break a limb. If a broken limb is indicated because of an electrostunner or other electrical damage, then the limb has excessive nerve damage instead. The same penalties occur, and the nerve damage may be healed the same as would a broken limb.

**Repairing a Robot**

Repairing a robot is easier that healing a living creature. A character with Robotics skill is required.

Damage to a robot takes 2d10 minutes to repair. A broken part takes 5d10+5 minutes to fix, while a cracked item takes 4d10+5 minutes. Add 10 minutes to the repair time for each joint which is damaged or broken, and 20 minutes if the brain casing has been hit. If the brain casing and the body have been cracked, add 1 hour to the repair time.

**Table 1: Special Damage Modifiers**

| **Modifier** | Reason |
|---|---|
| +1 | Short range |
| +2 | Point blank range |
| +2 | Explosive weapon |
| +1 | Careful aiming * |
| +2 | Firing a burst |
| +1 | Per 5 SEU used by weapon |
| +1 | Target hit twice in same turn |
| +1 | Small target |
| +2 | Tiny target |
| +1 | Per skill level with weapon |

| | |
|---|---|
| +2 | Per Robotics or Computer skill ** |
| -1 | Large target |
| -2 | Giant target |
| -1 | Long range |
| -2 | Extreme range |
| -1 | Moving target *** |
| -2 | Suit-type defense |
| -2 | Target is underwater |
| -2 | Target makes RS check |

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* +1 is added for each round spent entirely aiming, up to the max of +5.

** This applies only to attacks against robots or computers, respectively.

*** This modifier is counted only once, even if both attacker and defender are moving in any manner.

**Table 2: Weapon Modifiers**

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| **Weapon type** | **Modifier** |
|---|---|
| Projectile pistol | +2 |
| Projectile rifle | +3 |
| Heavy projectile | +5 |
| Beam rifle or pistol | +3 |
| Heavy beam | +4 |

| | |
|---|---|
| Gyrojet pistol | +2 |
| Gyrojet rifle | +3 |
| Heavy gyrojet | +6 |
| Short melee * | +1 |
| Long melee * | +2 |
| Fist | +1 |
| Grenade ** | +4 |
| Other thrown weapon | +2 |
| Bow or crossbow | +2 |
| Tooth, claw, etc. | +2 |

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* Whips, sword, polearms, spears, chairs, and big clubs are long; axes, bottles, small clubs, knives, nightsticks, pistol butts, shock gloves, etc., are short.

** Only a fragmentation or incendiary grenade can cause special damage. Each counts as an explosive weapon on Table 1.

**Table 3: Damage Results Table: Living Beings**

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| **Modified 1d10 roll** | Stamina damage | **Special damage** | **Units of lost equipment** |
|---|---|---|---|
| 1 or less | 0 | None | 0 |
| 2 | 5 | Chest wound | 0 |
| 3 | 5 | Leg wound | 0 |
| 4 | 5 | Arm wound * | 1 |

| | | | |
|---|---|---|---|
| 5-6 | 8 | Shoulder wound * | 1 |
| 7 | 9 | Arm wound ** | 1 |
| 8 | 10 | Head wound | 1 |
| 9-10 | 10 | Leg broken | 1 |
| 11 | 15 | Chest deeply cut | 1 |
| 12-13 | 8 | Arm broken * | 1 |
| 14 | 8 | Arm broken ** | 1 |
| 15-16 | 15 | Abdomen deeply cut | 1 |
| 17 | 15 | Back wound, leg paralyzed | 2 |
| 18 | 12 | Shoulder deeply cut ** | 2 |
| 19 | 15 | Side deeply cut | 2 |
| 20-22 | 30 | Head concussion | 2 |
| 23+ | 1,000 | Head removed, body falls apart, target vaporized, etc. (pick one) | 5 |

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* Secondary side (*i.e.*, the left side if on a right-handed person).

** Primary side (*i.e.*, the right side if on a right-handed person).

**Special Damage Effects**

*Chest wound*: -5 to hit.

*Leg wound*: -3 meters/turn on movement

*Secondary-side arm wound*: -5 for firing rifles, can only fire one weapon, -10% for doing tech, robotics, medical, demolitions, or computer skill.

*Primary-side shoulder wound*: -10 for firing rifles, same other modifiers as a secondary-side arm wound.

*Primary-side arm wound*: -30 to hit, cannot use rifles, -15% on above-mentioned skills.

*Head wound*: -5 INT/LOG, 50% chance to be unconscious for 1d100 minutes.

*Leg broken*: Only 2 meters/turn movement.

*Chest deeply cut*: -10 to hit, -5 DEX/RS.

*Secondary-side arm broken*: No rifles can be fired, -10% to all skills mentioned for a secondary-side arm wound, may only fire one weapon.

*Primary-side arm broken*: Same as with secondary-side arm broken, but with -25% to all above mentioned skills, -10% to hit with all other weapons.

*Abdomen wound*: -3 meters/turn on movement, -5% to hit with all weapons, -8 kg on limit for carrying items.

*Back wound, leg paralyzed*: Only 2 meters/turn movement, -15 kg for carrying items.

*Side deeply cut*: -8 DEX/RS, -10 kg for carrying items.

*Head concussion*: -10 INT/LOG, -5 DEX/RS, 75% chance to be unconscious for 1d10 hours.

*Dead*: Dead beyond a doubt, no chance of revival.

**Table 4: Damage Results Table: Robots**

| **Modified 1d10 roll** | Stamina damage | **Special damage** | **Units of lost equipment** |
|---|---|---|---|
| 1 or lower | 0 | None | 0 |
| 2 | 5 | Body damage | 0 |
| 3 | 5 | Leg damage | 0 |
| 4 | 5 | Arm damage | 1 |
| 5-6 | 8 | Arm joint damage | 1 |
| 7 | 9 | Arm joints damage | 1 |
| 8 | 10 | Brain casing damage | 1 |
| 9-10 | 10 | Leg broken | 1 |
| 11 | 15 | Body cracked | 1 |

| | | | |
|---|---|---|---|
| 12-13 | 8 | Arm broken | 1 |
| 14 | 8 | Arm joint broken | 1 |
| 15-16 | 15 | Brain casing cracked | 1 |
| 17 | 15 | Movement center damaged | 2 |
| 18 | 12 | Arm joints broken | 2 |
| 19 | 15 | Body and brain casing cracked | 2 |
| 20-22 | 30 | Brain casing broken | 2 |
| 23+ | 1,000 | Explosion (cannot be repaired) | 15 |

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**Special Damage Effects**

*Body damage*: -5 to hit with weapons because of internal damage

*Leg damage*: -5 meters/turn on movement (unless robot has alternate movement system, such as rocket movement).

*Arm damage*: Attacker can choose attacked arm or tentacle, -9 to hit with any weapon held in that arm.

*Arm joint damage*: -14 to hit with a weapon in that arm, -2 damage for melee attacks.

*Arm joints damage*: No weapons may be fired from that arm, no melee attacks.

*Brain casing damage*: 50% chance of robot being stunned for d100 minutes (even if A-S implant is installed), -5 to hit with all weapons, 20% chance of malfunction. All robots have brains, but a noncybernetic robot's brain is a computer.

*Leg broken*: -10 meters/turn on movement, -5 meters/turn to movement using alternate movement system because it also has been hit.

*Body cracked*: -10 to hit with all weapons, -5 meters/turn on movement, 20% chance of a malfunction.

*Arm broken*: No weapon can be fired from that arm, -5% to chances to repair.

*Arm joint broken*: Same as arm broken, but a -25% to chances to repair it.

*Brain casing cracked*: Stunned for d100+20 minutes, 50% chance of being deactivated, -10 to hit with all weapons, 35% chance of a malfunction, -30% to chances to repair it.

*Movement center damaged*: Robot cannot move, -30% to chances to repair it.

*Arm joints broken*: No weapons can be fired from the arm, -20% to chances to repair it.

*Body and brain casing cracked*: The same effects as body cracked and brain casing cracked combined. All damage and penalties are cumulative.

*Brain casing broken*: Automatically deactivated, -20 to hit with weapons, -20 meters/turn on movement, 55% chance of malfunction, -50% to chances to repair.

*Explosion*: Everyone within 10 meters takes 7d10 damage (RS check defense).

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# A Second Look at Zebulon's Guide

**Corrections, clarifications, additions, and answers.**

*by Kim Eastland*

*Dragon* Magazine, #125, pg. ?

Some time ago, I had the pleasure of designing Zebulon's Guide to Frontier Space, Volume 1, the first addition to the STAR FRONTIERS game rules in many years. For those STAR FRONTIERS game fans who have picked it up, here are a few comments and corrections for that tome.

**Preface:** The preface mentions "Bizarre" in its first full paragraph. This is the second largest continent on the planet Faire in the Capella svstem out in the Rim. Its largest city is Minzii.

**Contents Page:** Under the Tables listing, the Skill Costs Table is actually on page 9, not 10. The Equipment Tables are actually on pages 88. 89, and 90.

**Page 1:** The first sentence of the Humma's special ability to spring charge should read, "A Humma can spring up to 25 meters horizontally from a standing start and, if it lands within two meters of an opponent, come to a dead stop and make a free melee attack against the opponent. This attack is in addition to normal actions or attacks that turn."

**Page 3:** The Mechanon pictured is a propaganda illustration issued by the planet Mechano itself to better the Frontier's image of Mechanons. In reality, Mechanons come in a variety of different shapes and sizes, and they are much deadlier looking than this cartoon version.

**Page 5:** Delete the Dexterity Modifier column on the Ability Score Table. It has been replaced by the Dexterity Modifiers Table on page 38. On the Racial Ability Modifier Table, the PER/LDR modifiers for Osakar and Humma are -10

**Page 6:** The last sentence in the last paragraph on this page should begin "A positive shift makes.." Delete the previous "It does make."

**Page 7:** The Techex profession skill listed as "Machinery: Operate" is actually "Machinery Operation."

**Page 9:** The second paragraph of the last column states that skipping levels is not allowed, even if the character has enough experience to do so. This means that though a character has enough experience points (XP) to directly jump from second to fourth level in a skill, he must spend at least one adventure (of a substantial nature) with the skill at third level before he can spend the rest of his XP to achieve fourth level.

**Page 11:** With regards to the Medical section, note that when a character has a disease, infection, infestation, poison, or radiation introduced into his svstem, damage does not begin to occur until the turn following the introduction. All other forms of damage (weapons damage, fire, failing, etc.) occur instantly, in the same turn they are introduced to the character. In the Robotics section, note that roboprogs are not interchangeable with maxiprogs or bodycomp

progits.

**Page 12:** The second to the last sentence in the Weapons paragraph should end ". . . and his result area can never be greater than the Blue area unless he rolls a 01-02 (see Automatic Rolls on page 29)."

**Page 13:** The skill check for Camouflage is secretly rolled by the referee. This is because the character- will not know if he is successful until someone else spots or misses the camouflaged structure or item.

