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the TRAVELLERS' Digest

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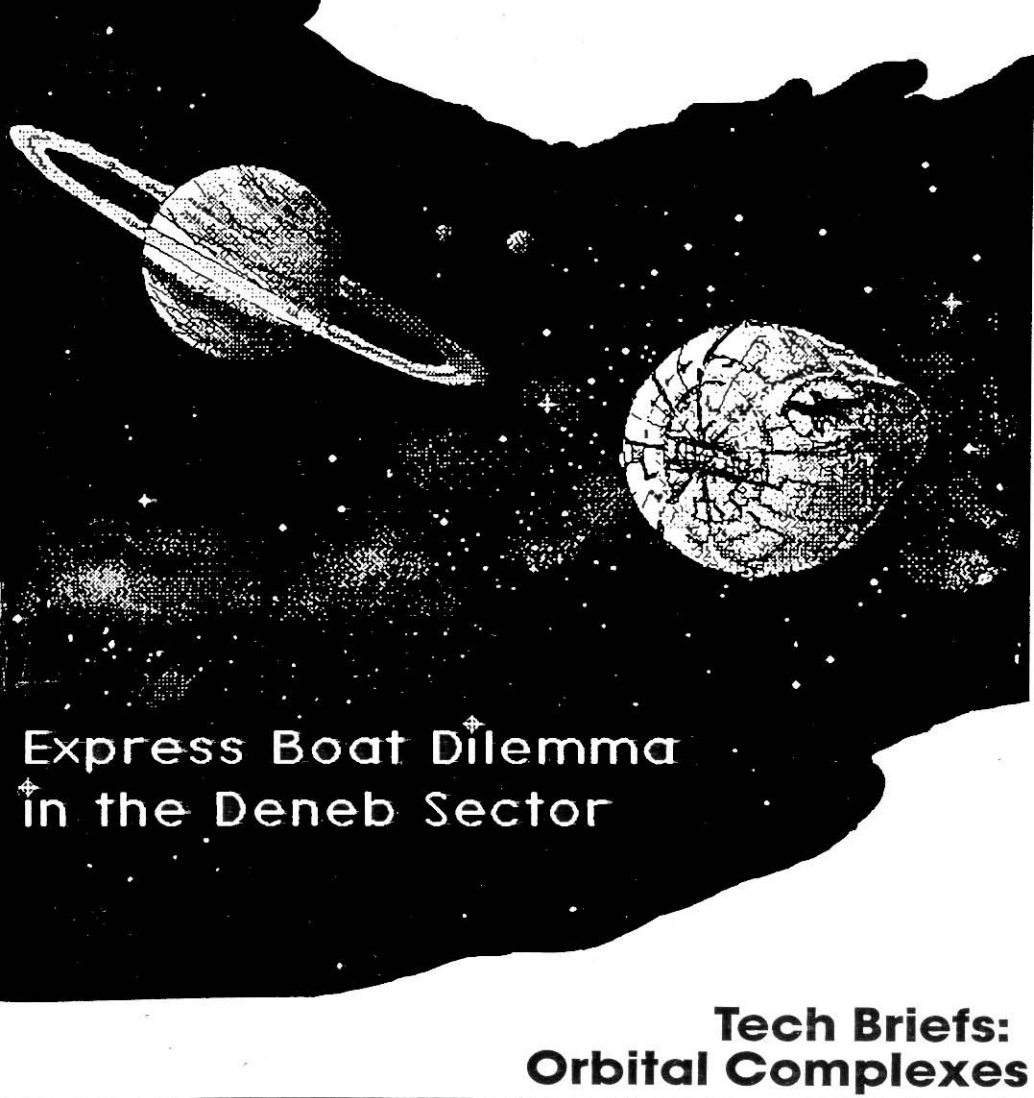

Express Boat Dilemma in the Deneb Sector

Tech Briefs: Orbital Complexes

A magazine devoted to GDW's Science Fiction Adventure Game **Traveller**®

The Travellers' Digest

Volume 1, Number 1 *Charter Issue* **$3.95**

The offices of the Digest are located on Deneb in the Deneb Sector of the Imperium. The Digest is available throughout the frontier sectors of Corridor, Deneb, Spinward Marches, Trojan Reach, and the Reft Sector (spinward).

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Editors' Digest

Welcome to the charter issue of *The Travellers' Digest*. Our goal in this issue (and every issue) is to make Traveller even more enjoyable for referees and players. To accomplish this end, *The Travellers' Digest* will add color and flesh out details of the Traveller universe.

Every issue will contain a full-length feature adventure. Our itinerary? A 'Grand Tour' of the Imperium: starting in the Spinward Marches, you'll travel to Vland, Capitol, Terra, the Asian Hierate, and across the Great Rift via the Jump-5 Route. Naturally, there will be plenty of stops along the way; you'll meet all the major races face to face, and many of the minor ones (including some you've never heard of).

This quest introduces you to four fascinating characters: a scout, a journalist, a scientist, and an almost-perfected pseudo-biological robot. These characters will add excitement to your role-playing, and your ability to role-play will grow as you further develop them. And for you refs, each adventure will give you plenty of NPCs to play with.

There are new worlds and cultures for you to explore. As we move from sector to sector, you'll find maps and detailed library data. You'll see the major races up close; descriptions of minor races will include their history, physiology, culture, language, religion, and government.

Are you looking for new technology? The 'Tech Briefs' in each issue will highlight new gadgets and gizmos for the Traveller universe. This issue tells you how to generate orbital complexes; future installments will describe new sensory devices, and even some Ancient artifacts. Our special two-part article on robot design lets you create your own robots with a new level of detail and realism. Look for lots of diagrams and charts, too.

Referees, would you like to add pizzazz to your adventures? And without a lot of extra work? Our regular 'Gaming Digest' column will give you new ideas for leading your players through an adventure.

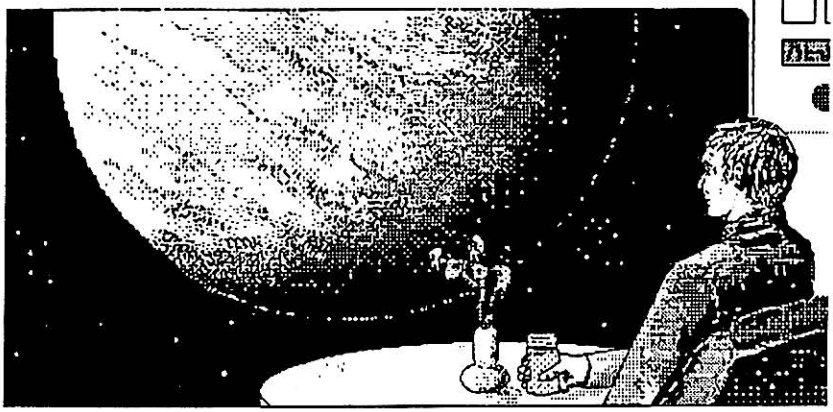
And *The Travellers' Digest* is fortunate to be able to print some of the finest Traveller artwork being produced today.

Best of all, every issue is officially approved for use with Traveller by Game Designers' Workshop, so you are assured of consistency with the rest of the Traveller universe.

One last thing--we'd like to thank Marc W. Miller for his help in getting *The Travellers' Digest* off the ground. (Thanks for the grav-plates, Marc.)•

Credits for the Feature Adventure

Design..... Joe D. Fugate Sr., Gary L. Thomas
Addtional Design..... Robert Parker, Nancy Parker
Playtesting..... Don Couch, Craig Sweigart, Vic Clifton, Dennis Farnworth



Of Xboats and Friends

FEATURE ADVENTURE

...the word "boomworld" brings to mind the excitement and adventure of a frontier, but for Jode, the word used should be "tameworld"...
—Akidde Leogiir, 1100 from *On Jode/Pretoria* in the Travellers' Digest

INTRODUCTION

Of Xboats and Friends deals with a Travellers' Digest reporter and his companions as they travel to Jode/Pretoria in search of a story and discover that an old friend may not be the friend they thought he was.

It is assumed that this adventure will be administered by a referee who has read through it, and who is familiar with both this adventure and the rules for **Traveller**. The basic **Traveller** rules are all that is required. As usual, paper, pencils, six-sided dice, and square-grid graph paper will prove helpful during an adventure session.

Optional References: Additional helpful information may be found in *The Atlas of the Imperium;* Supplement 8, *Library Data (A-M);* Supplement 11, *Library Data (N-Z);* Supplement 7, *Traders and Gunboats;* or Supplement 5, *Azhanti High Lightning.* Also, the Gamelords supplement *The Undersea Environment* and their adventure *The Drenslaar Quest* contain useful referee insight about an underwater environment. The only background information required for this adventure is contained in this issue of *The Travellers' Digest.*

Chapters: This adventure is in several chapters, most of which are material to be read only by the referee.

This introduction may be read by both the players and the referee.

The chapter *"Its a Small Galaxy!"* introduces the players and the situation. This section is designed to be read to the players in order to acquaint them with the characters and their personalities.

The data in *Jode/Pretoria* can be given to the players directly.

The rest of the adventure is for the referee only; players may discover its secrets only by playing the adventure.

STANDARDS AND ASSUMPTIONS

This adventure takes place in the universe published and described by a multitude of **Traveller** products.

The Imperium is a huge human-dominated stellar empire encompassing several hundred light-years of our segment of the Milky Way galaxy 30 centuries in the future.

The Deneb Sector is a 32 by 40 parsec (1 parsec = 3.26 light-years) area of the Imperium on the Imperial frontier. A sector is divided into sixteen administrative areas called subsectors. Each subsector is 8 by 10 parsecs in size.

Worlds are commonly listed with their name followed by a slash and the name of their subsector location. For example, Jode/Pretoria refers to the world *Jode* in the *Pretoria* subsector.

Dates: All dates herein correspond to the Imperial calendar. The starting date of this adventure is 063-1100.

Place: This adventure starts on Aramis/Aramis in the Aramis subsector of the Spinward Marches, briefly moving to Pretoria/Pretoria in the Deneb Sector before the main events occur on Jode/Pretoria.

CHARACTERS

This adventure is intended for the characters listed below. At the referee's option, other characters can be substituted, although some role-playing enjoyment would be sacrificed.

Even though the characters listed are all male, feel free to change any or all of the genders as desired.

First, the player characters:

Akidda Laagiir, Journalist 858AA6 Age 42 6 terms Cr 31,000 Born: 319-1058

Interview-5, Streetwise-3, Grav Vehicle-1, Wheeled Vehicle-1, Admin-1, Brawling-1 Possessions: Holocrystal Recorder

Position: Senior Assistant Editor, *Mora World Review*.

Akidda Laagiir started at the age of eighteen as a copy boy with the *Mora World Review*; his friendly face and his ability to get people to trust him contributed to his steady career progress. Living on Mora, with its charismatic dictator, the Duchess Delphine the Matriarch, is sometimes a trying experience for any journalist, which may explain his occasionally iconoclastic actions. He is slightly prejudiced against "the system", preferring fresh ideas and fresh ways of doing things. This boldness has also contributed favorably to his career. His admin skill was learned while moving up the ranks, but it is a skill that he would just as soon not need: he much prefers cutting through to the heart of a situation. While he is sensitive to the needs of others, he has a well developed self-preservation instinct that allows him to quickly adapt to a strange locale or culture–a skill that has saved his neck on more than one occasion.

Like any writer, he is consumed with curiosity, and when the *Travellers' Digest* journalism contest was held again in 1098, he was among the first to apply. His piece was entitled *The Imperial Frontier: The Next Millenium.* In it he discussed the spinward frontier sectors of Corridor, Deneb, Spinward Marches, Trojan Reach, and Reft (spinward) and their role in shaping the growth of the Imperium in the next 1000 years. On 258-1099, he received the announcement that he had won the *Travellers' Digest* Touring Award.

After a week to put things in order, he left Mora for the central offices of the *Travellers' Digest* on Deneb. His route took him through Aramis/Aramis, so he could stop off and visit his nephew Dur Telemon, stationed on the Scout base there.

Dur Telemon, scout B7A856 Age 34 3 terms Cr 65,000 Born: 038-1067

Auto Pistol-3, Survival-2, Pilot-1, Grav Vehicle-1, Engineer-1, Gambling-1, Brawling-1 Possessions: Auto Pistol

Dur Telemon was *born* into the Scout service. His father was in the Scout service while Dur was growing up, and both of his grandfathers had served in the Scouts in their younger days. Dur enjoyed nothing more as a boy than to sit and listen to their tales of adventure. The Fourth Frontier War broke out when Dur was a teenager–his father's service in the war was a source of pride for the entire family and served to deepen Dur's love for the scout service. After three and one-half years of college, his *wanderlust* pushed him out of school and into a Scout recruiting office on Mora/Mora, his home world.