**Page 18:** The fourth sentence of the Hypnosis skill should read "(If the hypnotist is a Sathar, his skill level is eighth, but an unwilling victim is allowed a Logic check in addition to the normal Intuition check.)" This change applies as it is now widely known that Sathar can hypnotize. Also, the prerequisite skill for the Machinery Repair skills is Machinery Operation.

**Page 19:** The first sentence of the first paragraph should read: "Techexes who operate these devices for a living must have Matter Transferal Devices skill level 9." The skills Medical Treatment: Disease, Medical Treatment: Infection, and Medical Treatment: Infestation all have identical second and third paragraphs. The words "98-00 or " should be deleted from the beginning of the second paragraph in each, and the words "01-02 or " should be deleted from the beginning of the third paragraph in each.

**Page 20:** The skills Medical Treatment: Poison and Medical Treatment: Radiation both have identical second and third paragraphs. 'The words "98-00 or " should be deleted from the beginning of the second paragraph in each, and the words "01-02 or" should be deleted from the beginning of the third paragraph.

**Page 21:** The fourth sentence of the Medical Treatment: Wounds 11 skill should read: "For every 10 points of damage (or fraction of 10 points) that are healed, a full turn of treatment time and an additional dose of biocort are required"

**Page 22:** The Pumping Federanium's fifth sentence should end: ". . . mav have trouble fitting into suits and equipment normally designed for his race."

**Page 23:** In the Robotics: Robopsychologist section, note that any robopsychologist who attempts to alter the functions or mission of a Mechanon suffers a -8 CS modifier.

**Page 24:** With regards to the Stealth skill, note that the skill check for a character using Stealth to sneak up on someone must be made every 30 meters if the user is moving slowiv or 15 meters if the user is moving quickly. The skill check for using Stealth to "tail a suspect must be made every 30 minutes of stalking.

**Page 29:** The beginning of Step 2 of the Ranged Weapon Combat Procedure should read: "Apply all appropriate combat modifiers, Dexterity modifiers, and shift columns to the left and/or right." The first sentence of Step 3 should read: "Roll percentile dice and locate the final result on the Resolution Table' "

**Page 31:** The second sentence at the top of column one should read: "Opportunity shots are like Careful Aim shots; the character can do nothing else that turn, but an Opportunity shot cancels the negative CS modifier for target movement." The beginning of Step 2 of the Area

Effect Weapon Combat Procedure should read: "Apply all appropriate combat modifiers, Dexterity modifiers, and shift columns to the left and/or right." The first sentence of Step 3 should read: "Roll percentile dice and locate the final result on the Resolution Table' " The fourth sentence of Step 3 can be deleted altogether, as this information was spread throughout the Grenades and Missiles sections. In the Skills section, note that the distance a character can throw a grenade is equal to his Strength score plus his Dexterity score, divided by four; i.e., (STR + DEX)/4.

**Page 34:** The abbreviation "pS" indicates damage per each SEU used. The "Rate" note should be changed to " ROF," the "Defense Type" note should be changed to "Effective Defenses:" and the "M#" note should be changed to "Msl#."

**Page 35:** The effective defense against the acid foam grenade should read "Salgel" not "Basegel"

**Page 36:** The "Range" column heading for missile warheads should be "Blast Radius:' The blast radius of a sonic missile warhead is " 6 X Msl# " Additionally, the Primitive Melee and Thrown Weapons table should list Spear damage as 14, not 4.

**Page 41:** The last sentence for the Channeling I and Channeling II disciplines should be deleted and replaced with the sentence: "Each successful discipline use lasts 3 turns" Also, the Confusion discipline can only be used to affect a single target.

**Pages 48-50:** The names of the UPF Space Fortresses can be added to the tables of planets:

| Planet | Fortress |
|---|---|
| Moonworld | Defiant |
| Kdikit | Kdikit |
| Morgaine's World | Gollwin |
| Pale | Pale |
| Gollywog | Redoubt |

**Page 50:** The second planet in the Crvxian system of the Rim Coalition Planetary listing is "T'zaan" (delete the "(B)T" note).

**Page 65:** The warheads come in different sizes for each missile type and are not interchangeable.

**Page 69:** Sonic screens or sonic headphones provide full protection from the effects of marble grenades unless three or more are detonated at the same time. The third marble grenade, and all others following it which detonate in the same turn, are then treated as polyhedron sonic grenades for defense purposes.

**Page 73:** The paragraph at the end of the Combining Hardware and Maxiprogs section lists various combinations of maxiprogs that a Level 2 Mainframe Computer could have. Delete the words "or one Level 4 maxiprog" from the example. As is stated later, a mainframe computer cannot run a maxiprog of greater level than the computer level.

**Page 90:** There are a few mistakes under the Energy Use or Max. Damage Absorbed column

of the Defenses list. The Simp Screen should read " 1 SEU/ 6 pts." Full Maser Mesh should read "Negates Maser damage". Partial Maser Mesh should read "Halves Maser damage." Both Basic Helmet and Sonic Prot. should read "V"

**Page 91:** On the first side of the STAR FRONTIERS Character Record Sheet, under the Weapons section, a player should enter his PC's DEX or STR modifier, whichever he chooses, along with the Column Modifier in the "Col Mod" box. See the Ability section under Melee Procedure on page 32.

# Armored and Dangerous

## The power of powered armor in the Star Frontiers game

*by David Dennis*

*Dragon* Magazine, #129, pg. 70

Powered armor is a device commonly used in science-fiction role-playing games and occasionally used in fantasy RPGs. TSR's own Gamma World game has powered armor. A suit of powered armor also appears in AD&D module S3 *Expedition to the Barrier Peaks*. Unfortunately, the game that would most likely have powered armor lacks it. Spacesuit armor is found in the Star Frontiers Knight Hawks rulebook, but it is not powered. Here, then, is real powered armor.

**Properties of Powered Armor**

Certain characteristics apply to any powered-armor suit, no matter what the design. The main property of such armor is the protection it provides. The degree of protection for each weapon type is listed on Table 3. The percentages listed there work on the same principal as spacesuit armor. If a character is hit by a weapon, look on the chart for the proper percentage and roll percentile dice. If the number is less than or equal to the listed percentage, the weapon fails to penetrate the armor. If the weapon penetrates the armor, the character still takes only half damage. Powerscreens may be combined with powered armor (using the SEU in the miscellaneous powerpack, if there is one), but defensive suits may not. Thus, a powerscreen that allows only half damage through (such as an inertia screen) means only one-fourth the total damage affects the character.

Besides providing protection, powered armor boosts the wearer's Strength and Stamina. A person wearing a fully functional suit of armor has triple his normal Stamina. This benefit comes from lack of fatigue, lack of effort expended when wounded, decreased penetration by weapons, and many other factors. Even more benefits are received from the increased Strength the armor gives. An armored character is able to lift one metric ton (1,000 kg) over his head, carry 200 kg at encumbered movement, and carry 120 kg encumbered. The suit's strength adds an additional 35 points to damage done in melee combat. For purposes of hitting in melee combat, such that half of the attacker's Strength is the chance to hit, give the wearer a base 100% chance to hit. Jumping is also boosted by the armor's strength, allowing jumps of 20 meters in height. Jet-assisted jumps may be made to 400 meters, but only 10 jet-assisted jumps may be made before the suit runs out of fuel. Horizontal jumps of 18 meters, with a 4-meter peak at the height of the arc, may also be made. Rate of movement in powered armor depends upon the type of armor purchased. All of the options listed for vehicles also apply to powered armor (with the exception of skid turns).

The key word in the phrase "powered armor" is "powered". These machines of destruction consume massive amounts of power. Powered armor suits are fueled by type 1 parabatteries (600 Cr each) that last 48 hours each. If the suit runs out of power, the wearer is stuck with an incredibly cumbersome suit that leaves him almost helpless. Fortunately, every suit carries two spare parabatteries that may be exchanged for the used battery in 10 turns. In addition to the normal power supply, most suits have two separate powerpacks for weapons and miscellaneous devices such as screens, cameras, and infrared jammers. The amount of SEU in each of these varies from suit to suit. The weapons pack has connections for two weapons, and the miscellaneous pack has connections for one screen and two auxiliary items.

A soldier on a battlefield as dangerous as those of the Star Frontiers game needs to be completely aware of his surroundings. Therefore, every suit of powered armor contains a compass, infrared goggles, magnigoggles, radiophone, toxy-rad gauge, and an external microphone that dampens loud noises and amplifies quiet ones. This microphone also allows the wearer of the suit to communicate with creatures outside. Every suit also contains a vital-statistics monitor on the outside that measures the wearer's rate of respiration, pulse, brainwaves, and the locations of his wounds. (In game terms, characters will be able to tell the current Stamina of wounded soldiers.)

In case of a gas or radiation attack, every suit of powered armor contains a gas mask and a four-hour air supply (which means that powered armor is completely usable underwater or in space). The air supply may be renewed where there is clean air. Powered armor contains a four-day supply of food for one person (stored in a freeze-dried form). The solid supply of food is only to be used when the suit's main supply runs out. The main food supply consists of a constant intravenous flow of nutrients that allows the soldier to fight and be fully nourished without stopping to eat. This supply of food also lasts four days. Two doses of stimdose, two doses of biocort, and one dose of staydose make up the suit's medicinal supply. The suit automatically administers these drugs to the suit user when necessary. Note that the effect of the biocort is tripled because it is added to the wearer's original Stamina. Furthermore, if a character's armor breaks down in the wilderness, the suit contains a survival pack identical to that found in the *Crash on Vulturnus* module included in the Alpha Dawn game set. As a final note, getting into the suit of armor takes four minutes (five for Vrusk).

**Uses for Powered Armor**

Powered armor is used by the UPF and certain rich and powerful megacorporations and planetary governments for planetary raids, antiarmor strikes, search-and-destroy missions, and various other activities across the Frontier. Soldiers in powered armor are usually landed by shuttles or dropped to a planet from orbit by assault transports: large, bulky ships equipped with ion engines, each capable of carrying 2,000 normal troops, or 700 powered troops and 10 shuttles. (Each shuttle carries 100 soldiers of either type.) Along with the shuttles, each transport carries numerous one-man reentry capsules for orbital drops by powered-armor troops. The Knight Hawks statistics for these ships are in Table 1.

Prior to an orbital drop, powered-armor soldiers are encased in individual capsules. A capsule consists of several layers, two of which contain parachutes and one which contains retrorockets. As the capsule enters the atmosphere, the layers burn away, protecting the soldier inside. With the combined use of the parachutes, retrorockets, and the powered armor's boot jets, the capsule is able to make a safe and gradual descent.

As the ablative layers of the capsule break off, they show up as numerous blips on radar, thus making it difficult to track descending capsules. To further this end, dummy capsules, exploding capsules, magnetic decoys, ion-window devices, white-noise broadcasters, and radar jammers are also launched from orbiting ships. Together, these elements produce thousands of images on radar when there are in actuality only a few hundred manned capsules being dropped. Consequently, the drop is probably the safest part of the mission. A 2% chance exists for any dropped soldier to become a casualty in the actual drop; casualties during the drop are almost invariably fatalities.

Powered-armor drop capsules are not for sale to the general public. They are considered high-security military hardware, and possession of such a capsule or a drop-capable ship (or a suit of powered armor, for that matter) is a major felony.

**Powered Armor Design**

The system provided in this section allows you to custom-design a suit of powered armor. This system gives the designer 545 points with which to build a suit. The basic cost of a suit of powered armor is 3,500 Cr for a stripped-down version without weapons, sensors, or special movement capabilities. Prices for additional equipment may be added to this base price. The system for designing a suit is explained below:

*Weapons*: Weapons cost one point for every kilogram of weight they possess. For purposes of game balance, pistols weight 3 kg and rifles 7 kg. A character may never have more than five pistols or three rifles per arm. In addition, a suit may never have more than 30 kg of weapons built into one arm. However, a character may still hold a handheld weapon in an arm with 30 kg. Handheld weapons must still be paid for in points. Total point cost for all weapons desired may never exceed 85 points. All costs for weapons purchased are added to the base cost.

*Movement*: When designing a powered suit, the turn speed, top speed, acceleration, and deceleration must be bought in points. Each of these is paid for using a number of points equal to that ability in meters/turn (so a turn speed of 90 meters/turn costs 90 points). Flight capabilities may also be bought, but a 190 meters/turn top speed on the ground and a minimum ground acceleration of 80 meters/turn are needed to qualify for the running take-off needed to fly. Flight costs an additional number of points equal to the top air speed in meters/turn divided by 10, rounded up. The monetary price for movement is 5 Cr per meter/turn in every ground ability and 10 Cr per meter/turn of top speed in flight. Flying suits accelerate, decelerate, change altitude, and make turns just like a jetcopter. However, flying suits may perform nap-of-the-earth flying with no movement penalties.

*Power*: The amount of SUE stored in the weapons and miscellaneous powerpacks must be decided upon. Add up the total SEU carried in each powerpack and divide this number by 10, rounding up. This is the number of points that must be paid. The monetary cost is 5 Cr for every SEU carried. Powerpacks may be recharged at the same places as power backpacks (at no more than a 50-point expenditure).

*Ammunition*: Again, the listed weight in kilograms is taken in points. A dash on the Ammunition chart (in the Alpha Dawn Expanded Game Rules booklet, page 40) means that the item weights 0.5 kg or less. For point costs, assume that these items weigh 0.5 kg each and therefore cost one-half point each.

*Extras*: If you wish to include special equipment such as more communications, radar, infrared jammers, cameras, holoscreens, and so forth, the point cost is up to the referee. A good ballpark estimate of cost may be made by dividing the cost in credits by 100, thus giving the point cost. Under this system, an infrared jammer would cost 5 points, a holoscreen would cost 10 points, and a subspace radio would cost 200 points.

An example of an armored suit is shown in Table 2 - the standard UPF Assault Model powered unit. The UPF armor is, naturally, highly efficient in its use of points, with no leftover or wasted points. The total listed cost in credits includes the base price.

**Weapons for Armor**

Some weapons listed in Tables 2 through 6 are probably not familiar to you. These devices are weapons that are especially well-suited for use with powered armor. When designing armor, you may want to look at the weapons described in Alex Curylo's excellent article "Tanks a Lot!" from Dragon issue #99. The weapons described therein may be designed into powered armor. Here are the weapons that may be used:

*ECM (electronic countermeasures) rifle*: This weapon shoots a beam of magnetic energy. Its main

function is to disrupt robots and computers, though it may affect living beings by causing disorders in the iron content of the creature's blood and by jamming the creatures neural synapses. To find the chance of jamming a computer or robot, multiply the number of SEU used by five for a base percentage of success. From this base, subtract the level of the computer or robot multiplied by four; this will yield the chance of malfunction. When a malfunction occurs, roll on the malfunctions table (page 15 in the Expanded Game Rules booklet) for the results. To cause damage to living targets, an expenditure of two SEU is necessary. When firing at vehicles or armor, treat the number of SEU used as the number of dice of damage done when using the damage table. Even if 15 SEU are fired at an armored soldier, the attack still does 5d10 to the wearer, but it is a 15-dice attack for the damage table.

*Flamethrower*: Originally mentioned in Alex Curylo's article, this weapon may also be used in a suit of powered armor. This device is hooked to a tank of napalm. The flamethrower's purpose is incendiary work, but it works well when used as an anti-personnel weapon.

*Missile pack*: Although guided missiles were mentioned in "Tanks a Lot," missile packs were not. Each missile pack contains six missiles. Missile packs come with a full supply of ammo when purchased. When fired, the wearer of the suit may command the missiles to divide themselves between as many targets as the number of missiles launched. In addition, the suit wearer may dispatch different numbers of missiles to different targets. For example, a soldier in a suit with missile packs sees one civilian, one skimmer, and one enemy powered-armor soldier. The soldier launches eight missiles, aiming one at the civilian, three at the skimmer, and four at the enemy unit. All missiles must roll separately to hit, but receive a 30% bonus to hit because each missile is guided. As many missiles may be fired as are remaining in the suit, although all need not be fired. Missile packs may never be mounted in the arms or legs of a suit.

**Armored Combat**

Combat in powered armor is conducted like normal ranged combat except for a few modifiers. Computerized targeting systems are built into every powered armor suit. As a result, characters wearing powered armor receive a 20% bonus to hit when using ranged weapons. If the character uses a missile pack, this bonus is also added to that given under the description.

If a weapon penetrates the armor during combat, there is a chance that damage to the suit occurs. The following sequence provides a step-by-step system for resolving this type of damage. Note that results derived from this are cumulative. Based on this premise, if a speed is reduced by half twice in a row, the overall speed falls to one-quarter normal. As a final note, damage to powered armor may be repaired by technicians using the repair machinery subskill.

1. Check if the weapon penetrated the armor. If so, additional suit damage may have occurred. (The nature of this damage will be checked later on Table 7.) Character damage also results. If not, no character damage results.
2. Check if damage to the armor occurs. Subtract the number rolled from the number needed to hit for the difference. If the difference is equal to or greater than 35, then additional damage to the suit's functions has occurred.
3. Add the number of dice of damage caused by the weapon to a 2d10 roll.
4. Divide the percentage of protection by 5, then multiply the quotient by 2. Subtract the product from the sum in step 3.
5. Consult Table 7. Apply the results next turn.
6. Roll for normal damage to the character, reducing the damage by half; reduce it by one-quarter if using a powerscreen effective against that weapon type.

For example: Jn'kri, a Vrusk, is hit by a rocket launcher fired from an attacking ground transport. First, Jn'kri checks to see if the rocket has penetrated the armor. Jn'kri rolls a 49 and sees that the rocket has indeed penetrated the armor. Now, he checks to see if his suit sustains any further damage. The ground transport needed to roll a 60 to hit; it does so. The difference between 60 and 20 is greater than 35 (60 - 20 = 40), so his suit might take additional damage. He now rolls 2d10 and comes up with a 17. To this, he adds 15 (because a rocket launcher does 15d10); the result is 32. He then divides the suit's resistance to rocket launchers (35%) by 5 and gets 7, then multiplies this by 2 to get 14. The result of this calculation is subtracted from 32 to get 18. Jn'kri checks a result of 18 on Table 7 and sees that it means no further damage is taken by the suit, although damage to himself is taken.

Vrusk who are buying powered armor must add an additional 20% to the base price, resulting in a base price of 42,000 Cr. This increase is needed for the additional cost of more limbs, additional artificial muscles, strangely shaped gloves and helmets, air vents on the suit's bottom, and so on.

Now that you know what powered armor is and is not, what do you use it for? No, not for a barroom brawl against that Yazirian who tells you to go jump on an Arcturian slime amoeba. Neither is it used for capturing the last remaining tree-dwelling rhinosquid on Antares IV. Powered armor should be used wisely, because time is literally money where powered armor is employed. Such devastating firepower would be useful against armored vehicle or fortified positions held by deadly enemies - *e.g.* Sathar, pirates, etc. But just because you took on a dozen space pirates without a scratch doesn't mean that it is safe to go tackle those three hovertanks hiding around the corner.

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**Table 1: Assault Transport and Shuttle Statistics**

| Ship Type | HS | HP | ADF | MR | DCR | Weapons | Defenses |
|---|---|---|---|---|---|---|---|
| Shuttle | 3 | 15 | - | 4 | 29 | None | RH |
| Assault transport | 10 | 50 | 1 | 4 | 50 | LB, RB(x3) | RH, MS, ICM(x4) |

**Table 2: Standard UPF Assault Model Powered Armor**

| Weapon system | Points | Cost (Cr) |
|---|---|---|
| Basic suit | - | 35,000 |
| Two rocket launchers (right forearm) | 15 (x2) | 5,000 (x2) |
| One grenade mortar (back) | 15 | 2,000 |
| One flamethrower (left forearm) | 10 | 3,000 |
| Two missile packs (one each shoulder) | 20 | 1,200 (x2) |

| | | |
|---|---|---|
| Turn speed: 90 meters/turn | 90 | 450 |
| Top speed: 150 meters/turn | 150 | 750 |
| Acceleration: 70 meters/turn | 70 | 350 |
| Deceleration: 50 meters/turn | 50 | 250 |
| Weapons power: 300 SEU | 30 | 1,500 |
| Misc. power: 200 SEU | 20 | 1,000 |
| Flamethrower ammunition | 10 | 50 |
| Eight grenade mortar shells | 4 | 8 (x8) |
| Nine rockets | 4 (x9) | 15 (x9) |
| One heavy laser (handheld) | 10 | 6,000 |
| Total | 545 | 62,949 |

**Table 3: Powered Armor Protection**

| Weapon type | Degree of protection |
|---|---|
| Lasers | 50% |
| Sonics | 60% |
| Electrostunner | 100% |
| Bullets | 70% |

| | |
|---|---|
| Needlers | 100% |
| Recoilless rifle | 40% |
| Gyrojet | 55% |
| Frag. grenade | 45% |
| Rocket launcher | 35% |
| Axe, knife, etc. | 100% |
| Electric sword | 65% |
| Spear or sword | 85% |
| Shock gloves | 70% |
| Stunstick | 85% |
| Guided missile | 30% |
| Flamethrower | 90% |
| Cannon | 30% |
| Howitzer | 15% |
| Bomb | 20% |
| Mine | 50% |
| ECM rifle | 45% |

**Table 4: Special Weapons' Effects**

| **Weapon type** | **Damage** | Ammo | SEU | Rate** | Defense |
|---|---|---|---|---|---|
| ECM rifle | 5d10 or | Varies | 2-20 | 2 | Gauss |

| | | | | | |
|---|---|---|---|---|---|
| | jam | | | | |
| Flamethrower | 3d10 * | 10 | - | 1 | None |
| Missile pack missile | 6d10 each | 6 | - | 1-6 | Inertia |

---

* Flamethrowers cause 1d10 points of damage per turn to a target for three turns after firing, or until the flames are extinguished.