Dur's individualistic nature meshed well with his duties in the Exploration Office of the Scout Service. In his first term, a 'routine' mapping expedition on Pannet/Rhylanor suddenly turned into a hostage rescue operation, and it was then that Dur happened to save Dr. Krenstein's life. Neither of them is overly emotional about it, but it was that initial chance encounter that grew into a deeper respect and friendship on both sides over the years, despite the different personalities of the two men.

His second and third terms were spent in District 268 and the Five Sisters subsectors doing various planetary surface and orbital surveys. The harsh conditions Dur often encountered taught him much about staying alive and living off the land in exotic environments. Halfway through Dur's fourth term, he was told that he was being transferred from his field post in the Exploration Branch to a bureaucratic position in Fleet Support in the Scout Operations Office on Aramis/Aramis.

Dur is contemplating not re-enlisting at the end of his fourth term.

Dr. Theodor Krenstein, scientist 495FC9 Age 58 10 terms Cr 300,000 Born: 173-1042

Computer-4, Leader-3, JOT-2, Laser Rifle-1, Grav Vehicle-1, Electronics-1, Medical-1, Mechanical-1

Possessions: Hand Computer (TL15), Electronic Tool Kit, Robot AB-101

Position: Graz Redniz Chair of Computational Robotics at Rhylanor Institute of Technology on Rhylanor/Rhylanor (on sabbatical leave).

Dr. Theodor Krenstein is a gifted, multi-talented scientist, with interests ranging from anthropology and archaeology to xenology and zoology, including most of the 'ologies' in between. Born on the planet Rhylanor, he entered the Rhylanor Institute of Technology at the age of eighteen, eventually receiving advanced degrees in computer science and robotics. He went on to serve three terms as Dean of the School of Robotic Science at RIT, after which he was appointed to the Graz Redniz Chair of Computational Robotics, a prestigious and coveted position. He is the author of 12 books and over 100 articles in technical and scientific journals, in addition to holding more than 250 Imperial patents for his inventions and computer work.

Despite his academic success, he has become bored with what he has been doing, and realizing his age, he has taken a two-year sabbatical from teaching in order to make forays through parts of the Rhylanor and Pretoria subsectors.

Among his many pursuits, Dr. Krenstein has aided the Scout service in developing robots for use in conducting detailed planetary surface surveys. During a test in 1090 on Pannet/Rhylanor, members of a disgruntled anti-technist group kidnapped Dr. Krenstein and threatened to kill him if the Scout service didn't meet their demands. A young scout named Dur Telemon was part of the all-volunteer raiding team that finally freed Dr. Krenstein; in fact, Dur was the first to reach the Doctor.

It was this incident that prompted the Doctor to construct his personal servant and bodyguard, whom he refers to as 'Aybee'.

AB-101, valet FD9C78 Age 19(?) 0 terms Cr 0 Constructed in 1091
Medic-1, Linguist-1, Vehicle-1, Laser Welder-1

Position: Personal servant and protégé of Dr. Theodor Krenstein. AB-101, affectionately known as "Aybee", is a pseudo-biological robot designed and constructed by Dr. Krenstein. His UPP and other personal data are apparent values and are only approximations, calculated by comparing human norms with Aybee's abilities. Aybee's vital statistics (strength, dexterity, and endurance) are based upon his mechanical configuration and his installed components; his intelligence and education are estimated from his computer hardware and software; and his social class is based upon his position with Dr. Krenstein. All of Aybee's skill levels are estimated, and must be modified by the referee in certain situtations. Although his programming gives him certain basic abilities, because of his lack of true artificial intelligence he can make errors in judgment; in abstract situations, this effectively lowers his true skill level. Aybee's 'weapon' is a light laser welder, built into his right arm. The Shudusham Concords specify certain standards for robot-installed weapons, and Dr. Krenstein has designed Aybee in such a way that his arm (ostensibly used only as a tool) can pass inspection by officials, since laser welders are not restricted by local law levels; however, voice override controls allow Dr. Krenstein to use Aybee as a weapon at short range.

Non-player characters:

Neric Andor, scout 92389A Age 46 7 terms Cr n/a Born:106-1055
Computer-3, Electronic-3, Commo-2, Pilot-1, Mechanical-1

Position: Communications specialist on board the xboat tender *Albany* in Jode/Pretoria system.

Neric Andor, the orphaned son of an interstellar merchant in the Glisten subsector of the Spinward Marches, was assigned to his current position two months ago. His duties in the scout service have taken him all over the Deneb and Spinward Marches sectors; his friendship with Dur Telemon dates from Dur's second term of service, when they worked together in District 268 in the Spinward Marches.

"It's a Small Galaxy!"

Akidda Laagiir had to keep reminding himself that it was true–he had won the *Digest Touring Award*. After 23 weeks, his homeworld of Mora was far away, its blazing sun nothing more than a distant point of light in the heavens. Deneb and the offices of the *Travellers' Digest* were still dozens of parsecs and many, many weeks away.

The Tukera liner *Joy of Glisten* had just dropped out of jump space in the Aramis system; fortunately, the *Digest's* deadline for Akidda's arrival in Deneb was generous enough that he had time for the reunion he planned at this stopover. Akidda sat in *Glisten's* passenger lounge enjoying a drink as he watched Aramis grow into a large yellowish globe. Another few hours and he would greet his nephew Dur Telemon, whom he hadn't seen in 13 years–Akidda was 29 and Dur was 22 when Dur joined the Scouts. Dur had returned to Mora once, when his father died in 1090, but Akidda had been on assignment offworld at the time and had missed him. Akidda would make up for that missed meeting now.

ARAMIS DOWN STARPORT

Akidda hurried to the Starport Hotel at Aramis Down Starport in Leedor, Aramis's only city.

"Hey, Kidd! Over here!" The source of the voice was easy to spot–Dur stood tall and muscular in his dress blues. Akidda rushed over, and the two shook hands vigorously.

"You look older than I remember you, Dur."

"I was going to say the same thing about you, Kidd, but I was taught to be polite to my elders."

"Thanks a lot. So how've you been, anyway..."

The two talked on and on into the night, Dur with tales of his past adventures and Akidda with his hopes for new exotic experiences to come. Akidda had won the prestigious Digest Touring Award, and was now going to work for *The Travellers' Digest*, based in Deneb. Travelling about the Imperium and reporting to the *Digest* on his travels, his articles would "promote understanding of the cultural diversity within the Imperium", according to the *Digest*.

Dur had enjoyed the challenge and adventure of his previous terms in the Scout Service, but he had just been "promoted" from the field into fleet operations stationed here on Leedor, this dismal underground city tunneled out of the rock.

"If you don't like your new post, why don't you quit the Scouts and travel with me?" Akidda finally suggested.

Dur thought for a moment.

"I'd love to, Kidd, but the problem is finances. I only have enough saved to take me 6 jumps high passage, or 7 mid passage. You know there's no retirement pay for Scouts. I bought an annuity that pays me 4000 credits a year as income, but that's hardly enough to pay my way–I would simply be a burden to you."

The two fell silent again.

"Say, Kidd, did I ever write you about my friend, Neric Andor?"

"No, I don't think so."

"He was an orphan–no real relatives–but the two of us were like brothers. I met him at training camp on Resten. Anyway, I haven't seen him in a couple of years, but I just heard at the base that he's been transferred to Jode/Pretoria, doing xboat duty. So I'll tell you what I'll do, Kidd. I've got quite a bit of leave accumulated, and you know I'm not looking forward to my new assignment. So I'll

travel with you as far as Jode. It'll be fun seeing Neric again, and then I'll travel back here after my vacation."

"Sounds okay to me," Akidda said. "Maybe I'll get a story out of the deal."

"You're always the newshound, Kidd. But I wouldn't count on it. From what I've heard, Jode is a pretty dull place."

"But I've never been on an xboat before, Dur."

The scout's face broke into a smile. "I get the idea," he said. "Xboat security is pretty tight, but Neric might be able to twist a few arms for us."

ON TO PRETORIA

After a week in Leedor on Aramis, the pair boarded the Tukera Lines passenger vessel *Segan's Pride*, bound for Pretoria.

The highlight of the uneventful trip was the skimming of the gas giant in the Teh system for fuel before proceeding to Pretoria.

Pretoria (Deneb 0406 B656967-C) felt more like home to Dur and Akidda, because of its high population. Akidda noticed the heavy Naval presence everywhere and the Law Enforcers with the Imperial Sunburst on their uniforms: a constant reminder of the Rachelean Revolts here 90 years ago (see Library Data for more information). The layover on Pretoria was just a few days.

AN OLD FRIEND

While on the Tukera Lines liner *Spirit of Rhylanor* enroute to Jode, Dur noticed an old friend from his first term in the Scout Service: Dr. Theodor Krenstein, also a passenger on the *Spirit of Rhylanor*.

"Cutting classes again, Professor?" Dur asked.

"My, but it's a small galaxy!" Dr. Krenstein exclaimed, obviously glad to see the scout again.

Dur introduced his uncle, Akidda Laagiir, to the Doctor. Dur also told the Doctor about the *Digest Touring Award*.

"I am honored to be in such distinguished company," the Doctor said to Akidda.

"Likewise, Doctor Krenstein", Akidda quicky returned. He was well aware of the doctor's standing in the scientific community.

The doctor told the pair he was on his way back to his room and asked them to join him later in the lounge for dinner. As he turned to leave, he mentioned that he would bring a friend along.

DINNER IN THE LOUNGE

The doctor met Akidda and Dur in the lounge for dinner and introduced them to his "friend and protégé, Aybee". Dur was puzzled by the doctor's apparent delight with the introduction.

"So, Aybee, you're a student at RIT?" commented Akidda.

Aybee glanced over at Doctor Krenstein, who nodded slightly and winked.

"Not exactly, Mr. Laagiir. My full name is actually AB-101, which stands for-".

"My God, you're-a robot!" stuttered Akidda.

"But of course." Aybee flatly remarked, apparently amazed that anyone would think otherwise.

"Ah, yes," Dur said, nodding as he realized he should have expected as much from the doctor. The dim light of the lounge added to the deception; as Aybee spoke, Dur could detect no hint of unnaturalness from him.

The doctor was obviously enjoying the whole episode.

"Advanced pseudo-Biological robot, model **101**," the doctor added softly. "His basic design was actually produced by one of my colleagues, as model AB-100. I added many refinements and enhancements to the design, and dubbed him AB-101. He's the only one of his kind. I'm careful not to make a scene with him, since many people are afraid of robots, particularly pseudo-biological ones. That's why the Shudusham Concords came into existence, you know.

"Incidentally, I'd appreciate it if you two would keep this our little secret–it would not be to my advantage if Aybee's true nature were common knowledge.

"To tell you the truth, I'm surprised you caught on so quickly, Akidda," the doctor continued. "You have tremendous powers of observation. Most people could spend days, or even weeks around Aybee without noticing he wasn't human."

The rest of the evening's conversation was far from boring.

NEXT STOP: JODE

As the week onboard *Spirit of Rhylanor* drew to a close, the trio began to discuss their destination, Jode.

Dr. Krenstein is going there because of his interest in archaeology. He has a theory that Jode's lost civilization was more advanced than the generally accepted tech level of 2 assigned to their culture by other archaeologists. He has studied Jode a lot lately...

Jode/Pretoria

Primary: Dan-el, spectral class F3 IV. Mass: 2.2 standard. Stellar diameter: 5.28 standard. Luminosity: 14.8 standard.
Planetary System: Six major bodies. One inhabited world (Jode, VI). One planetoid belt in system, no empty orbits.
VI Jode: Mean orbital radius: 304 million kilometers (2.0 AU). Period: 696.53 days. No satellites. Diameter: 14,470 kilometers. Density: .86. Mass: 1.22 standard. Mean surface gravity: 0.96 G. Rotation period: 21 hours, 20 minutes, 58 seconds. Axial inclination: 2°9'52.8". Albedo: 0.59. Surface atmospheric pressure: 1.6 atm; composition -- oxygen-argon-nitrogen mix with .012% chlorine taint, rated EXOTIC IRRITANT: complete head-to-toe protection suggested for periods of extended exposure. Hydrographic percentage: 64%; composition liquid water. Mean surface temperature: 23° C.