** A character in powered armor may fire all weapons he possesses in the same turn except those on the gun arm. Here, the wearer must choose between the handheld weapon and the weapons built into that arm.

**Table 5: Special Weapons' Ranges**

| **Weapon type** | **PB** | Short | Medium | Long | Extreme |
|---|---|---|---|---|---|
| ECM rifle | 0-10 | 11-30 | 31-100 | 101-150 | 151-300 |
| Flamethrower | 0-10 | 11-20 | 21-30 | 31-45 | 46-70 |
| Missile pack missile | 0-10 | 11-50 | 51-150 | 151-300 | 301-500 |

---

**Table 6: Special Weapons' Statistics**

| **Weapon type** | **Cost** | Mass | Ammo type | Ammo cost (Cr) | Ammo mass (kg) | Ammo rounds |
|---|---|---|---|---|---|---|
| ECM rifle | 8,000 | 15 | Pack | Varies | Varies | Varies |
| Flamethrower | 3,000 | 10 | Napalm | 50 | 10 | 10 |
| Missile pack | 1,200 | 10 | Missiles | 1,000 | 10 | 6 |

---

**Table 7: Damage to Powered Armor**

| Die roll plus damage | Effect |
|---|---|
| 2-19 | No effect |
| 20 | Turn speed -20 meters/turn |
| 21 | Acceleration -20 meters/turn |
| 22 | Top speed -35 meters/turn |
| 23 | Jumping length (horizontally) -2 meters |
| 24 | Jumping length (vertically) -4 meters |
| 25 | Boot jets out, no vertical jumps over 20 meters |
| 26 | All Strength functions by half |
| 27 | Gyros out, no jumps |
| 28 | Top speed reduced by half |
| 29 | Lose half energy in suit supply |
| 30+ | Suit's muscles locked, paralyzed for 1d10 turns |

# The Frontiers of Design

## A new shipbuilding system for the Star Frontiers game

*by Mike Lane*

*Dragon* Magazine, #132, pg. 74

Many Star Frontiers game players have problems when it comes to designing nonstandard military ships for use with the Knight Hawks board game and, as I can testify, it becomes rather nerve-wracking to be constantly asked "How many laser batteries can I put on this minelayer? Well, then, how many rocket battery salvos can it carry? Well, then…" and so on. Over many hours and some calculator thumping, a system that pleased everyone in my gaming group was generated. This system creates starships compatible with (if a little tougher than) those given in the board-game rules. The new ships also have a great variability in weaponry, which can make even a simple assault-scout duel quite interesting.

The following sections deal with the shipbuilding formulas and overall system in depth. Tables 1-6 give details on the items discussed below.

**Hull Points and DCR**

A civilian ship's hull points and DCR (Damage Control Rating) are determined as per the Knight Hawks rule book - *i.e.*, hull size X 5 = hull points; (hull size X 3) + 20 = DCR. Military and Star Law ships multiply hull size by 10 to determine hull points and by 9 to determine DCR. The greater values generated show the toughness and technical superiority of the secret military equipment, and result in fewer attacking ships being vaporized in the "Defensive Fire" phase of combat.

**Weaponry and Defenses**

All weapons and defenses on a ship are placed according to the amount of space they occupy in cubic meters, as per the statistics on page 61 of the Knight Hawks game rules, rather than using the MHS (Minimum Hull Size) method. The MHS is still used as a measure of how many weapons of one type may be mounted on a certain hull.

The maximum number of each type of weapon on a ship may not exceed the hull size rating divided by the MHS of that weapon system. However, any ship with the necessary space may mount any one weapon despite its MHS. (Yes, you can have an assault scout with a laser cannon!)

Defenses are also bought by the cubic meter, though no ship of less than hull size 5 can mount a powered defense screen because of the screen's heavy energy demands, which require the larger "B" engines.

The cubic meters of space for each hull size is determined by a decreasing percentage scale, with figures rounded to the nearest useful amount. This effectively reduces the free space on a battleship to about 1.6%, as compared to a fighter's 97%, which reflects the squeeze on space

as life-support systems, crew quarters, storage areas, and so forth expand with ship size and potential patrol duration.

It should be noted that noncombat ships such as freighters, research vessels, liners, and the like have only 40% of the space listed, since their primary functions demand nearly all available space. This is not to say that there could not be small-capacity, heavily armed liners used to move VIPs; this simply means that such ships would not be self-sufficient and would thus be very rare.

**Weapon Magazines**

Rather than saying that a certain number of rounds can be kept in a launcher, the cubic-meters system is used to determine the number of rounds carried. Thus, ammunition for assault rockets, rocket-battery arrays, torpedo launchers, mine spreaders, seeker-missile• racks, masking screen launchers, and ICM launchers are figured on a cubic-meters-per-shot basis, though one round (or one array, or 20 meters of mines) may be kept at no space cost in any launcher except a masking screen launcher. This is because a masking screen charge is larger than the launcher itself.

**Space Stations**

Space stations come in four main categories: fortresses, fortified stations, armed stations, and unarmed stations. The last title is something of a misnomer, as even the smallest freight station is likely to have a laser battery to discourage piracy.

Military stations fall in the fortress and fortified-station categories, while megacorporation have only a few fortified stations and many armed ones. "Free" stations not belonging to any one group or cartel are usually armed, though a few fortified and unarmed stations can be found. Small freight stations, scientific stations, and automated stations are usually unarmed.

Space-station weaponry and defenses are mounted in exactly the same way as they are on starships, with two differences: No forward-firing weaponry may be mounted, and MHS restrictions are ignored with respect to the maximum number of one weapon type mountable.

The statistics given in Table 6 refer to a single space-station hull of a given size. It should be remembered that more than one hull may be joined to create megastations, as per page 8 of the Knight Hawks rule book, though such huge stations are prohibitively expensive for all but the military and megacorporations of the largest size.

**Miscellaneous Items**

Players and GMs will undoubtedly find new things to put on ships. By carefully determining an item's size, it can easily be integrated into this system. Remember, though, that addition of any item beyond the listed maximums reduces the ADF or MR of the ship by one.

**Table 1: Space Available by Hull Size**

---

| **Hull size** | Military ships | Civilian ships |
|---|---|---|

| | | |
|---|---|---|
| 1 | 30 | 20 |
| 2 | 50 | 30 |
| 3 | 75 | 40 |
| 4 | 100 | 50 |
| 5 | 175 | 90 |
| 6 | 250 | 125 |
| 7 | 300 | 150 |
| 8 | 350 | 175 |
| 9 | 400 | 200 |
| 10 | 450 | 225 |
| 11 | 500 | 250 |
| 12 | 550 | 275 |
| 13 | 600 | 300 |
| 14 | 700 | 350 |
| 15 | 800 | 400 |
| 16 | 900 | 450 |
| 17 | 1000 | 500 |
| 18 | 1100 | 550 |
| 19 | 1200 | 600 |
| 20 | 1300 | 650 |

**Table 2: Weaponry and Space Needed**

| Weapon | Cubic meters | MHS |
|---|---|---|
| Laser cannon | 40 | 5 |
| Laser battery | 25 | 3 |
| Proton-beam battery | 30 | 10 |
| Elector-beam battery | 30 | 6 |
| Disruptor cannon | 60 | 12 |
| Assault-rocket launcher | 10 | 1 |
| Assault rocket * | 10 | - |
| Rocket-battery array | 40 | 5 |
| Rocket-battery salvo | 10 | - |
| Torpedo launcher | 75 | 5 |
| Torpedo | 20 | - |
| Mine spreader | 60 | 7 |
| Mines (5 fields) | 20 | - |
| Seeker-missile rack | 40 | 7 |
| Seeker missile | 40 | - |
| Grapples | 60 | 5 |

* Assault rockets for rearming fighters kept aboard an assault carrier are kept in cargo space. Up to 15 per cargo unit can be carried.

**Table 3: Defenses and Space Needed**

| Defense | Cubic meters |
|---|---|
| Reflective hull | - |
| Masking-screen launcher | 10 |
| Masking-screen charge | 25 |
| Electron screen | 10 x hull size |
| Proton screen | 12 x hull size |
| Stasis screen | 10 x hull size |
| ICM launcher | 10 |
| ICM | 5 |

**Table 4: Optional Items Carried**

| Item | Cubic meters |
|---|---|
| Fighter | 60 |
| Assault-transport dropship | 35 * |
| Hull size 2 ship | 120 |
| Assault scout | 850 |

* Dropships are mounted about 75% externally, thus taking up less space than the totally interior docking areas and repair facilities used by fighters.

**Table 5: DCR and Hull Points**

| **Ship type** | DCR determination | Hull points |
|---|---|---|
| Civilian | (HS x 3) + 20 | HS x 5 |
| Military | (HS x 9) + 20 | HS x 10 |

**Table 6: Space Stations**

| **Station type** | **Hull size** | Hull points | DCR | Space in cubic meters |
|---|---|---|---|---|
| Fortress | 5 | 250 | 175 | 550 |
| | 6 | 300 | 200 | 800 |
| Fortified | 3 | 80 | 60 | 180 |
| | 4 | 120 | 80 | 210 |
| | 5 | 140 | 100 | 250 |
| Armed | 1 | 30 | 30 | 80 |
| | 2 | 55 | 40 | 120 |
| | 3 | 70 | 65 | 160 |
| | 4 | 80 | 75 | 200 |
| Unarmed | 1 | 20 | 25 | 25 |

| | | | |
|---|---|---|---|
| 2 | 40 | 35 | 50 |
| 3 | 55 | 50 | 75 |
| 4 | 75 | 70 | 100 |

# "Damage control - report!"

## Revised starship combat for the Star Frontiers game

*by Richard M. Hinds*

*Dragon* Magazine, #136, pg. 64

*The Nemesis rounded the final arc of the planetary orbit set up by its crew for mapping procedures. On the bridge, Commander Marc-sur-Lars patiently awaited the incoming information. The system did not show much promise. It was more like a rest stop - but one far behind enemy lines.*

*"Sir, I'm picking up a faint energy source." Hortlefloo, the Osakar pilot, examined his control screen. "It's at the sensor limit, over the approaching horizon. It might be a starship engine."*

*"Full alert," Commander Lars said evenly, pressing a small button on the side of his own command control panel. They were deep in Sathar territory; he could not take any chances with this 13-million-credit ship or its crew. The bridge lighting dimmed and slowly turned red. Lars could hear the alert warning in the corridor outside. So much for the rest stop, he thought.*

*"I've got a fix on the ship on the main screen," said the astrogator. Lars looked up and examined the image on the screen. It was not any known type of Sathar ship, but that meant nothing. The Sathar had all sorts of ships.*

*"It's powering up its weapons," warned Hortlefloo. "Now it's closing in. It's got us."*

*"Battle stations. Conflict imminent." Lars punched a second button and a warning klaxon sounded in the hall outside the bridge. Running feet pounded past the bridge door as crewmen ran for their combat posts.*

*Lars allowed himself a brief smile. "Mr. Harrachi," he said, turning slightly toward the Yazirian weapons officer. "Please give our neighbor our warmest greetings." And hope, he thought, that we give them ours before they give us theirs.*

In the Star Frontiers game, starship combat is played out using the Knight Hawks board-game system. Players in campaigns centered around a starship, like those concerning exploration missions, often find that starship combat is a time when they hang up their characters and concentrate solely on the dice. Here are some suggestions to liven up combat and bring characters out of the background.

In the Knight Hawks game, starship combat has two phases, movement and combat, with each side taking turns in a fixed order to perform its actions. Instead, a more flexible initiative system is in order. Initiative should be dependent on several factors: the maneuver ratings (MR) of the ships, the pilots' initiative modifiers, and the gunners' initiative modifiers. To determine the starship initiative modifier, find the ship on each side with the highest MR. Add the initiative modifier of either the pilot or the gunner (whichever score is higher) to the ship's MR. The total is the starship's initiative modifier. Repeat this for as many combatants as needed. Then each side rolls 1d10 and adds the initiative modifier. The highest resulting number becomes side A, the first

side to move, and the sequence of play in the Knight Hawk's Tactical Operations Manual, page 3, is followed thereafter.

After three turns in the advanced Knight Hawks game, there is a repair turn. This does not mean that the starships have disengaged and decided to start repairs, but it instead shows the culmination of efforts over the past three turns. For a more realistic approach, let repairs be made at the end of each combat turn. Of course, if the engineer starts work on one project, then another problem requires more attention a few turns later, the character will be faced with some interesting dilemmas. To have the engineer use his DCR rating, he must maintain work on a damaged system for three turns. If he stops to work on something else without completing the previous repair, all his work will go to waste.

In the advanced game, percentile dice are rolled when a ship is hit by enemy fire, and the Advanced Game Damage table from the Tactical Operation manual, page 12, is consulted. This table has little to offer player characters but major system difficulties, ending in a quick death for the PCs and the loss of their expensive starship. The modified damage table with this article was developed to take into account other systems that could be damaged in combat. Some of this damage may not be immediately threatening, but it could cause trouble later on. The new results in the modified table are explained below.

*Ship's boats*: This hit disables one of the following, selected by 1d10 roll: 1-2, life boat; 3-4, launch; 5-6, workpod; 7, shuttle (if an assault carrier is hit, score the hit against a fighter); 8, fighter; 9-10, escape pod.

*Crew Casualties*: Casualties depend on hull size and, to some extent, ship type. In any case, a single hit cannot reduce the crew to less than half of the last turn's total (to save PCs). Below is a table of hull sizes and the number of crewmen and passengers that can be lost.

---

| HP | Crew Lost |
|---|---|
| 1-2 | 1 |
| 3-4 | 1-5 |
| 5-7 | 1-10 |
| 8-10 | 2-20 (if an assault transport or passenger liner is hit, 20-200 are lost) |
| 11-14 | 3-30 |
| 15-80 | 5-50 (if is an assault carrier, 10-100 are lost) |
| 19-20 | 10-100 |

---

*Cargo hit*: one hull unit of random cargo is lost.

*Drive hit, fuel loss*: The fuel storage has been damaged. On atomic-drive ships, one engine has lost 1-5 fuel pellets. Ion-drive ships lose one-quarter of their stored hydrogen. Chemical-drive ships lose half their fuel.

*Internal systems hit*: This hit could affect combat performance but will more likely be a nuisance after the battle. The internal systems that can be hit are (roll 1d10):

1-2 *Elevator*: The emergency ladders will have to be used, so travel time between decks is doubled.

3-4 *Food service*: No food can be served from the galley as the food dispensers have been disabled.

5-6 *Cameras*: Internal cameras have failed.

7-8 *Robots*: Computer robot links are down, so robots will not respond to computer commands. This hit may not show itself for quite a while, until someone breaks into the ship and security robots fail to investigate.

9-10 *Intercoms*: Internal ship communication is down.

*Life support hit*: This hit gradually incapacitates the life support system. On the first hit, the main life support's capacity is reduced by half. The second hit knocks it out completely. The same progression is followed for the backup units.

*Computer hit*: This hit can be a real menace. First, determine at random which mainframe was hit. Good starship designers have a network of mainframes to prevent the destruction of all computer programs at once. After determining the mainframe hit, randomly destroy one of the programs in that mainframe.

**Modified Advanced Game Damage Table**

---

| **Modified die roll** | **Type of Damage** |
|---|---|
| -20-05 | Hull hit: Double normal damage by weapon type |
| 06-10 | Ship's boats * |
| 11-20 | Crew casualties * |

| | |
|---|---|
| 21-25 | Cargo hit * |
| 26-45 | Hull hit: Normal damage by weapon type |
| 46-48 | Drive hit: Lose 1 ADF |
| 49-51 | Drive hit: Lose half of the total ADF (round up) |
| 52 | Drive hit: Lose entire ADF |
| 53 | Drive hit: Fuel loss * |
| 54-57 | Steering hit: Lose 1 MR point |
| 58-59 | Steering hit: Lose entire MR |
| 60 | Steering hit: Continue current course indefinitely |
| 61-62 | Weapon hit: LC; LB; PB; EB; AR; RB; LP ** |
| 63-64 | Weapon hit: PB; EB; LB; RB; T; AR; MM ** |
| 65-66 | Weapon hit: DC; LC; AR; T; LB; FB **; SM ** |
| 67-68 | Weapon hit: T; AR; EB; PB; LB; RB; TB ** |
| 69-70 | Weapon hit: LB; RB; T; AR; PB; EB; LC |
| 71-72 | Internal systems hit * |
| 73 | Soda machine *** |
| 74 | Power short circuit: Lose all screens and ICMs |
| 75-77 | Defense hit: PS; ES; SS; MS; ICM; ENS ** |
| 78-81 | Defense hit: MS; ICM; SS; PS; ES; MF ** |
| 82-84 | Defense hit: ICM; SS; PS; ES; MS; ENS ** |
| 85-87 | Combat control system hit: -10% on all attacks |
| 88-90 | Life support hit * |

| | |
|---|---|
| 91 | Computer hit * |
| 92-96 | Navigation hit: Lose all maneuvering control, moving at random |
| 97 | Holo games *** |
| 98-105 | Electrical fire: Roll additional damage at +20 each turn |
| 106-115 | Damage control hit: DCR cut in half |
| 116 | Steam baths *** |
| 117-120 | Disastrous fire: DCR cut in half; lose entire ADF and MR; -10% on all attacks; roll damage at +20 each turn |

---

Any hit that cannot be applied is treated as a normal hull hit.

* This effect is described in the text.

** All of these abbreviations are based on the weapons and defenses given in Gus Monter's article, "An Interstellar Armory," in Dragon issue #115. The abbreviations are as follows: LP = laser piston; MM = maxi-missile; FB = fusion bomb; SM = screen mine; TB = tractor beam; ENS = energy shield; MF = masking field. If this article is not available, ignore these results.

*** These areas can be hit only once. Subsequent hits here are treated as normal hull hits.

# "Jetboots, don't fail me now!"

## An uprated movement system for the Star Frontiers game

*by Charles A. Vanelli*

*Dragon* Magazine, #139, pg. 62

*Player (whose character, a space-station security guard, has unexpectedly discovered an intruder in a storage area)*: "I back away, drawing my nightstick."

*Referee*: "Great, because the guy takes off the moment he sees you. He's carrying a box from the storeroom."

*Player*: "I chase after him! When I catch him, I'll smack him with my nightstick! I move at 30 meters per turn."

*Referee*: "Being a human, the intruder also runs at 30 meters per turn."

*Player*: "Well, then, how am I gonna catch him?"

Good question. Unless the intruder happens to slip on a convenient banana peel or other unforeseen obstacle, the poor security guard may never get his man. Here we see evidence of a flaw in the Star Frontiers game, in that all beings of the same race run at the same rate of speed. The problem, however, is not just limited to running or walking; it also applies to swimming, climbing, and just about every other movement task that a character might attempt.

In the Star Frontiers game, all creatures are given a set of movement rates which are dependent only upon the races of the creatures involved. Thus, every Human in the Frontier runs just as fast as every other Human. The same can be said for Yazirians, Dralasites, and every other known race. Obviously, this just is not the case. Any decent member of an Olympic track team could beat the socks off the average person on Earth in a foot race, yet the current movement system would not allow this.

Since all characters are not created equal in the Star Frontiers game system, all speeds should not be equal. Speed should be based upon the basic attribute scores of a character and the character's race. (Obviously, a Dralasite cannot run as fast as a Vrusk.) This article describes a diversified movement rate system in which only characters who are physically alike have the same movement rates. In addition, the "standardized" movement rates, such as climbing, jumping, and the rest, are also covered. The main advantage of this system is that it allows each character to be different from his peers. As an added bonus, the system is flexible, permitting a character to improve his speed as he improves his physical fitness.

**Movement Rate Multiplier (MRM)**

This system requires that each character have a new statistic defined: the Movement Rate Multiplier (MRM). The MRM is simply a number from 1 to 10, indicating how fast a character is - but only as compared to other members of the same race. High MRMs represent fast characters, while low scores represent slow characters. This score is used extensively in generating the movement rates, so it is recommended that this score be recorded on each character sheet near the Initiative Modifier score of the movement rates. To create the MRM, simply take the average of the character's Strength and Reaction Speed scores, then divide by 10, rounding all fractions down. This value is the MRM.

The Strength score is used in the MRM because a character's speed and quickness are based on the strength of the muscles within that character's limbs. The Reaction Speed score is used because, by definition, it is a measure of a person's quickness. Excessive body weight and equipment encumbrance do not play a part in the creation of the MRM because of their difficulty to implement; game master's wishing to use these attributes must create their own modifiers for them.

To use the MRM, the player must find his character's Base Movement Value for the type of movement desired. The Base Movement Values are listed in Table 1 herein and are found by cross indexing the character's race with the type of movement needed, such as running or walking. The player then multiplies the number found by his

character's movement rate using that particular type of movement. Even though encumbrance has no effect on the MRM, it still plays a role in reducing the movement rates of an encumbered character by half if the character is carrying over half his Strength score in kilograms.