Jode (0805-A9A6683-B) is a large world on the main Imperial xboat route in the Pretoria subsector. When the Imperium's Second Survey was published in 1065, Jode's UPP was A9A6220-B. Six years later Leavitt Labs, an oceanographic research firm based on Carthage/Pretoria, developed a new combat drug derived from the Jodian salalor. Jode's population has mushroomed since that time, and now numbers over four million.

When one is indoors, breathing purified air and unable to see the sky, it is easy to forget that Jode's atmosphere is tainted. Although the concentration of chlorine (about 120 parts per million) is not high enough for the atmosphere to be corrosive, even short exposures without a mask will cause extreme irritation and permanent lung damage.

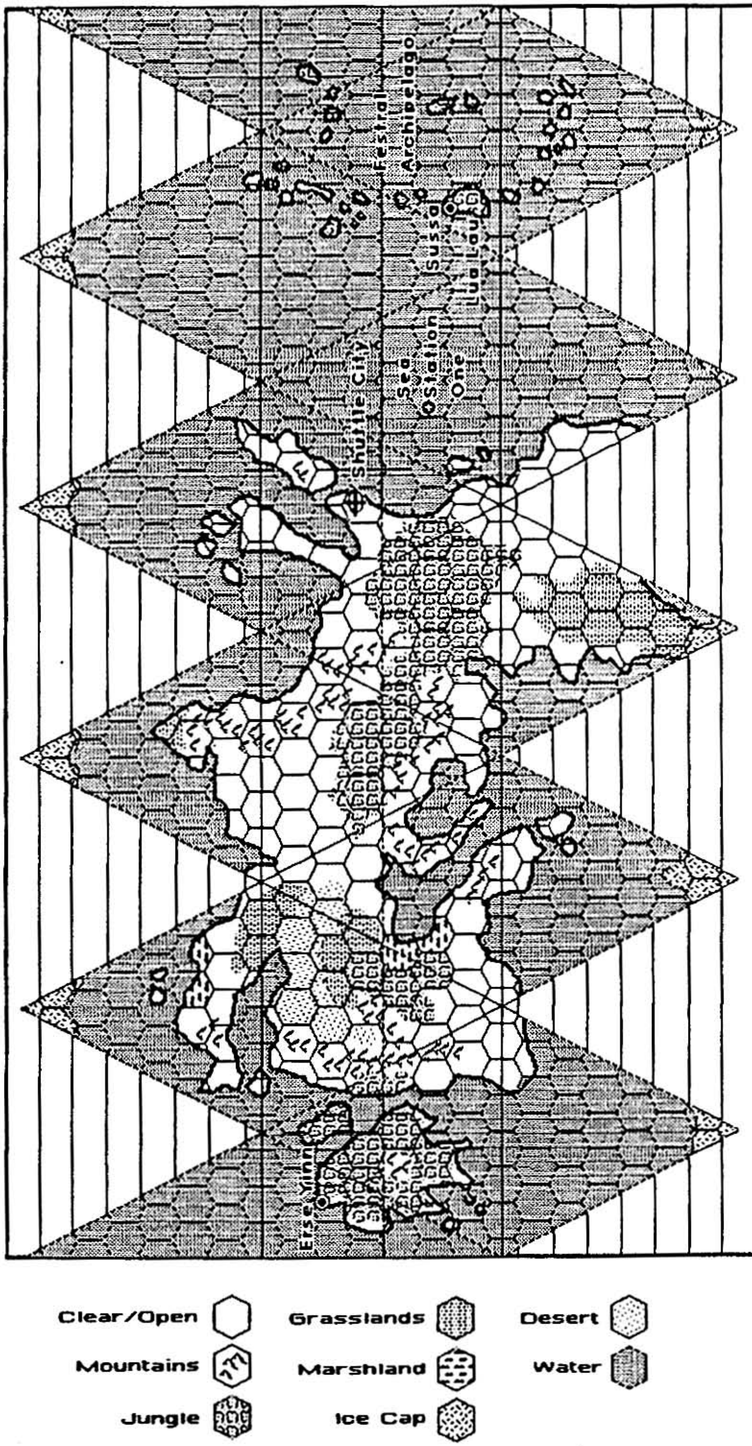
Most of the current population of 4 million live in the orbital complex or in sealed surface environments that protect their inhabitants from the irritating effects of the chlorine. Local plants and animals are inedible to humaniti (not always poisonous but certainly non-nutritive and horrible tasting). Major export items include pharmaceuticals and perfumes refined from sea creatures, and minerals mined in the island archipelagos.

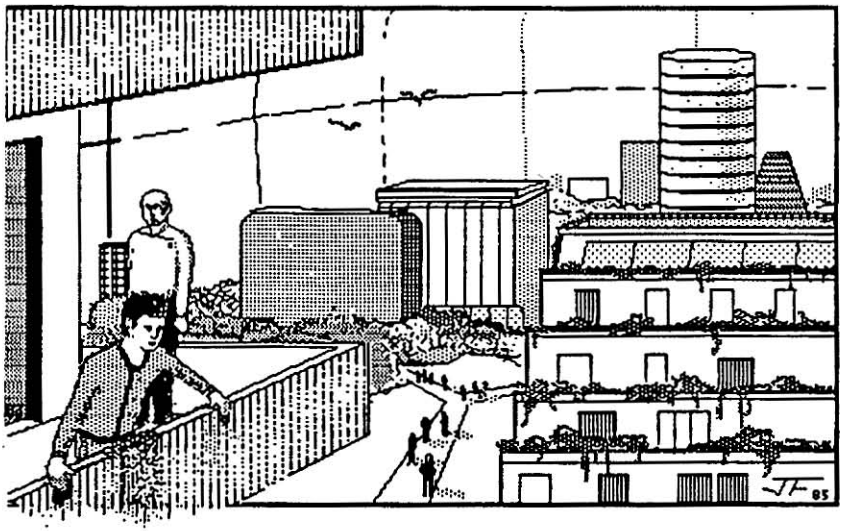
Jode's only major island group, the Festral Archipelago, is all that remains of a sunken continent and the sentient land-dwelling race which inhabited it. No living member of this race survived the geological cataclysm estimated to have taken place 1 million years ago, but archaeologists working underwater have discovered a large number of primitive artifacts. None of Jode's sea dwellers are sentient, although one has behavior and communication patterns reminiscent of the dolphin of Terra or the lasat of Zurr, and some others have well-developed manipulative members. Many of the Festrals also support rookeries of sea "birds" and a limited land ecology.

Jode has a law level of three, reflecting it's 'boom town' status, and it is not uncommon to see people wearing sidearms. Some harmless offworld compounds are highly toxic to Jode's indigenous animals and are also used defensively by the locals.

The starport in the system is totally orbital. Starship landings on Jode are hazardous because of the constant cloud cover; gusting banks of yellowish clouds can reduce visibility to zero in minutes. Regular shuttle runs are made by pilots who are familar with the atmospheric conditions and trained in instrument-only landings.

Jode
0805-A9A683-B
1 Hex equals 1290 kilometers





Jode Orbital

Jode Orbital, high above the inhospitable atmosphere on Jode, is a shining example of what tech level 11 orbital complex design has to offer. The 170 million ton complex has been under construction for the last 18 years and should be completed within the next 2 years.

When completed, the complex will hold over 2.2 million inhabitants. The current population is around 2 million, which is near capacity. Additional statistics of the complex include:

- 5.1 million ton power plant;
- .85 million ton maneuver drive, used to counter orbital decay;
- 11.05 million tons of fuel, enough to last 1 standard year.

Jode Orbital also contains the class A starport facilities, the starship construction yard, Travellers' Aid Society facilities, the bulk of the pharmaceutical manufacturing facilities, and a Vargr trading station. Because of Jode's proximity to Vargr space, 10% of Jode's population is Vargr.

Orbital One, Jode's original space station, has been gutted and is now used as a 500,000 ton fuel depot.

ARRIVAL INSYSTEM

When the *Spirit of Rhylanor* arrives in the Jode system, it will dock at the orbital complex, and the group will stay in a hotel on the complex. Akidda will insist that the group stay with him as guests in the local Travellers' Hostel.

The first order of business for the group will probably be to find Dur's friend Neric, and to get a chance to visit express boat facilities in operation. The obvious way to arrange this is to visit the local Scout office.

AT THE SCOUT OFFICE

There is no scout base in the Jode system, but there is a small command and recruiting office on Jode Orbital. The office has a central reception area and several adjoining offices, and of course the usual records section.

Inquiring about Neric gives the group his specific station: the express boat tender *Albany*; however, he is currently taking leave on Jode Orbital. The office has no information concerning his present whereabouts, so the group will have to seek him out. Akidda's skills should prove helpful in this search.

RUMORS

These are rumors of all kinds listed according to location and source. A few of these rumors are special to the feature adventure; others can be used by the referee as the basis for other adventures on Jode. Rumors not essential to the feature adventure can be treated as true *or* false by the referee.

In the Scout Office

A clerk is overheard complaining that orders for supplies from Marz have been filled incorrectly four times in the last few months.

If the group asks, one of the scout office officials can point out about a dozen casinos, bars, and restaurants that scouts are likely to frequent. He can also indicate which hotels Neric might stay at. Here is a list of popular Jode establishments:

Name	*Classes*	*Notes*
Café Lashum	R	good food
Spacer's Inn	SHR	chain, caters to ship crews
Jodeport Hotel	HR	top-of-the-line TAS hostel
Whocco Tehn's Casino	SC	popular casino–*referee:* see below
Blue Jug Bar	S	not recommended
The Meteorite		specializes in hardkicking 'hooch'
Station's End Bar	SV	near construction area
Kaga's Place	SC	honest casino, for a change
Sky-High Bar	S	good place to pick a fight
Gvegh Gvrr (Tavern)	V	name is Vargr dialect for "I'm ready!"
The Pretorian	HR	four star rating
Shilaan Hotel	SHRC	nice casino in rundown hotel

Key: **S** popular with scouts, merchants, and the other services
V popular with Vargr
H hotel
R restaurant
C casino

All of the above establishments serve drinks.

Note: Aybee **must not** go inside any casinos, and Dr. Krenstein will not permit this.

Locating Neric

The group can go from bar to bar and hotel to hotel, only to remain one step behind Neric. The referee can weave the following rumors into the search as he sees fit.

Vidnet Rumors

The local Vidnet news reports that Samson Virani, a high official of the Commerce Ministry, has proposed strict marine harvesting quotas to protect certain species. A representative of the Jode Mariners Association has stated "...the fishers are prepared to resist government meddling in our livelihoods. Things have been fine for the last decade—if they stick their noses where they don't belong, we'll all likely be reduced to poverty."

A news bulletin tells of an accident in a surface processing plant. Sabotage is suspected, from a motive of business rivalry or political friction.

The news reports, "It appears a Vargr ship that jumped insystem experienced nav-computer problems and wandered into the planetoid belt. A few hours later, its transponder signal was lost. A full scale search is in progress."

A shuttle service advertisement announces that several new ships have been ordered from the ship yards and will go into service soon.

The Provincial Hunt Boat Company announces three new openings for crewmembers. Harpoon experience is desirable, but not necessary.

A new housing area is soon to be completed in Jode Orbital; this should alleviate the overcrowding problem.

Library Data Available on the Subject of Archaeology

A local archaeological journal contains an article in which a local archaeologist claims to have deciphered the language of the extinct Jode sentients.

Although taking Jode's archaeological treasures offworld *is* legal, the local Ministry of Culture's red tape makes it prohibitive.

Overheard

There have been reports of rich gemstone finds on an island near Lau Lua.

A local citizen complains, "Outsystem mail is so slow, they must be sending it by solar wind!"

Many surface miners say that small artifacts in good condition will bring enormous prices on Caladib.

A local citizen expresses her hope that her son can get into the Imperial Scout Service when they upgrade Jode's scout office to a full Scout Base. Her companion is greatly surprised to hear that any base is planned.

Specific People

A Vidnet technician who deals with xboat personnel says he finds the new communications specialist touchy and close-mouthed, and irritating to work with.

A panhandler (referee: don't reveal to the players that this NPC is a crook—let the players discover this on their own) offers to sell them some artifacts, supposedly from Jode.

A dealer at Whocco Tehn's Casino says Neric Andor is a regular at the card table. Depending on a reaction roll, the players may be warned not to play against two of the regular gamblers when the gamblers are on one of their 'hot streaks'. They never play for long at any one time, and they evidently have enough money that they do not seem to care whether they win or lose, so the dealer recommends that the party play with them at their own risk.