For example: Rufinkel, a Yazirian, has a Strength score of 55 and a Reaction Speed score of 60. His MRM would then be 5 (the average of 55 and 60 is 57.5; dividing by 10 gives 5.75, rounding down to 5). Consulting Table 1, Rufinkel walks at the rate of 12.5 meters per turn, and hikes at the rate of 5 kilometers per hour. In addition, the table also gives Rufinkel's "standardized" movement rates. Rufi now climbs at the rate of 2 meters per turn, and he makes running jumps up to 6 meters long and standing jumps up to 3 meters.

**Movement Types**

Table 1 also gives new movement types that are available to the characters. These are more fully explained below, along with the old movement types from the Alpha Dawn expanded game rules to reduce cross reference between the book and this article.

*Walking*: This is the rate at which a character can walk, expressed in meters per turn. This is also the rate at which a character can climb a ladder or staircase.

*Running*: This is the rate at which a character can run, expressed in meters per turn.

*Hiking*: This is the rate at which a character can walk (with appropriate rests) over long periods of time, expressed in kilometers per hour. (This is known as "Per Hour" in the alpha Dawn expanded game rules.)

*Climbing*: This is the rate at which a character can climb a rope, expressed in meters per turn. A character can climb a vertical surface at half this speed, provided there are handholds and footholds.

*Crawling*: This is the rate at which a character can crawl along the floor or ground in a semiprone position, expressed in meters per turn.

*Running Leap*: This is the distance in meters that a character can leap horizontally, allowing a straight-line run for 15 meters before leaping.

*Standing Leap*: This is the distance in meters that a character can leap horizontally from a standing start.

*Running Vertical Leap*: This is the height in meters that a character can leap, allowing a straight-line run of at least 5 meters before leaping. This height is measured from the ground to the lowest point on the character's body at the highest point of the jump. The sum of this distance and the character's height (with arm extended) used when the character is attempting to reach a high object.

*Standing Vertical Leap*: This is the height in meters that a character can leap from a standing start.

*Flying:* This is the rate at which a winged character may fly, expressed in meters per turn. Note the difference between flying and gliding: Gliding is merely coasting through the air on steady wings, but flying is the act of physically propelling oneself through the air by flapping wings.

*Swimming per turn*: This is the rate at which a character may swim, expressed in meters per turn.

*Long-Distance Swimming*: This is the rate at which a character may swim (with brief floating rests) over long periods of time, expressed in kilometers per hour.

**Expanding Table 1**

Expanding the table of Base Movement Values for new races can be accomplished in four easy steps. First, each new race must have a table of average movement rates defined for it; creation of this table is left to the designer of the race. Second, the new race's average Strength and Reaction Speed scores must be found, using the method in the following section. Third, using the average Strength and Reaction Speed scores, the average MRM is computed, as per the rules in this article. Finally, new figures for Table 1 are found simply by dividing the average movement rates for the race by the average MRM, rounding results to the third decimal place. The results can then be recorded in the appropriate columns on Table 1.

There may be some confusion as to what a race's average ability scores are. Note that when rolling on the Ability Score Table in the Alpha Dawn expanded game rules (page 4), the most commonly generated base score will be 45, simply because the table assigns a 20% chance for it to occur. No other base score has as great a chance, though 45 is not the average score. The average score is actually the sum of 45 and the appropriate value from the Ability Modifier Table (Alpha Dawn expanded game rules, page 4). Thus, for a Dralasite, the average Strength score would be 50 (45 and a +5 modifier equals 50), while its average Reaction Speed score would be 40 (45 with a -5 modifier). This gives Dralasites an average MRM of 4 (the average of 50 and 40, divided by 10 and rounded down). The average MRMs for typical races are given in Table 2.

When the numbers in Table 1 are multiplied by the average MRM score for a race, the results are the regular movement rates for the race in question. This system works on the assumption that the rates given in the Movement Table on page 19 of the Alpha Dawn expanded game rules were created with the average character in mind. The average character's statistics are the same as those of an average NPC, as shown on the table in the Alpha Dawn expanded game rules on page 59.

**Table 1a: Base Movement Values by Race**

| **Race** | **Walking** | Running | Hiking | Climbing | Crawling |
|---|---|---|---|---|---|
| Dralasite | 1.250 | 5.000 | 0.750 | 0.375 | 0.500 |
| Human | 2.500 | 7.500 | 1.250 | 0.500 | 0.500 |
| Humma * | 2.000 | 7.000 | 1.200 | 0.300 | 0.200 |
| Ofshnit * | 1.000 | 3.750 | 0.500 | 0.250 | 0.250 |
| Osakar * | 5.000 | 12.000 | 2.000 | 0.400 | 0.600 |
| Vrusk | 3.750 | 8.750 | 1.500 | 0.375 | 0.250 |
| Yazirian | 2.500 | 7.500 | 1.000 | 0.500 | 0.500 |
| Sathar ** | 2.500 | 5.000 | 0.750 | 0.500 | 0.500 |

**Table 1b: Base Movement Values by Race**

| **Race** | **Running Leap** | Standing Leap | Running Vertical Leap | Standing Vertical Leap | Flying | Swimming per turn | Swimming per hour |
|---|---|---|---|---|---|---|---|
| Dralasite | 1.000 | 0.375 | 0.375 | 0.250 | - | 2.000 | 0.250 |
| Human | 1.250 | 0.500 | 0.500 | 0.375 | - | 2.500 | 0.250 |
| Humma * | 10.000 | 5.000 | 1.500 | 1.000 | - | 1.600 | 0.200 |
| Ofshnit | 0.750 | 0.250 | 0.375 | 0.250 | - | 1.000 | 0.125 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| * | | | | | | | |
| Osakar * | 1.200 | 0.500 | 0.400 | 0.300 | - | 2.400 | 0.200 |
| Vrusk | 1.250 | 0.625 | 0.375 | 0.250 | - | 2.500 | 0.250 |
| Yazirian | 1.250 | 0.500 | 0.500 | 0.375 | - | 2.500 | 0.250 |
| Sathar ** | 1.000 | 0.500 | 0.375 | 0.250 | - | 2.500 | 0.375 |

**Table 2: Average STR, RS, and MRM Scores**

| **Race** | **Average Strength** | Average RS | Average MRM |
|---|---|---|---|
| Dralasite | 50 | 40 | 4 |
| Human | 45 | 45 | 4 |
| Humma * | 55 | 45 | 5 |
| Ofshnit * | 40 | 45 | 4 |
| Osakar * | 50 | 50 | 5 |
| Vrusk | 40 | 50 | 4 |
| Yazirian | 35 | 50 | 4 |
| Sathar ** | 45 | 50 | 4 |

* See SFAC3 *Zebulon's Guide to Frontier Space* for details on this race.

** Sathar are used as NPC's only. However, this information also applies to the Sathar-related S'sessu race (which may be used as PCs), as described in Dragon issue #96.

# Sage Advice

*by Skip Williams*

Excerpted from *Dragon* Magazine, #144, pg. ?

*If you have any questions on the games produced by TSR, Inc., "Sage Advice" will answer them. In the United States and Canada, write to: Sage Advice, DRAGON(R) Magazine, P.O. Box 111, Lake Geneva WI 53147, U.S.A. In Europe, write to: Sage Advice, DRAGON Magazine, TSR Ltd., 120 Church End, Cherry Hinton, Cambridge CB1 3LD, United Kingdom.*

This month, "Sage Advice" covers a potpourri of questions on various topics related to TSR(R) games.

**STAR FRONTIERS(R) game**

*I enjoyed the article "Armored and Dangerous" in issue #129 (page 70), but I have a few questions. Does the basic suit of powered armor come with a bodycomp and any special scanners? I assume there is a bodycomp because* Zebulon's Guide to Frontier Space *says that an enviro-comp is required, and implies that a master-comp is also required.*

The basic suit has no scanners, but it does have a bodycomp with a type D processor and a kingpack power supply. The standard progits are: master-comp, medinject (three of them), body-scan, and enviro-comp. Additional progits can be added to the computer, up to the kingpack's 12-progit limit.

*I like the helmet rafflurs and grenade launchers in* Zebulon's Guide*, but I can't find costs and weights for them.*

As explained on page 70 of that book, helmet attachments cost 20% more than their regular counterparts. The weights of the helmet and regular versions are identical. Helmet rafflurs, for example are merely two rafflur M-1s attached to a helmet. The cost and weight of the rafflur M-1 are given on page 34 as 300 Cr and .50 kg. Therefore, helmet rafflurs cost 720 Cr ((300 x 2) x 1.2) and weigh 1 kg.

# From Freighters to Flying Boats

## Traveling the high seas in the Star Frontiers game

*by Matthew M. Seabaugh*

*Dragon* Magazine, #149, pg. 46

In the Star Frontiers Alpha Dawn game rules, land travel is covered extensively. Air travel is also given its fair share of coverage in both the Alpha Dawn and *Zebulon's Guide to Frontier Space* rules. But when you reach the beach, you're stranded. Hovercraft can travel over calm water for a good distance - but after that, what's left?

This article fills the gap by describing several types of surface vessels, a few underwater craft, and some amphibious aircraft. The vessels detailed herein are essentially generic creations; referees may create variations on these for their own campaign worlds. Sea movement and combat are also covered.

**Surface Vessels**

**Ski Cycle**

Cost: 2,000 Cr (rental: 25 Cr down + 25 Cr/day)

Top/cruise speed: 150/90 KPH

Passengers: 2

Cargo: .5 cubic meter

Parabattery: Type 1

Hull size: A

Bump number: 1

Notes: Similar in size to a land cycle, a ski cycle has an engine resembling a jet engine that uses water as the propellant. This vessel is very maneuverable and can travel in extremely shallow water.

**Motorboat**

Cost: 6,000 Cr (rental: 50 Cr down + 25 Cr/day)

Top/cruise speed: 120/80 KPH (15/10 KPH w/sail)

Passengers: 6

Cargo: 200 kg, 1 cubic meter

Parabattery: Type 2

Hull size: B

Bump number: 3

Notes: This is an outboat-motor craft capable of high speeds and quick maneuvering. The price includes a collapsible sail. Motorboats can maneuver in waters one meter or more in depth. A special enclosed-canopy version may be purchased, or the canopy can be added later; the canopy makes a motorboat more streamlined and, hence, faster. Any motorboat with an enclosed canopy has a top speed of 140 KPH. As the canopy is made of canvas-like material, it does not serve as armor.

**Yacht (cabin cruiser)**

Cost: 75,000 Cr

Top/cruise speed: 100/60 KPH

Passengers: 10

Cargo: 10,000 kg, 35 cubic meters

Parabattery: Two Type 4

Hull size: C

Bump number: 5

Notes: This large ship has enclosed cabins with bunks, cooking facilities, and bathrooms. Many yachts have extravagant cabins for the owner or captain. These ships are favorites among the rich and powerful for their plushness and speed. Yachts are used in deep water, using small rowboats for boarding and disembarking. Yachts and larger ships may be modified to use towlines. Any vessel of hull size C or D may have a towline on board that can be used to pull disabled ships. A ship may pull any ship the same size or smaller than itself at one-half cruise speed.