Whocco Tehn himself is tall and dark, and one can occasionally see him watching the casino operations. The dealer knows little about him, other than the fact that he is an 'entrepreneur' from Efate/Regina. Whocco Tehn chooses his employees carefully, and prefers to let them handle the day-to-day operations.

Referee: Whocco Tehn is a high-ranking Zhodani noble in charge of the Jode spy operation. The casino is a cover serving several purposes. Most obviously, it is a source of funds and an easy place to launder money from the Zhodani Consulate. It also provides the psionic masters with the ideal opportunity to probe the minds of scouts, and since the games are controlled, the Zhodani decide which scout will win and which scout will lose. When a scout gets in over his head, a loan shark in the employ of the Zhodani will lend the scout money at usurious rates. This provides further opportunities for blackmail and 'favors' of the scouts.

Referee: Let the players see Whocco Tehn in the casino, but he will not speak to them. The 'scouts' who visit the players (below) are the two lucky gamblers, but the players will not be aware of this unless they deduce it from circumstantial evidence. The dealer himself is a young Jodian unaware of any of this. If the players return to Whocco Tehn's Casino after the fake scouts' visit, the referee may handle the situation as he desires.

A street poet sings a ballad about the shining of the sun, a rare occurrence on Jode (averages once or twice a year).

JUST A LITTLE FRIENDLY PERSUASION...

After at least one day of searching for Neric, the group will receive visitors one morning while still in their room.

The visitors are two men from the scout service. They are greeted at the door by Aybee; they ask to see Dur Telemon. Aybee admits the visitors and leaves the parlor to summon Dur from the kitchenette.

The scouts inform Dur that Neric is involved in classified activities at this time, and they request that Dur not attempt to seek him out. Neric regrets missing this opportunity to see his old friend, but Dur should understand the needs of the service. Neric unfortunately expects this assignment to occupy many months.

Meanwhile, Aybee asks to speak with the doctor in private. Aybee asks the doctor, "As your bodyguard, I must ask if you are expecting any threat from Zhodani in this sector?" Further questioning by the doctor will elicit the information that the two scouts in the parlor exhibit Zhodani speech patterns, detected by Aybee's

linguistic programming. The scouts could be from Zhodani worlds captured in the last frontier war, of course.

Aybee will offer to holo-record the conversation.

REFEREE NOTES

The two scouts are not even scouts at all; they are Zhodani imposters (see the section entitled *The Plot*). An additional optional reference (for the referee only) is Alien Module 4, *Zhodani*.

At this point the players may choose to confront the scouts immediately with their suspicions. This could lead to combat in which one of the Zhodani will attempt psionic assault. The stats for the two "scouts" are:

Jen Rogandi AC889A Age 42 Psi-10, Telepathy-10, Brawling-2
Eneri Katana 66867A Age 38 Psi-10, Telekinesis-10, Brawling-2

Neither is carrying any weapons.

If combat occurs, Aybee will be immune to psionic assaults on the mind. Because of his weight (over 300 kilograms), any attempt to move him by telekinesis will cause the Zhodani to overtax himself and collapse. If necessary, Dr. Krenstein may order the use of Aybee's laser welder.

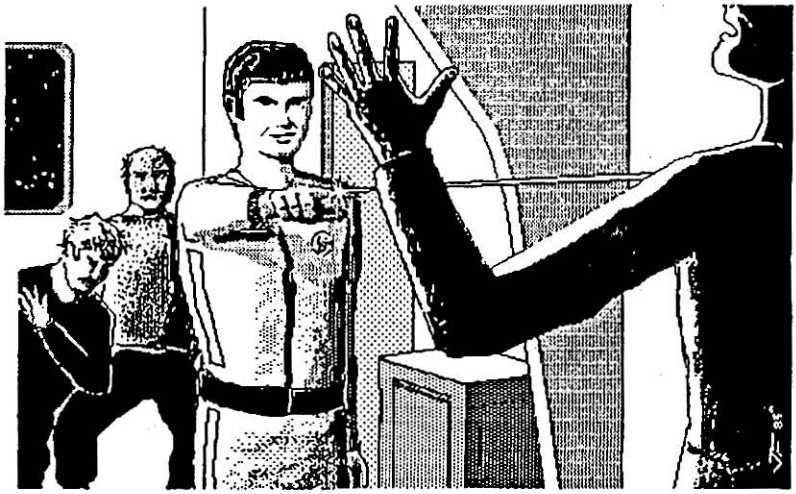
If the Zhodani escape, the players may try to follow them but will lose them in the corridors of the hotel.

If the Zhodani are captured alive, they could be turned over to the authorities, or questioned by the characters. The Zhodani will attempt suicide rather than reveal their mission.

If the Zhodani are killed, the players have a legal problem. They may dispose of the bodies and conceal the matter or report immediately to the authorities and plead self-defense. They may or may not mention Zhodani. If they do mention Zhodani involvement, they will not be believed. In either case, they will not be detained.

The players may allow the scouts to leave unchallenged. (Jen Rogandi will read Dur's mind to see if Dur believes them, but he will not read the thoughts of other members of the party.) If the players tail the scouts, they will lose them. If they report the incident to the scout office and show holo-prints of the scouts (prepared in private by Aybee), they will learn that the scouts were imposters. They will thereafter have cooperation from the scout office in further investigations.

As to Neric, he has cut his leave short and returned to the express boat tender.



The Express Boat Tender

After the players learn that Neric has returned to the express boat tender *Albany*, they will need to figure out a way to get onboard the tender. The possible options include:

The direct approach: paying a courtesy call. In this case, it must not be known that Aybee is a robot. Any of the three humans has enough 'political pull' to get them on board this way.

Indirect approach 1: via the weekly supply ship.

Indirect approach 2: starship in distress.

Exact details depend on the plan the players develop.

THE EXPRESS BOAT TENDER *ALBANY*

The *Albany* is typical of express boat tenders in the Imperium. It is constructed using a partially streamlined 1000 ton hull and type H drives giving it jump-1 capability and 1-G acceleration. Its fuel tanks hold 150 tons of fuel, which is rarely used for jump purposes. It is instead used for insystem maneuver and to refuel express boats. The Bridge Deck includes a Model/3 computer, fire control for three turrets, and communication relay facilities. The deck also has ten staterooms and twenty low berths. The *Albany* has a crew of nine: 1 captain/pilot, 1 navigator/medic, 1 communications specialist, 3 engineers, and 3 gunners. The Cargo Deck holds repair parts and replacement equipment. The major portion of the ship is taken up by the huge vehicle bay, able to hold up to four 100 ton express boats at once.

Interior Details: The spacious vehicle bay measures 40 meters by 28.5 meters by 12 meters–the twelve meters can be extended to 24 meters if the bay doors are left open. It is usually more convenient to close the bay doors, since the

vehicle bay can then be pressurized, thus avoiding the constricting bulk of vacc suits for maintenance personnel.

The Albany is armed as protection against the occasional Vargr corsair raiders from across the Imperial border 1 parsec away.

On the following page are plans for the express boat tender *Albany*. The bridge deck has some specific marked areas.

1. Galley: The galley for preparing meals, which are self-prepared with the aid of sophisticated computerized cooking appliances. There is automated pantry storage from the cargo deck below.

2. Mess and Recreation: This area is used for eating and for off-duty relaxation and recreation.

3. Crew Cabin: This cabin is used by the Navigator/Medic. It has its own fresher facilities and includes an extra bed and some sick bay equipment.

4. Crew Cabin: This cabin is used by the Pop Turret Gunner.

5. Crew Cabin: This cabin is used by the Starboard Gunner.

6. Crew Cabin: This cabin is used by the first Junior Engineer.

7. Crew Cabin: This cabin is used by the second Junior Engineer.

8. Crew Cabin: This cabin is empty; it is used when necessary by express boat pilots or other temporary passengers.

9. Crew Cabin: This cabin is used by the Communications Specialist. It has its own fresher facilities and includes an extra bed for use by express boat pilots or other temporary passengers.

10. Crew Cabin: This cabin is used by the Chief Engineer.

11. Crew Cabin: This cabin is used by the Port Gunner.

12. Communal Fresher: Central sanitary facilities, including a multi-function shower, a toilet, a sink, and a small washer/dryer. Providing a common fresher used by all allows more room in each stateroom.

13. Model/3 Computer: This room contains the ship's computer and the sizable data banks used to store incoming and outgoing express boat communications.

14. Bridge: The bridge area includes an extensive bay window to provide visual scanning of the ship's bay doors as well as an overhead view. While the tender is stationary, all ship functions can be monitored by a single officer stationed here, but both a pilot and navigator are required while maneuvering. The bridge also contains the extensive data communications control station, a central fire control station and an engineering panel.

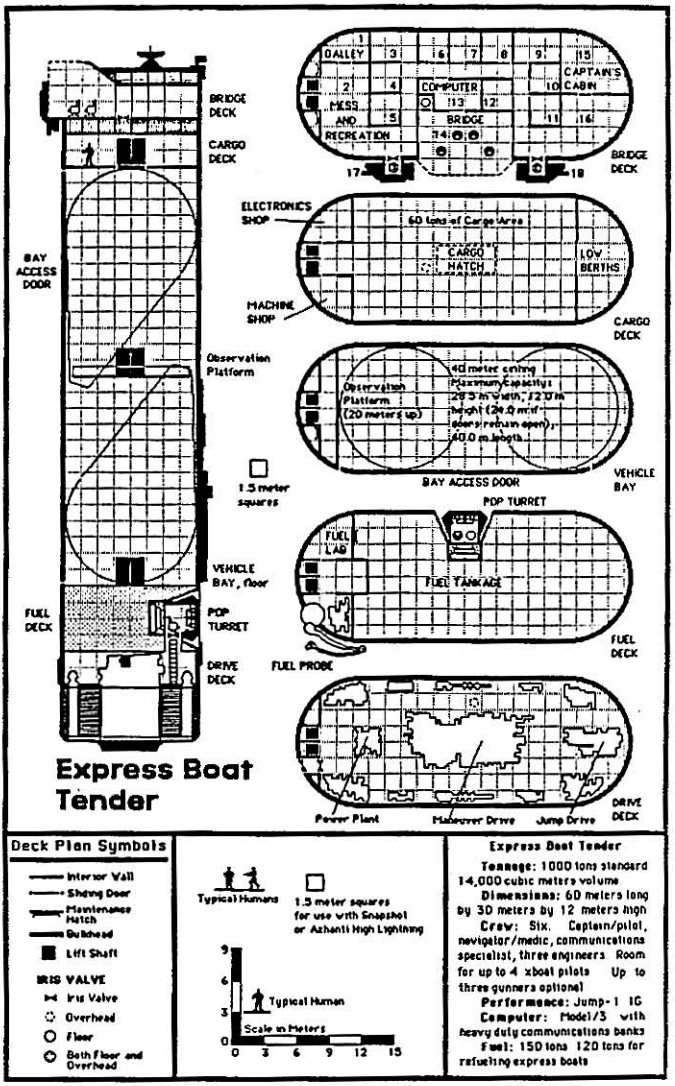
15. Captain's Cabin: This cabin is used by the Captain/Pilot. It is quite roomy with its own fresher facilities and includes two extra beds for use by express boat pilots or other temporary passengers.

16. Common Area/Meeting Room: This area is multi-purpose and can be used as a quiet lounge or meeting area.

17. Starboard Turret: This turret can be moved along a track on the starboard half of the ship in order to allow positioning the gunnery for the best possible shot. This allows the tender to continue its xboat recovery operations without being interrupted by the need to maneuver.

18. Port Turret: This turret can be moved along a track on the port half of the ship in order to allow positioning, like the starboard turret above.

Express Boat Tender *Albany*



The Plot

The coordinated defense of the 11,000 worlds of the Imperium depends on the long, tenuous communication routes of the xboats. The Zhodani Consulate is well aware of this, and in anticipation of another Frontier War, the Consulate would like to disrupt this lifeline in its route toward their border. Patient pursuit of this policy has yielded to the Zhodani a most valuable prize: effective control of the Jode xboat station. Access to military communications between Capitol and the Jewell subsector in the Spinward Marches is only the first result of this mission. By sending false messages and altering genuine transmissions, the Zhodani hope to make significant inroads into the personnel and policy decisions for the military units stationed along the Imperial-Zhodani border.

Jode, a "boom" planet in the Pretoria subsector, is the home of a typical xboat station, much like any other xboat station in the Imperium. Every few hours, an express boat drops out of jump space on the edge of the Jode system, and within minutes of its arrival, it transmits its bundle-of messages to the xboat tender. Sophisticated onboard computers cull out incoming messages for the Jode system, add outgoing messages, and beam this new bundle back to another fully-fueled xboat standing by for a jump outsystem.

How has the Zhodani Consulate infiltrated this system of operations? After carefully studying Imperial xboat operations, the Zhodani decided upon their course of action: substitute a Zhodani agent for the communications officer aboard an xboat tender. By acting as communications officer, the Zhodani would have privileged access to the Imperial security codes necessary for reading xboat messages. Further, by secretly delaying messages, he could allow his comrades to alter messages before they are retransmitted from the tender on their way outsystem.

After a painstaking search, the Consulate found just the man for this difficult job: a young Zhodani noble who could alter internal computer memories at will. The Consulate spent years training him, until he mastered this Special ability. The Consulate saw that with it he could successfully pass the tech level 15 metabolic scanning examination required of Imperial personnel reporting for xboat duty assignments.

Then they saw their chance. Zhodani spies in the Aramis subsector learned of a communications officer being transferred to the xboat station servicing Jode/Pretoria. The rest of the operation moved quickly, in contrast to the years of patient study, practice, and waiting: the Imperial officer is eliminated en route to Jode, and the Zhodani agent arrives instead. The metabolic scan verifies his (stolen) identification papers, and the Zhodani takes his place on the bridge of a Jode system xboat tender.

This Zhodani agent thus poses as Neric Andor. The agent has Psi-12, Awareness-12, and Special-12 (as just described), in addition to the skills listed in Neric Andor's stats in the introduction.

ENDING THE ADVENTURE

When confronted by the players and recognized as an imposter, the Zhodani must attempt to salvage as much of his mission as possible. His options include: bluffing it out, since computer metabolic scans will continue to back him up; counter charges against the players; or suicide, taking as many Imperials with him as possible. Sabotage of the tender power plant would accomplish this, causing a thermonuclear explosion to destroy all evidence and witnesses.

If the Zhodani is brought to trial, the delay until a capital ship can be brought will allow evidence to surface proving that tampering of xboat messages has occurred. The Zhodani will be found guilty and sentenced to death. The rest of the spy ring may or may not be caught; in any case Whocco Tehn will escape. The mission will be scrapped.

The referee should attempt to bring the adventure to a positive conclusion so that the players live and are rewarded for exposing the plot. The referee can make good use of NPCs to help the characters arrive at and implement routes of escape.

THE REWARD

Since it would be detrimental to Imperial security if it were known publicly that a Zhodani spy ring successfully tampered with xboat messages, the players will be rewarded with non-specific citations. More practically, they will be granted knighthood in the Order of the Emperor's Guard; this award will be published in the next nobility list, on Emperor Strephon's birthday (202).

As a result of knighthood, each player's social status will change to B automatically; in addition, those not members of TAS will be served with 'Imperial space required vouchers', effectively giving them free high passage as far as Capital. In particular, note that since Krenstein has not revealed Aybee's true nature, Aybee will also be awarded knighthood: polite correspondence will now address him as Sir Aybee Wan Owen, O.E.G.

The players' knowledge of this incident is declared CLASSIFIED, with appeals to their patriotism to ensure their silence. If the Zhodani learned of their personal involvement, their lives would be in serious jeopardy. The classification explains Akidda's description of Jode as a 'tameworld'—he has agreed to this prior censorship of his true report only on condition that he be given first rights when the incident is declassified in the future.

One final note for the referee: it would be premature to worry the players now, but you may be interested to know that Whocco Tehn (and his feelings for the players) will be dealt with again in a future adventure.

Playing the Characters

Some of an adventure's most memorable moments are those that occur as the players play out their roles. It is hoped that this adventure can be particularly so. In order to emphasize this, we give the following pointers to help the players and referee better understand the characters.

THE REPORTER

Akidda has a real nose for a good story, and to play him otherwise would be untrue to his character. His natural curiosity will make him likely to pursue "trouble", rather than run from it. The counter-balance to Akidda's tendency to seek out such trouble is his streetwise skill, which enables him to lessen the harmful results of an otherwise awkward situation. His streetwise skill may also enable him to "stumble" onto a valuable source of information that the others would overlook.

Keeping this in mind, the referee should use the NPCs encountered by Akidda as those with the most valuable information to the group, as a result of Akidda's abilities.

The complete information on the 'Journalist' character class and associated skills will be published in the next issue. For now, realize that Akidda's phenomenal Interview-5 skill gives him tremendous insight when dealing with people. It was this skill that enabled him to quickly sense something odd about Aybee's behavior.

THE SCOUT

Dur Telemon is the character in the spotlight in this adventure--it is his friend that the adventure is about. Dur is the brash adventurer of the group and as such he is the least likely to fear physical confrontations or physical discomfort. He is also the most likely of the group to act without giving due consideration to the consequences. He has genuine concern for others and is the most likely to risk his life to save someone.

Dur's friend, Neric Andor, is a good friend, the older brother Dur never had (although Akidda fills this role, too). Dur and Neric risked their lives together in the scouts, and each has saved the other's life more than once. Like Dur, Neric is adventurous and has a genuine concern for others. Included here is a picture of Neric that Dur took when they served together in District 268 several years ago.

THE SCIENTIST

Dr. Krenstein, the "Mr. Fix-it" of the group, contributes valuable analytical skills. Together with his robot companion Aybee, unusual insights may come to light that any one individual of the group, even Akidda, might otherwise overlook. The doctor is slightly mischievous in the manner in which he conceals Aybee's true robotic nature--a source of much fun if role-played completely. The doctor seeks new experiences and knowledge, so he will pursue adventure suggestions readily. His real weakness on Jode is archaeological pursuits.

The doctor's age should be kept in mind--he is the least able of the group physically, although Aybee helps to make up for this.

AYBEE

Without a doubt, Aybee is the most unusual of the quartet. He is also the most difficult to role-play effectively.

Aybee is the most valuable piece of equipment the group has. He can record situations in 3-D holograph form, then play them back for future study at the group's leisure. His senses are better than a normal human's. He will quietly observe a situation and report his findings to the doctor, keeping the doctor's safety as his priority. He is a good source of logical analysis, although his conclusions are devoid of any creativity or revelations beyond the obvious (although sometimes the obvious can *seem* like a revelation.)

Play him as a naive, knowledge-hungry character. He can make apparent errors in judgment when a situation relies heavily on intuition. He is likely to miss subtle innuendos that humans are so prone to use.

Strangers who deal with the doctor and find out that Aybee is a robot may react negatively (impose a DM of -2 on such reaction rolls). Most will never suspect from casual observation that Aybee is nothing but a machine. At close (1.5 meters) range, to determine Aybee is a robot is a *difficult* task (see Using Skills Effectively). A character at close range may roll once in the first hour, and once every four hours thereafter. The crucial characteristic value in this case is the minimum of the character's intelligence and education. The required skill value is the maximum of the character's medical or interviewing skill. A character farther than 1.5 meters from Aybee has no chance.

Aybee's power plant is a closed hydrogen/open oxygen fuel cell. Aybee carries his own hydrogen supply, but the hydrogen is oxidized by oxygen from the air. Aybee is thus much like a true human in this respect–if he loses his oxygen supply, his power plant will not function. Air is "pulled" into his power plant by a respirator that moves his "rib cage" in a manner similar to human breathing action. Aybee's fuel cell operation produces a harmless waste by-product which must be eliminated from time to time: pure water.

Further Adventures on Jode

Jode's surface is a fascinating place; depending upon the outcomes of certain situations, the characters may have little or much time to explore it. Major points of interest are the sea harvesting and mining operations, and the archaeological sites. Necessary equipment and transportation can be rented for 80 Cr a day.

The scientist will probably be most interested in archaeology. Most sites are found on the sunken continent, either underwater or on the remaining islands. These consist of:

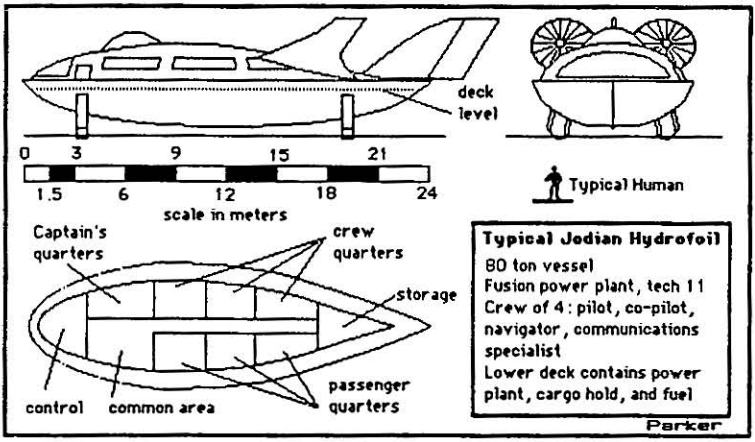
Ruins: Massive blocks of well-laid stones with no apparent cement or mortar. Some are standing, some tumbled. Many are fronts for extensive cave systems.
Carvings: Pictures, abstract symbols and diagrams; some pictographic writing. Some may have mathematical or astronomical meanings, although the night sky is seen only occasionally now.
Water Channels: Used to lead fresh water into buildings and assumed agricultural sites. Most lack active sources today, or run uphill in spots.
Statuary: From 5 cm to 3 cm in length; if well preserved, these are very finely detailed and may have gems set.

Some sites are found in a few spots on the coasts of the remaining continent. A controversy surrounds the fate of these colonies when the cataclysm destroyed the rest of the race. Did isolation and inbreeding cause them to die out, or did they degenerate into one of today's land animals? Some scientists speculate that they returned to the sea. Candidates for such descent are the sligrit, a dolphin-like swimmer/hunter that herds its intermittent prey; and the ankir, a tree-dwelling siren that weaves nets of vines to entrap its prey.

The most exciting of the sea harvesting operations is a salalor hunt (a possible story for the reporter.) This enormous deep-sea creature attacks and eats anything it encounters and may reach 30 meters in length. Small ones, obviously, are safer targets. Preferred killing method uses harpoon injection of a fatal poison. The ship must then get out of range of the thrashing tentacles until death throes cease. The valuable enanol, extracted from the brain and secondary nervous centers, is refined into a combat drug. Data on the salalor in combat can be found in the deep sea encounter table.

If the characters are profit motivated, some fine gems can be found in the volcanic mountain chain on the west coast of the continent. Remember that these are active volcanoes, however! On a roll of 6 on 1D (every 2 hours while mining), gas and ash eruptions will damage the players' craft. Other possible dangers are earthquakes which open fissures in their vicinity. Exact effects are up to the referee.

Common surface water travel is by hydrofoil; a typical example is illustrated. Submersibles are used for salalor hunting and are much more heavily armed. Air rafts and ATVs are used on land.



Animal encounter tables for Jode environments.

Shallow Sea (9+): Roll for an encounter **every 15 minutes** while characters are in seas 100 meters or less in depth (such as over the sunken continent). Roll 2D on table below. Alternatively, roll up 2 different animals interacting. Animals 9,10,11 hunt animals 3 and 6. Animal 2 steals from animal 4. Animal 5 "herds" animal 6 from one grazing ground to another.

Die	*Animal Type*	*Weight*	*Hits*	*Armor*	*Wounds & Weapons*	
2	1 Intimidator	4kg	3/0	mesh	1 as blade	A9 F7 S1
3	6 Gatherers	1kg	1/0	none	1 teeth	A9 F3 S1
4	1 Carrion-eater	5kg	3/1	none	2 teeth	A9 F6 S1
5	2 Hunters	75kg	8/4	jack	4 teeth	A0 F5 S2
6	3 Intermittents	3kg	2/1	none	2 claws	F2 A9 S3
7	Event - filters: 5 cm tubular "barnacle-like", hard shelled creatures. Attach to hard surfaces; secrections damage hulls in time if creatures are not removed. Handling them carelessly (roll dexterity or less to handle them properly) can cause 1D damage from sharp edges.					
8	15 Grazers	200kg	15/9	none	18 thrasher	F5 A3 S2
9	Event - siren: A plant-imitating siren that closes on anything touching its inner tentacles; may entrap unwary swimmers. Character must successfully roll intelligence or less to avoid the siren, or if trapped, roll dexterity or less to escape.					
10	1 Trapper	1kg	1/0	none	1D stinger	A7 F8 S1
11	1 Pouncer	1kg	2/1	jack	1 teeth	A8 F5 S2
12	Event - mild seismic shock creates tsunami. A surge current hits the characters and pushes them 3-18 meters per combat round in a direction specified by the referee for 2D rounds.					