**Transport Ship**

Cost: 200,000 Cr

Top/cruise speed: 95/55 KPH•

Passengers: 10/30

Cargo: 72,500 kg, 24 cubic meters/7,500 kg, 8 cubic meters

Parabattery: Four Type 4

Hull size: D

Bump number: 7

Notes: There are two types of this vessel, the workhorse of surface fleets. The first type is the cargo transport, detailed by the first set of figures; the second is the passenger transport,

detailed by the second set of figures. Transports are deep-water craft and use rowboats to shuttle crewmen to and from shore in the absence of a dock. Transports may have towlines.

**Submersible Vessels**

**Minisub**

Cost: 50,000 Cr (rental: 200 Cr down + 100 Cr/day)

Top/cruise speed: Surfaced - 100/60 KPH, submerged - 85/45 KPH

Passengers: 4

Cargo: 300 kg, 3 cubic meters

Parabattery: Two Type 2

Hull size: C

Bump number: 5

Notes: This is a personal vessel, used often in underwater communities as a car would be used on land. Some are fitted with harvesting equipment for use on kelp farms. Others are used as exploration vessels. Most underwater communities have several of these vessels for the maintenance of habitat walls, as well as for rescue or police vessels. Minisubs carry enough life support for 72 hours before they need to resurface. Additional units of life support may be purchased to increase this time to 120 hours.

**Transport Submarine**

Cost: 200,000 Cr

Top/cruise speed: Surfaced - 90/50 KPH, submerged - 70/40 KPH

Passengers: 6/20

Cargo: 50,000 kg, 18 cubic meters/5,000 kg, 5 cubic meters

Parabattery: Four Type 4

Hull size: D

Bump number: 7•

Notes: Like the transport ship, there are two versions of this vessel: the cargo transport (first set of statistics) and the passenger transport (second set of statistics). Transport subs carry enough life support for 96 hours. Additional units of life support can be purchased to increase the time to 144 hours.

**Amphibious Aircraft**

**Amphibian Aircar**

Cost: 55,000 Cr (rental: 100 Cr down + 100 Cr/day)

Top/cruise speed: 875/400 KPH

Passengers: 4

Cargo: 750 kg, 2 cubic meters

Parabattery: Type 4

Notes: This is an adapted version of a typical aircar. Its underside and wings have pontoons to keep the craft afloat. These craft are often used in swamps and near underdeveloped islands.

**Amphibian Air Transport**

Cost: 125,000 Cr

Top/cruise speed: 700/250 KPH

Passengers: 3-12

Cargo: 9,500 kg, 40 cubic meters

Parabattery: Two Type 4

Notes: This is an adapted version of an aircraft, the air transport. It can be used either as a passenger transport or a freight transport.

**Amphibian Jet Copter**

Cost: 45,000 Cr

Top/cruise speed: 325/50 KPH

Passengers: 4

Cargo: 350 kg, 5 cubic meters

Parabattery: Type 4

Notes: This, too, is an adapted aircraft. It rests on two pontoons where skids are usually positioned. It is often used in sea rescues and for tracking criminals in swamps and bogs.

**Sea-Vessel Movement**

In general, surface-vessel movement is similar to land-vehicle movement, while submarine movement is much more like aerial movement. The rules for acceleration, deceleration, maximum speed, backing up, and turn speed are the same as in the Alpha Dawn expanded rules, page 30. See Table 1 for surface-vessel data.

*Special maneuvers*: Unusual actions may be performed as follows:

1. All ships can perform bumps and slips (as per the Alpha Dawn expanded rules, pages 30-31), as well as short corners (see the following text).
2. Only ships of hull size C or smaller can perform skid turns as well as the other

maneuvers. However, yachts must attain a speed of at least 90 meters/turn to accomplish a skid turn.

3. Other special maneuvers, such as stunts, are up to the referee's discretion to use and define.

*Short corners*: Any ship may attempt a short corner, but this is especially dangerous on the open sea. If the character performing the short corner does not make his Reaction Speed check (Alpha Dawn expanded rules, page 31), there is a 15% chance the ship will capsize. If the ship does not capsize, roll 1d100 and add the ship's current speed in meters/turn, then apply the total to Table 2.

*Collisions*: If a vessel strikes an object above the waterline, treat the collision as per the Alpha Dawn expanded rules, page 31. However, if the object is struck below the waterline, then there is a 1% chance per meter/turn of the vessel's speed that the vessel will take on water. Unless repaired by technicians with a total of four levels of Technician skill, the ship sinks. A ski cycle sinks in five minutes, a motorboat or minisub in 10 minutes, a yacht in 15 minutes, and transport ships and subs in 20 minutes.

When submerged, submarines may make up to six 45 degree turns in one minute (one such movement per game turn). These turns may be made in succession or at different times during the minute. If a sub is at a dead stop, it may turn to face any direction before moving. A sub may also increase or decrease its depth by 5 meters/turn to a maximum depth of 600 meters.

**Sea-Vessel Combat**

The rest of this article is written in terms of the Alpha Dawn expanded rules. Conversion to *the Zebulon's Guide* system should be fairly simple and is left to the referee.

**Surface Combat**

A ship is divided into two parts for the purposes of this article: the hull and the superstructure. The hull is the part of the ship below the water line; the superstructure is the part above the water line.

If a ship's hull is hit, the damage will affect the speed of the• ship or cause the ship to sink. If the ship's superstructure is hit, the direction, speed, or communications will be affected; fires may break out, and the ship might capsize.

There are three types of combat between ships: contact combat, which includes ramming, bumping, and boarding; ranged combat, which involves both personal and mounted weapons; and explosives. The same three types of combat also apply to submerged combat, with some modifiers.

*Contact combat*: Bumping between two ships is similar to bumping between two land vehicles, but the sizes of the vessels involved are much more influential in sea combat than in land combat. To apply this factor, a system is used similar to the "bump number" system from Matt Brady's article, "Here Comes the Cavalry!" in Dragon issue #120. When a bumping situation occurs, the referee finds the difference between the two vessels' bump numbers and multiplies it by five. This number is added to the Reaction Speed of the pilot of the ship with the higher

bump number and subtracted from the Reaction Speed of the pilot of the other vessel. The referee now rolls a 1d100 check for each pilot's revised Reaction Speed score. A successful roll indicates the pilot of the ship has maintained control of his vessel. When a pilot loses control, roll 1d100 and add his vessel's current speed in meters/turn, then apply the result to Table 2.

Ramming is a bit different. Both ships are damaged in a successful ramming attempt, not just the defender. When a ramming attempt is made, each pilot must roll 1d100, add his Reaction Speed, add his ship's bump number multiplied by three, then subtract his opponent's speed in meters/turn. If the attacker's total is higher than the defender's, the ramming attempt is successful.

If the ramming attempt succeeds, both ships are damaged. Damage is calculated by taking the attacker's speed in meters/turn, dividing that figure by 10, then adding the result to the attacker's bump number multiplied by three. The total is applied to Table 3 for the results. Damage to the attacker is figured in the same way, substituting only the defender's bump number for the attacker's bump number.

Boarding is the movement of the crew of one ship to another ship for hand-to-hand and ranged combat. This usually causes little or no damage to either the attacker's or the defender's ship. Even so, boarding can be the trickiest of any of the contact combat maneuvers.

Two requirements must be met for boarding to take place. First, the ships must have the same speed and heading for three turns prior to boarding, and must be at most 10 meters apart. Second, at least three grappling hooks must connect the two ships. Grappling hooks are treated as thrown weapons for purposes of determining the success or failure of the grappling attempt.

After all these criteria are met, characters may climb across the ropes to the opponent's ship. The climb takes three turns at most. A climber hit by weapons fire must make a Dexterity check or else fall into the sea. After a character boards his opponent's ship, combat proceeds as usual.

For obvious reasons, boarding between high-powered ships is rarely used except against stationary ships or under extreme circumstances.

*Weapons combat*: There are two sorts of weapons used between seafaring vessels: personal weapons and mounted weapons. Usual ranged-weapons procedures are used for personal weapons, with these additional modifiers to hit: Attacker on hull size A or B ship: -10

Target ship is hull size C: +5

Target ship is hull size D: +10

Aiming below the waterline: -20

Shots fired by personal weapons hit the superstructure of the target ship only, unless intentionally aimed below the waterline. Then the attacker suffers the aforementioned penalty.

When a hit is scored, the attacker rolls 2d10 and adds the number of dice of damage inflicted. This number is applied to Table 4 unless the hit was intentionally aimed at the hull, in which

case the number is applied to Table 3. Note that these effects only apply to relatively small ships with little or no armor, as would be found on most colony worlds. Shooting at a really large ship, like an aircraft carrier, is an exercise in futility (and probably in suicide as well).

The number and type of mounted weapons a ship may have depends on the ship's size and ship type. Ski cycles may only have forward-firing laser pistols. Motorboats may have any type of rifle mounted on a swivel mount. Transports may have up to four heavy weapons mounted on swivel mounts.

Mounted weapons are subject to the same modifiers as personal weapons, including the previously given modifiers for target hull size and aiming below the waterline.

*Explosives*: These come in three different types: thrown explosives, placed explosives, and mines.

Thrown explosives, as well as grenades, are treated as ranged weapons and use the same modifiers.

Placed explosives, used often in espionage or ambushed, can be put inside or outside the ship. Determine whether or not the blast will count as either superstructure damage or hull damage, given its location. Getting the explosives to the ship without detection is the tricky part.

Mines are often used to guard harbors and military installations. Mines are often stationary, although some may break loose, floating freely. If a ship strikes a mine, treat it as 10 dice of damage applied to Table 3.

**Undersea Combat**

A submarine is a versatile vessel able to fight either on the surface or underwater. When a submarine is surfaced, it follows the same rules as other ships. When submerged, the submarine follows a new set of rules.

There are three different types of underwater vessel combat: contact combat, torpedo combat, and explosives combat.

Contact combat underwater is similar to surface contact combat. The same three basic maneuvers are used: bumping, ramming, and boarding. A bump maneuver exerted underwater uses the following modifications: The submarine maneuvers in a three dimensional environment, meaning bumps can be inflicted from the top or bottom. A bump from above grants a +5 to rolls on Table 6 made to see if the bumped vessel keeps control. In addition, maneuvering undersea is no mean feat. Most of the maneuvering of the sub is done by relying upon onboard computers; you cannot maneuver a sub underwater by sight.

Ramming underwater uses the same mechanics as surface ramming, with the following modifiers. First, speed is divided by five rather than ten. Second, if a ship is descending in depth as it is ramming, five additional points of damage are done to the defender, and five fewer points of damage are done to the attacker. All such damage is applied to Table 7.