Deep Sea (9+): Roll for an encounter **each hour** while characters are in open ocean below 100 meters depth. Roll 1D on the table below.

Die	*Animal Type*	*Weight*	*Hits*	*Armor*	*Wounds & Weapons*	
1	1 Carrion-eater	20kg	9/4	none	2 teeth	A9 F6 S1
2	Event - filters: see shallow sea number 7.					
3	3 Grazers	200kg	15/9	none	18 thrasher	F5 A3 S2
4	6 Intermittents	3kg	2/1	none	2 claws	F4 A9 S3
5	1 Eater(Salalor)	60,000kg	85/30	mesh	22 thrasher	A3 F4 S1
6	18 Chasers	2kg	1/2	jack	2 teeth	A0 F9 S3
	...chaser school always includes at least:					
	1 Hijacker	2kg	1/2	jack	2 teeth	A5 F8 S2

Sea Surface (7+): Roll for an encounter **every two hours** while characters are on ocean surface. Roll 1D on table below.

Die	*Animal Type*	*Weight*	*Hits*	*Armor*	*Wounds & Weapons*	
1	6 Hunters	75kg	8/4	jack	4 teeth	A2 F5 S2
2	3 Hunters	75kg	8/4	jack	4 teeth	A2 F5 S2
3	Event - filters: see shallow sea number 7.					
4	5 Flying Intermittents	2kg	4/0	none	1 claws	F6 A0 S1
2	4 Gatherers	1kg	1/0	none	1 teeth	A9 F3 S1
6	Event - storm lasting 1-6 hours. Exact effects left up to the referee.					

continued on page 28

The Deneb Sector: Subsector Key

Pretoria	Lamas	Antra	Million
Sabine	Iner	Dunmag	Atsah
Star Lane	Yincennes	Usani	Geniishir
Gulf	Zeng	Kamlar	Vast Heavens

The Deneb Sector

Library Data of the Sector

Ansirk/Lamas (1609 A-100100-F): Ansirk is one of the few worlds in the Imperium that have a class A starports in the Imperium that have a minuscule population. Some 20 naval personnel on Ansirk are involved in small (under 1000 tons) starship design and construction research; several of the inhabitants are test pilots. The Navy maintains enough additional personnel (another 20 to 30) to provide basic facilities for civilian travellers; Ansirk is catalogued as a class A starport, although hostel facilities are almost non-existent. The local economy is supported by Ansirk's vast store of refined fuel (over 10,000,000 tons). Ansirk is a small moon orbiting Caulion, one of the system's gas giants; a half dozen 100,000 ton fuel shuttles (converted from obsolete naval vessels) with skeleton crews run daily between Ansirk and Caulion in order to maintain the fuel supply. The refinery operation is the epitome of tech 15 automation, requiring only 4 individuals to monitor the operations. Even though the local population is small, the system is used consistently by the navy for test maneuvers, and this heavy naval presence discourages pirates. In addition, security robots are commonly armed with built in FGMP-15s and other efficient anti-personnel weapons. All personnel are encouraged to carry the latest in hi-tech energy weapons as a further deterrent to outside raids or piracy. Most ships stay only long enough to refuel and then continue on their way.

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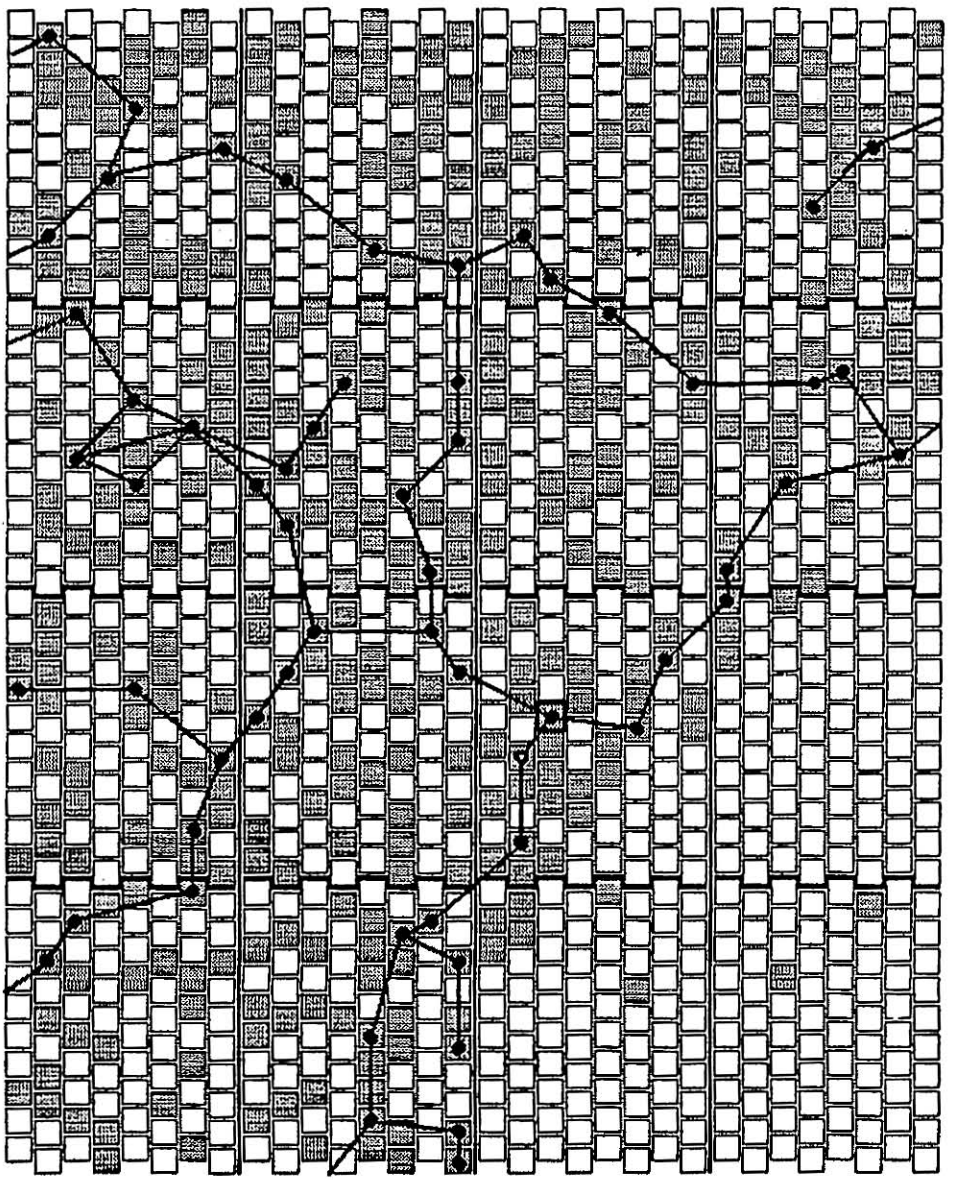
Xboat Routes of the Deneb Sector



continued from page 25

Beach(8+): Roll for an encounter **twice a day** while characters are on a small island (5km or less across) or a large island's (greater than 5km across) ocean beach. Roll 1D on table below.

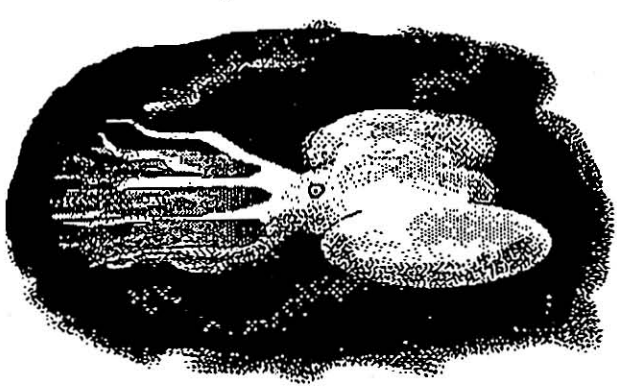
Die	*Animal Type*	*Weight*	*Hits*	*Armor*	*Wounds & Weapons*	
1	1 Hijacker	3kg	4/2	none	1 claws	A2 F3 S2
2	5 Flying Intermittents	2kg	4/0	none	1 claws	F6 A9 S1
3	1 Grazer	3kg	1/1	none	2 teeth	F5 A8 S2
3	14 Flying Grazers	20kg	5/8	jack	1 claws	F5 A8 S2
5	1 Flying Gatherer	2kg	2/1	none	none	A4 F4 S1
6	Event - trapper with pit. 12 strength points are needed to free trapped character. Rescue must be effected within 1 minute or the character will suffer 2D damage every minute thereafter until either freed or dead.					

Forest(8+): Roll for an encounter **twice a day** while characters are in a large island's (greater than 5km across) interior. Roll 2D on table below.

Die	*Animal Type*	*Weight*	*Hits*	*Armor*	*Wounds & Weapons*	
2	1 Hijacker	10kg	8/8	mesh	3 teeth	A9 F4 S3
3	1 Eater	1kg	2/2	none	2 teeth	A2 F6 S3
4	1 Carrion-eater	1kg	4/1	jack	3 teeth	A9 F6 S1
5	1 Hunter	5kg	4/8	mesh	5 teeth	A6 F7 S1
6	2 Flying Intermittents	2kg	4/0	none	1 claws	F6 A0 S1
7	Event - siren: A tree dwelling siren that weaves nets of vines to entrap its prey. Unwary characters will become entangled unless they roll their intelligence or less to recognize their predicament; failing that roll, they must roll their dexterity or less to escape from the trap.					
8	7 Grazers	3kg	1/1	none	2 teeth	F6 A4 S1
9	1 Flying Siren (Raptor)	10kg	3/6	none	3 claws	A9 F8 S2
10	Event - chasers that nest in rocks: these become agitated before quakes. Implement a minor seismic quake in 10-60 minutes. Exact effects of the quake are up to the referee.					
	15 Chasers	.3 kg	1/0	none	none	A0 F4 S3
11	1 Killer	500kg	18/20	cbt armor	10 thrasher	A2 F0 S1
12	1 Pouncer	3kg	5/2	none	6 teeth	A7 F8 S1

Ruins(8+): Roll for an encounter **every 4 hours** while characters are on an island in ruins terrain. Roll 1D on table below.

Die	*Animal Type*	*Weight*	*Hits*	*Armor*	*Wounds & Weapons*	
1	Event - reducers...hundreds of 5 cm long, very ugly, grub larvae of a nectar drinking insect; the larvae eat any decaying matter. Characters must make saving throw against willpower ([END+INT]/2) to continue action while in their proximity, or the characters are repulsed by the sight.					
2	7 Flying Intermittents	.5 kg	1/1	none	none	F4 A9 S3
3	20 Grazers	3kg	1/1	none	2 teeth	F6 A4 S1
4	1 Intermittent	.05 kg	1/0	none	1 teeth	F4 A8 S2
5	1 Eater	1kg	2/2	none	2 teeth	A2 F6 S3
6	Event - chasers: see forest number 10.					
	11 Chasers	.3 kg	1/0	none	none	A0 F4 S3



Library Data

The following items of information may be found in any ship's library program.

"Behind the Claw": A Galanglic slang term used by inhabitants of the Spinward Marches, Deneb, and Trojan Reach sectors to refer to these areas. The term derives from a supposed resemblance between a claw and the Great Rift, as seen on maps of the Imperium. Inhabitants of this region feel a certain pride in this designation, and it is used to imply that they share a camaraderie and common interest. The name was once used as the title of a popular newsmagazine with a circulation area encompassing the three sectors named above. The term is rarely used by inhabitants of other areas of the Imperium.

Deneb: Imperial sector containing 385 systems lying beyond the Great Rift; named for the sector's brightest star, Deneb (1925).

The Deneb sector was fragmentarily settled by both Vilani and Vargr during the latter years of the First Imperium, but major development of the sector only took place after Third Imperium Scout Service explorations located major resource worlds in quantity. Industrial worlds to exploit those resources soon created trade routes and commercial ties that still link the Imperial core with the Spinward Marches.

The Deneb sector is primarily Imperial. The Imperial border runs just within the coreward edge of the sector, and scattered Vargr systems (as well as non-aligned systems and client states) lie beyond the border.

Digest Touring Award: Outstanding journalism award offered by *The Travellers' Digest* every seven years. The recipient, who must be a professional journalist living and working "behind the claw", is given honorary membership in the Travellers' Aid Society (worth 1 million credits); he is then expected to travel through the region during the tenure of his award, and to submit a feature article about his latest journey once every thirteen weeks. The intent of the *Digest* with this award is to "promote understanding of the cultural diversity within the Imperium". The most recent winner of the award, in 1100, is Akidda Laaglir of Mora/Mora.

Directions, Galactic: Conventions which express galactic direction are based on the core of the galaxy and the direction of its rotation. Toward the galactic core is coreward; away from it is rimward. The direction of galactic rotation is spinward; the opposite direction is trailing.

Express Boat: Interstellar message or data carrier. Express boats attempt to reduce the information lag time between systems by relaying messages to succeeding boats with a minimal delay between jumps, much like the Pony Express.

The use of express boats becomes important as the interstellar community becomes larger and the delay between jumps further delays transmission of messages. The Imperial express boat system is typical of the approach to the problem. Selected locations along major trade routes are established as express stations: their orbital facilities service and refuel the boats on their communications runs. When an express boat arrives insystem, it beams its

recorded messages to the express station, which then retransmits them to a boat waiting to make its jump. Time between arrival of one boat and departure of the next ranges from a few minutes to a few hours, and is considerably less than the days most ships would spend refuelling and preparing to leave again. Messages received from the express boat system are processed and those intended for the current system are forwarded to local addressees on planet. Messages addressed to worlds which are not directly served by express boats are accumulated and forwarded by the next available ship.

The express boat system is available for use by government, business, and private individuals.

Express boats within the Imperium are commonly called xboats.

Galanglic: "Galactic Anglic", the official language of the Third Imperium. Galanglic is a direct descendant of Anglic, the language used during the Rule of Man (-2204 through -1776). The popularization of Galanglic is important to the Imperium, because a common language known by all is beneficial to commerce. On many worlds, Galanglic is in fact a second language, used only in dealing with offworlders and Imperial officials. Although Galanglic is the official name for the language, it is often called Anglic by its speakers.

Humaniti (former spelling Humanity): Collective name for all human races, including Solomani, Vilani, Zhodani, and others.

Rachele Society: Secret Vilani supremacist group founded on Pretoria/Pretoria by Zid Rachele in 992. Genocidal policies favored by the group culminated in the attempted takeover of the Pretorian government in 1010. An attempt at nuclear blackmail backfired when 26,000 people (including 1,900 Rachelean commandos) were killed by a nuclear explosion after the Society seized Imperial scout facilities on Saki/Pretoria (0306). The Imperium plans to relax martial law over the next 10 years, although some military intelligence analysts insist that the Rachele Society still exists; Zid Rachele himself disappeared in 1015 after escaping from the prison world Exile in the Usani subsector (Deneb 1928).

Rachelean Revolts (1010-1011): Major uprising on Pretoria/Pretoria, fomented by the Rachele Society, resulting in martial law under the Imperial Navy since that time. The Imperium as a rule does not interfere with local politics, but their intervention was forced when a scout base on Saki/Pretoria (0306) was destroyed by nuclear weapons. (See Rachele Society).

Sector: Mapping unit in astrography consisting of sixteen subsectors arranged in a pattern of four across and four deep. Sectors are broad measures of area and have an average of 480 to 640 worlds each.

Shudusham Concords: Agreement signed by twelve worlds of the Sylean Federation at Shudusham/Capital (Core 2214) in -110, dealing with weaponry carried by robots. The Concords have no legal force now, of course, but many worlds have adopted similar or identical standards, using the Concords as a template, and most robots produced commercially in the Imperium are designed with this in mind.

Third Imperium (0 to present): Founded in the year 0 by Cleon, first Emperor, as the successor to the Sylean Federation, a growing expanding government centered in territory formerly part of the First and Second Imperiums. The rise of the Third Imperium marked the end of the Long Night and the beginning of present day interstellar government.

The Third Imperium contains more than 11,000 worlds in an area more than 700 parsecs across.

Vargr: Intelligent major race inhabiting regions generally coreward of the Imperium. Vargr are derived from Terran canine stock which was genetically altered to allow an upright stance, an opposable thumb, and intelligence.

Xboat: See Express Boat.

Zhodani: One of three major human races within the known galaxy. Zhodani inhabit the empire known as the Zhodani Consulate, with its capital at Zhodane. More than 90% of all racial Zhodani live under the Consulate.

The major distinction of the Zhodani race is its routine acceptance of psionics; all Zhodani of noble birth (social standing of A+) receive psionic testing and training in the normal course of their education.●

Pretoria Subsector

The Pretoria Subsector is a vigorous, growing subsector near the spinward fringe of the Imperium. The subsector's major xboat route connects the coreward subsectors of the Spinward Marches with the heart of the Deneb Sector.

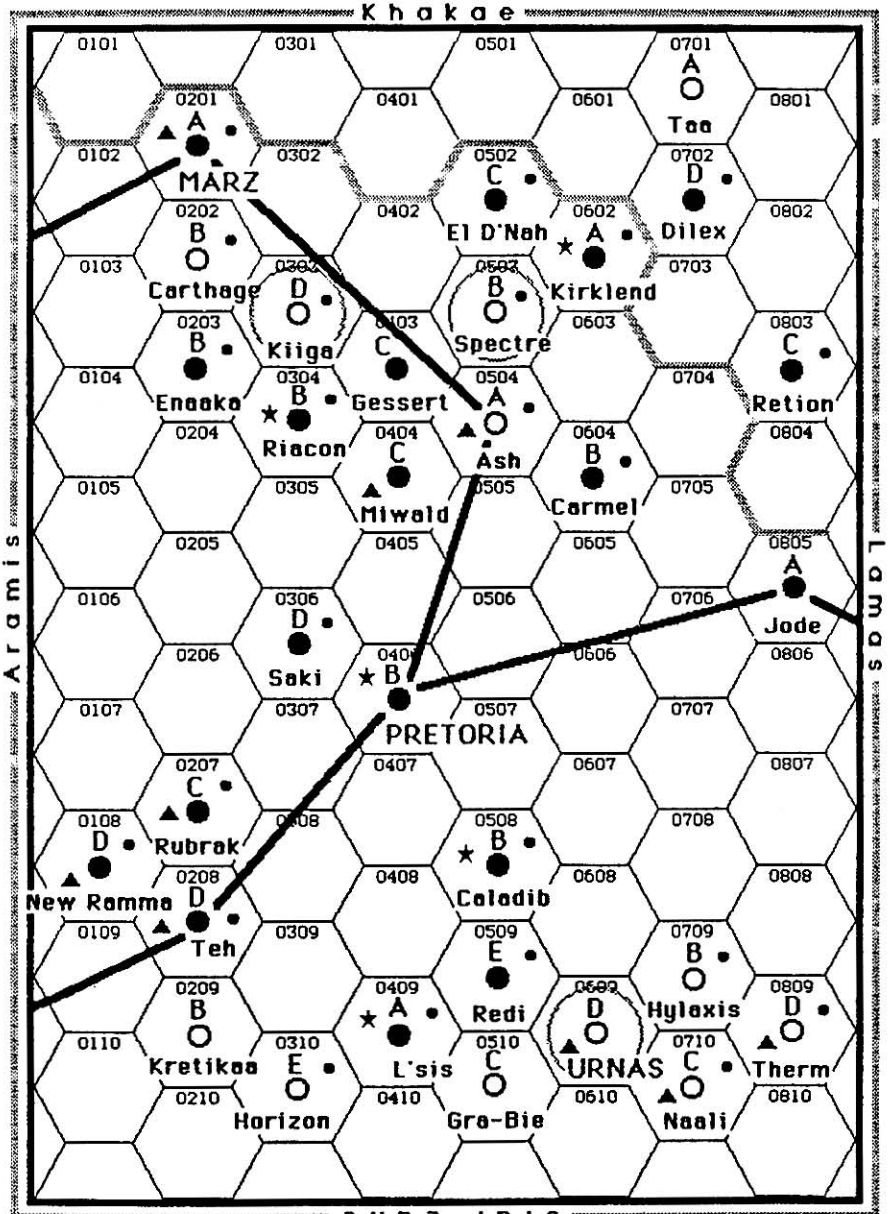
Pretoria is currently under Imperial Naval Rule as a result of the Rachelean Revolts of 1010 and 1011. Pretoria is also the only other world besides Pysadi/Aramis on which howood is known to grow—howood is renowned for its high mineral content and its natural aromatic smell.

The Ancients site on Redi is a favorite among Vargr tourists, because of the popularity of the writings of a Vargr scientist studying the ruins. Traffic is increasing at such a rate that the authorities are considering upgrading the E starport to class C.

The Scout Service is watching recent developments on Urnas quite closely. An aggressive, charismatic ruler has come to power in one of the countries that was beaten badly in the last global tradewar a decade ago. The Scout Service fears that renewed tradewar raids could escalate into another global war.

Name	*Location*	*UPP*		*Bases*	*Remarks*	
New Ramma	0108	D465540	6	S	Agricultural. NonInd.	G
Marz	0201	A584985	A	S		G
Carthage	0202	B2107B9	C		NonAg.	G
Ensaka	0203	B777786	6		Agricultural. Ancients Site.	G
Rubrak	0207	C554511	7	S	Agricultural. NonInd.	G
Teh	0208	D263136	5	S	NonInd.	G
Kretikaa	0209	B20056B	C		NonInd. Vacuum world. Owned by L'sis.	
Kiiga	0303	D530624	8		Poor. NonAg. NonInd. Desert world.	A G
Riacon	0304	B666441	8	N	NonInd.	G
Saki	0306	D276642	8		Agricultural. NonInd.	G
Horizon	0310	E110725	8		NonAg.	G
Gessert	0403	C254315	A		NonInd.	
Miwald	0404	C53349B	A	S	NonInd. Poor.	
Pretoria	0406	B656967	C	N	Subsector Capital. Military Rule.	G
L'sis	0409	A764896	8	N	Rich.	G
El D'Nah	0502	C549456	B		NonInd.	G
Spectre	0503	B100654	A		NonInd. NonAg. Vacuum world.	A G
Ash	0504	A540887	8	S	Poor. Desertworld.	G
Caladib	0508	B697222	9	N	NonInd.	G
Redi	0509	E575565	4		Ag. NonInd. Ancient Site. Owned by Caladib.	G
Gra-Bie	0510	C23027B	9		NonInd. Poor. Desert world.	
Kirklend	0602	A66B443	A	N	NonInd.	G
Carmel	0604	B346441	9		NonInd.	G
Urnas	0609	D120974	C	S	NonAg. Industrial. Poor. Desert world.	A
Taa	0701	A650643	9		Poor. NonInd. Desert world.	
Dilex	0702	D625385	7			G
Hylaxis	0709	B7B2354	A		NonInd.	G
Naali	0710	C61657A	8	S	NonInd. Ice-capped.	G
Retion	0803	C558445	4		NonInd.	G
Jode	0805	A9A6220	B		NonInd.	
Therm	0809	D9B0489	5	S	NonInd. Desert world.	G

The Pretoria subsector contains 31 worlds with a total population of 11.815 billion. The highest population is 7.3 billion at Pretoria; the highest tech level is C at Carthage, Kretikaa, Pretoria, and Urnas. All worlds are members of the Imperium, with the exception of Taa (which is non-aligned), and Dilex and Retion (which are Vargr controlled worlds).



Pretoria Subsector

continued from page 26

Borlund/Lamas (1406 E-454AAA-9): A small world with a population of about 70 billion. While the hydrographic percentage is only 40%, less than 1/4 of the remainder is arable land. The majority of the planet's population is thus crowded into about 25% of the planet's surface. An extremely popular dictator, known only as Thabian, and his "Council of Seven Lights" keep order, aided by strong customs that have evolved to keep the crowded conditions from becoming maddening. Breach of privacy and the use of any kind of force are among the strongest taboos.

Dawn/Zeng (1336 A-A9A531-C): The first stellar explorers were awed by the fluorescent sunrises and sunsets caused by Dawn's heavy argon and neon atmospheric taint, hence its name. Dawn is a true water world, with absolutely no land breaking the world's watery surface. In the centuries since early colonization, two entirely different cultures have developed; some 170,000 of the population inhabit the orbital class A starport, while the other 250,000 live on Dawn as scattered nomadic tribes in thousands of free-floating *Makranii*, or "ship-cities". Few official ties exist between the orbital society and the widely dispersed Makranii.