Underwater boarding is usually done on rescue missions rather than in combat, as it is tricky. Any men attempting to board during combat must come through the air locks, so they are easy

targets for the men inside. Hence, most boarding actions against submarines take place on the surface against engine-damaged subs; holes must be cut in the enemy's hull to enter at different places. Many ships simply sink obstinate submarines rather than board them.

Underwater weapons combat uses torpedoes - self-propelled undersea missiles approximately four meters long. Most torpedoes carry 150 grams (15d10 points of damage) of TD-19 that explode on impact. There are three different types of guidance systems on torpedoes. Straight-running torpedoes are the simplest, and are aimed and follow their courses for 2 km, when their fuel runs out. Acoustic torpedoes guide themselves after being fired from the sub, homing in on engine sounds from the target until they hit or run out of fuel after 2 km. The most deadly type is the wire-guided torpedo, which can be guided from the launching sub using a computer with a radio antenna. Its range is also 2 km.

Combat involving torpedoes is intense and deadly. One lucky shot may disable a ship. Deception and speed are invaluable. A minisub can carry up to four torpedoes, while a transport sub can carry up to eight. These tubes are usually divided, facing fore and aft. Straight-running torpedoes use the guidelines for mounted weapons. There is no to-hit modifier for careful for careful aim or for the water being soft cover. Acoustic torpedoes follow the same guidelines with a +10 modifier to hit if the opponent is moving or if his engines are running. Wire-guided torpedoes are not subject to any modifiers. The only way to escape one of these terrors is to outrun them; they travel at 125 meters/turn for 16 turns, then detonate if they have not hit their intended targets. Damage from a wire-guided torpedo is 2d10+15 points, applied to Table 7.

Explosives in submarine warfare are occasionally encountered. Some harbors contain mines at a depth that a sub would have to travel to enter the harbor undetected. At other times, spies may board ships and sabotage them. Underwater mines each carry 100-200 grams (doing 10-20 dice of damage) of TD-19.

**Results: Tables 2-7**

*Ballast tanks crushed*: The submarine sinks toward the ocean bottom.

*Capsized*: The boat rolls over, and all aboard take 2d10 points of damage if outside the ship, or 3d10 points if inside (C and D hull sizes only). In addition, anyone inside a C- or D-size ship when it capsizes has a 25% chance of being trapped in an air pocket with 1d10x10 minutes worth of air. This amount is divided equally among characters if more than one person is trapped.

*Decks awash*: The bow of the ship suddenly dives into the waves, and its decks are flooded. There is a 50% chance that any character exposed outside will be washed overboard.

*Depth reduced by 30 meters*: The sub's depth is decreased by 30 meters (*i.e.*, the sub rises, possibly reaching the surface). All aboard take 3d10 points of damage.

*Engine flooded*: The engine immediately ceases to function, and the vessel slows to a ship. It takes 1d10 turns for the ship to completely stop, after which the engine will not start for 3d10 minutes.

*Fire*: Flames burst from a referee-determined part of the ship. Those within 10' of the blaze take one point of damage per minute. If less than 75% of the crew helps, the fire burns an additional 1d10 minutes. For every minute the fire burns, there is a 1% cumulative chance of an explosion. If the ship explodes, the blast radius per hull size are as follows: A - 50 meters; B - 100 meters; C - 150 meters; D - 250 meters. All people within the blast radius take 7d10 points of damage; no type of screen or suit affects this damage.

*Forced surfacing*: The sub must immediately surface. All aboard take 5d10 points of damage, and the sub cannot submerge again until repaired, or else it sinks.

*Hold flooded*: Water pours into the submarine through the hatches. Speed is reduced by 20 KPH for 3-30 minutes, until the• pumps can empty the ship again.

*Loss of control*: The submarine's speed is checked on Table 6 for the affects.

*Radio knocked out*: The antenna for radio communication has been downed. The antenna takes 1d10 hours to repair.

*Sinking*: If a ship has a chance of sinking, the ship has taken water into its hold. The referee rolls 1d100, and if the roll is less than or equal to the designated percentage, the ship begins to sink. A ski cycle sinks in 5 minutes; a motorboat in 10; a yacht in 15; a transport in 20. During this time, deck guns can continue to fire until one minute before sinking. If the ship does not sink, the appropriate modifier is applied to the next damage roll.

*Speed reduced*: The vessel immediately loses the indicated amount of speed unless it is over one-half of the vessel's current speed. In the latter case, the ship loses half speed at most. Any result below zero meters/turn is a full stop.

*Steering jammed*: If jammed straight, the vessel cannot turn. If jammed right or left, the vessel must turn 45 degrees in the indicated direction after each 20 meters of travel. The ship can accelerate or decelerate, but it cannot change its direction.

*Turns -2*: The maximum number of 45 degree turns the submarine can make in one minute is reduced by two.

**Additional Notes**

*Ship-versus-submarine combat*: Submarines almost always have the advantage of surprise against surface ships. However, they have fairly low firepower when compared to other ships of the same size. Also, surface ships are faster than subs, so escape may be difficult for a detected submarine.

A submarine must be fairly close to the surface to fire the torpedoes• it carries. This means that if a sub is sighted before it fires, it can be fired upon with deck guns from the surface ships. When a torpedo strikes a surface ship, the damage is considered hull damage, and the attack gains an additional 2d10 points of damage on Table 3 to represent the surprise factor, unless the ship is aware of the torpedo and taking evasive action.

In addition to torpedoes, some subs have a recoilless rifle or heavy laser mounted on deck. This mount takes three turns to arm and may then be used as the surface combat rules dictate.

Often, the only weapon the surface ships have available to fight submarines are depth charges. These are special charges of TD-19 set to go off at a certain depth or on contact. The base chance to hit a sub with a depth charge is 20%. If the surface ship is using sonar (1,000 Cr/km range), the chance improves to 45% as long as the sub has its engines on; if the sub shuts off its engines, the chance decreases to 35%. A sub hit by a charge takes 2d10+20 points of damage, applied to Table 7.

Another mode of attack available to submarines is to ram ships from underneath. This is especially damaging, and the defender takes one and one half times normal damage while the sub takes normal damage. In this case, the sub rams under surface-combat rules. The damage to the surface ship is applied to Table 3, while the damage to the sub is applied to Table 7.

*Escape from sinking ships*: The methods of escape from vessels vary. Every seafaring vessel under UPF jurisdiction must carry a safe means of escape. Size A ships generally carry life jackets, and size B ships carry either life jackets or life bubbles. Life bubbles are zip-open plastic spheres that can encase one passenger each, having enough air for two hours and a small snorkel for additional air if needed. They will take 5 points of damage before collapsing. Life bubbles cost 50 Cr.

Size C and D ships generally carry a life jacket for every passenger in addition to a number of lifeboats. Lifeboats are small boats that carry six people. These boats always have oars and a collapsible sail. More expensive versions may be motorized. Submarines carry an equivalent of a lifeboat, called an escape capsule, that is essentially a lifeboat that is pressurized for depth. The capsule rises to the surface where its canopy opens and is treated thereafter as a lifeboat. Capsules may also be motorized. Capsules cost twice as much as comparable lifeboats.

**Lifeboat**

Cost: 1,500 Cr (700 Cr w/sail)

Top/cruise speed: 100/50 KPH (15/10 KPH w/sail)

Passengers: 6

Cargo: None

Parabattery: Type 2

Hull size: A

Bump number: 2

Accel/Decel: 50/40 (varies w/sail)

In addition to a means of escape, all ships must have one standard sea survival pack per passenger. The contents of such a pack are: one all-weather blanket, one first-aid pack, four survival rations (eight days of food), one compass, 10 salt pills, 10 liters of water, one flashlight, one pair of sea goggles, and an emergency beeper that emits a signal for 20 km for 48 hours. Some packs may include a small firearm.

**Table 1: Surface Vessel Data (statistics are in meters/turn)**

| Vessel | Hull size | Acceleration | Deceleration | Top speed | Turning speed |
|---|---|---|---|---|---|
| Ski cycle | A | 100 | 40 | 250 | 100 |
| Motorboat | B | 70 | 40 | 200 | 80 |
| Yacht | C | 60 | 40 | 170 | 60 |
| Transport ship | D | 40 | 30 | 160 | 40 |
| Minisub * | C | 70 | 40 | 170 | 60 |
| Transport sub * | D | 40 | 30 | 160 | 40 |

* Only surface movement shown.

**Table 2: Surface Vessel Control**

| Speed (meters/turn) | Result |
|---|---|
| 2-79 | Speed reduced by 20 meters/turn |
| 80-139 | Speed reduced by 50 meters/turn |
| 140-199 | Decks awash |
| 200-259 | Engine flooded |
| 260+ | Capsized |

**Table 3: Hull Damage Results**

| Points of damage | Result |
|---|---|
| 2-15 | No effect |
| 16 | Current speed reduced by 20 KPH |
| 17 | Current speed reduced by 30 KPH |
| 18 | Acceleration reduced by 20 meters/turn |
| 19 | Deceleration reduced by 20 meters/turn |
| 20 | Top speed reduced by 20 KPH |
| 21-25 | 5% chance of sinking (cumulative per turn) |
| 26-30 | 10% chance of sinking (cumulative per turn); add 3 to next damage roll on this table |
| 31-33 | 30% chance of sinking (cumulative per turn); add 6 to next damage roll on this table |
| 34-36 | 50% chance of sinking (cumulative per turn); add 9 to next damage roll on this table |
| 37+ | 70% chance of sinking (cumulative per turn); add 12 to next damage roll on this table |

**Table 4: Superstructure Damage Results**

| Modified die roll | Result |
|---|---|
| 2-15 | No effect |
| 16 | Radio knocked out |

| | |
|---|---|
| 17 | Steering jammed right |
| 18 | Steering jammed left |
| 19 | Steering jammed straight |
| 20-24 | Decks awash |
| 25-29 | Engine flooded |
| 30-33 | Fire |
| 34+ | Capsized |

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**Table 5: Submarine Control: Surfaced**

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| Speed (meters/turn) | Result |
|---|---|
| 0-79 | Speed reduced by 20 meters/turn |
| 80-139 | Speed reduced by 50 meters/turn |
| 140-199 | Decks awash |
| 200-259 | Hold flooded |
| 260+ | Capsized |

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**Table 6: Submarine Control: Submerged**

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| Speed (meters/turn | Result |
|---|---|

)

| | |
|---|---|
| 0-50 | Speed reduced by 20 meters/turn |
| 51-100 | Depth reduced by 30 meters |
| 101-150 | Forced surfacing |
| 151+ | Ballast tanks crushed |

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**Table 7: Submarine Damage Results**

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| Modified die roll | Result |
|---|---|
| 2-15 | No effect |
| 16-20 | Loss of control |
| 21-25 | Acceleration reduced by 30 meters/turn |
| 26-30 | Turn -2 |
| 31-35 | Forced surfacing |
| 36+ | 40% chance of sinking (cumulative per turn) |