Deneb/Usani (1925 B-796955-B): Deneb, the capital world of the sector, has a dense atmosphere tainted with the by-products of its extensive worldwide industrialization. Of the 6 billion inhabitants in the system, nearly 1 billion live elsewhere in the system, on various planetary or moon-based cities. Technicians are the ruling class on the world. They are distinct from the Duke of Deneb, an imperial official and head of the Sector Government. The local government of Deneb must answer to the Duke on imperial matters.

Exile/Usani (1928 X-567361-0): Red Zone. The worst criminals of the sector are dumped on this planet with the clothes on their backs and *nothing* else. The planet is hospitable to humaniti, but few of the malefactors have the strength, skill, and nerve needed to survive in this artificial stone age. A stable population of two or three thousand has emerged through ruthless culling; newcomers are well advised to cooperate with whatever leader they fall in with. The system is heavily patrolled by the Navy to prevent would-be rescuers from freeing the dangerous criminals sentenced to live out their lives here.

Gaashushnu Lii Mur/Lamas (1608 X-744255-4): Red Zone. The four hundred inhabitants of Gaashushnu Lii Mur (Galanglic translation: "valley of the living dead ones") are the last survivors of a global nuclear war in 815 that chilled their world in clouds of radioactive smoke and dust. Only isolated towns in tropical areas had sufficient surviving plant life to eat. The few able to cope with the changed environment have emerged as leaders. The population is considered doomed, however, since the high radiation level has caused the descendants of the original survivors often to be mutated, sometimes horribly so. They consistently refuse evacuation.

Geniishir/Geniishir (2521 A-110123-D): Geniishir, a tiny world with the barest trace of an atmosphere and no water, serves as the subsector capital for only four worlds on the edge of the Great Rift. The subsector offices are almost entirely automated; the world has only 93 human inhabitants. The class A starport is also heavily automated with tech level 13 equipment and robots.

Kiirindor/Atsah (2520 B-446666-B): Kiirindor's atmosphere is tainted with an excess of carbon dioxide, which warms it pleasantly but makes breathing difficult. The 4 million inhabitants generally live in glass roofed homes with extensive plant life to process the carbon dioxide into oxygen. Kiirindor is controlled by Erita (2519), having been colonized by Erita over the last 200 standard years. Kiirindor is scheduled for complete independence within the next decade.

Kubishush/Inar (0917 B-8B69AA-D): Kubishush is near the outer edge of the habitable zone and is somewhat cool (average -40°C). It has a very dense nitrogen atmosphere (6 atmospheres pressure), with ammonia oceans and heavy concentrations of ammonia vapor in the air. The nine billion inhabitants are a hermaphroditic septapodal minor race, the *Gl'lu*, whose metabolism is based on oxidation of the ammonia in the air. Their latest leader, *S'lmar Vovon*, a dynamic *Ss-nanes* ("young one" or "up and coming one"), brilliantly led the rescue and reorganization efforts in the most recent of the planet's geological upheavals. Rebuilding has progressed so rapidly under his (or her) guidance and the great technological expertise of the planet's engineers that few visitors today can see the scars of the latest turmoil. However, many areas remain dangerous to new construction and are off-limits to the general population.

Parker

Adult Gl'lu

Liran/Usani (1923 B-000684-A): Liran is home to a far-flung belter community much like those found throughout the Imperium in asteroid belt systems. The three million asteroid miners provide neighboring Deneb with many needed raw materials. The class B starport is located in a well populated cluster marked with beacons to facilitate a safe approach.

Endup/Gulf (Deneb 0436 D-6939EG-9): Heavily exploited since the early 100s for the rare heavy metals in its crust, using convicted Imperial criminals as forced labor, Endup these centuries later is now controlled by a Religious Autocracy government (type E); such a government occurs seldom in the Imperium. Every facet of the eight billion inhabitant's lives is closely regulated by the "Ward of Vision", seldom seen by the populace and believed by them to be an all-seeing, all-knowing god. While the Ward is quite friendly to the Imperium, technical knowledge is forbidden to the population: their technical knowledge is limited to tech level 3. The Ward uses his own technology to keep the population in subjection by using his "powers" to create obedience through fear. The lower elevations of Endup are polluted with gases produced by the past centuries of heavy metals refining. While these areas are livable, they are not healthful, as evidenced by the 45-year average life span of the general population. The atmosphere is pure in the higher elevations, known as the "Abode of the Ward": to enter such areas is punishable by death. The D class starport is located on a high plateau on the Ward's palace grounds, out of the pollution. The Ward encourages visits by offworlders, and in fact, hails them to the population as visiting "gods" from the heavens.

Namidshur/Dunmag (2019 B-2106A9-D): Namidshur is a tiny world with a wisp of an atmosphere and no surface water. Its 8 million people, living in domes, are ruled by the popular Kamar Shukiip; his pacifist character has permeated the culture to the point that almost all weapons are outlawed.

Qevar/Gulf (0731 A-2326AE-F): Qevar's atmosphere is so thin that water changes rapidly from ice to water vapor with only a brief liquid state. The water vapor crystallizes in the upper atmosphere, giving Qevar a brilliant luster when viewed from space. Liquid water is a prized commodity; only the reigning dictator Lord Jared and his noble ruling class are allowed more than their needs. Noble status can be achieved by anyone willing to dedicate himself to years of self-denial and legalistics; some hardy individuals from the common class occasionally achieve such status. The Qevari society is an amazingly peaceful one. Lord Jared insists that the nobles treat the commoners fairly, yet most infractions against his legalistic rule are punishable by death. All offenders charged with violent crimes are judged by Lord Jared himself. It is said that he has little mercy when hearing such cases.

Rayel/Inar (1313 B-693632-8): Rayel, a medium-sized planet, is unique among the known worlds in the Imperium—it has *six* moons. While one to three moons are commonplace for non-gas giant worlds and there are several instances in the Imperium where non-gas giants are known to have 4 or 5 moons, Rayel is the only such world within the Imperium with six. The moons cause complex tidal patterns that are manifested not only in Rayel's small deep seas, but also in its desert sands.

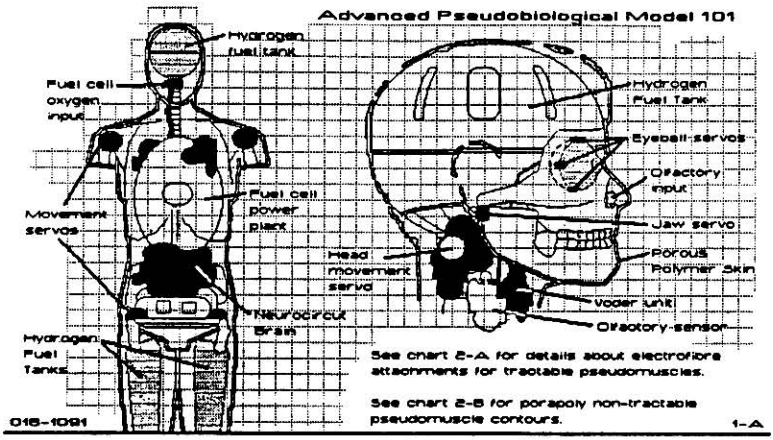
Segan/Atsah (2717 B-3509AB-C): Segan's 5.2 billion inhabitants live in undergound cities with closed ecologies. Segan's current ruler, Gishma Parimesha, is admired both for her personality and her administrative ability. She wields most of the powers of government personally but delegates enough authority to her subordinates to quiet any minority grumbling. The law level of 11 seems oppressive to outsiders, but pleases the orderly, quiet-tempered Seganites.

Sherad/Atsah (3116 A-000447-F): The Sherad Asteroid Group is the last starport on the xboat route leading coreward from the Deneb sector. Each 'Rock' with 500 or more registered inhabitants sends a representative to Rock Shurkan every four local years; this Shurkan Council directs the overall government and sets system legal policy.

Shinorasus/Dunmag (1918 A-410200-E): The 600 inhabitants of Shinorasus moved here from Namidshur because of their discontent with its high law level. The 16 family groups and assorted unattached persons, many of whom are inventors, technicians, and artisans, agreed to have little formal government and to deal with each other on an economic basis only. Their tech level 14 capability enables them to release water and oxygen from the world's crust for their sealed estates. The class A starport is a small installation of high quality, maintained mainly for trade. Refined fuel is 5 times its normal cost. Starship repairs are likewise several times the regular cost. Occasional starship construction is done on a special order basis. Shinorasun vessels are well known throughout the subsector for their quality construction and astronomical cost. Off-world visitors are not encouraged to stay beyond a few weeks.

continued on page 50

Robot Design Revisited, Part 1



If you have a copy of *The Best of the Journal, Vol.1* you no doubt have come across the intriguing article on designing robots. Much has been published in **Traveller** design and engineering systems since this pioneering article was written. When compared with the more recent design systems like *High Guard* and *Striker*, the robot article could use more depth.

The purpose of 'Robot Design Revisited' is to update and add to the original robot design system. The idea is not to replace the original but instead to provide a more detailed alternative that is still consistent with the original and as a bonus has been enhanced to be compatible with *Striker*. We also will discuss pointers to help the referee incorporate his robot designs into a **Traveller** game.

It may seem puzzling that **Traveller's** tech level progression table has "primitive robots" introduced at tech level 12. Aren't we experimenting with primitive robots on current tech level 7.5 earth? But are we really? Consider the following possible technological progression:

TL 5: Purely mechanical robotic machines prevalent in industry
TL 6: Electromechanical robotic machines prevalent in industry
TL 7: Programmable robotic machines prevalent in industry
TL 8: Programmable, mobile, robotic appliances invented
TL 9: Programmable, mobile, robotic appliances a consumer item
TL10: Programmable, mobile, robotic appliances commonplace
TL11: Primitive *true* robots invented
TL12: Primitive true robots a consumer item
TL13: Primitive true robots commonplace

Here we have tech level 12 as the point where primitive *true* robots become a consumer item. Robotic machines or appliances are self moving in a limited sense once manually started, but a true robot is *a mobile, self-actuating machine which converses in natural language.* A true robot is essentially a simulated intelligent being, whether it looks biological or not.

With this definition of "primitive robot", the widespread introduction of robots at tech level 12 is reasonable.

THE NEW ROBOT DESIGN SYSTEM

The modified design system uses new tables, with the following checklist as an aid to design:

1. Chassis (size, configuration, armor)
2. Power Plant
3. Locomotion (Grav, AC, legs, tracks, wheels)
4. Brain (CPU size, storage size)
5. Appendages (heads, arms)
6. Sensors/Devices
7. Programming

Let's cover each checklist item in more detail.

1. Chassis

As stated in the original article, this is the framework to which all other components are attached. The three attributes to be determined are size, configuration, and extra armor, if any.

Select the desired chassis size from the chassis size table. Generally, all installed components must fit within the volume of the chosen chassis.

Next, select the chassis configuration from the chassis configuration table. Two of the configuration types can use some definition:

Contoured: Hard skinned with a shape usually patterned after some biological creature, often the creating race (e.g., humanoid).

Pseudo-biological: Soft-skinned biological look-alike, often of the creating race. At high tech levels, pseudo-biological robots may pass for members of their "race".

Notice that the configuration modifies the basic weight and price of the chassis as given on the size table. The configuration also gives a basic armor value to the robot. To increase the armor value, determine a factor by computing:

$$F = A/a$$

Where:

F is the factor we are determining;
A is *Striker* equivalent cm thickness for new armor value;
a is *Striker* equivalent cm thickness for configuration basic armor value.

Use this factor as an additional multiplier on the chassis weight and price.

Configuration 0 (open frame) cannot have armor. Configurations 1 through 5 are limited to a maximum armor value of 18 (TL 14 battle dress).

The armor value for a pseudo-biological configuration can be raised 1 per tech level over 12. This means, for example, that at tech 15 the maximum armor limit for a pseudo-biological chassis is 5. Using the factor formula above, we get 2.5 (1.25/.50), which gives us a total weight multiplier of 3.75 (2.5 x 1.5) and a total

cost multiplier of 20 (2.5 x 8) for a pseudo-biological robot. Clearly, robots destined for combat duty should not have a pseudo-biological configuration.

2. Power Plant

The power plant, installed in the chassis, provides the power to move the robot and operate its many components. Select the desired power plant from the power plant table. The output from the power plant must be enough to cover the needs of the robot's locomotion, brain, appendages, sensors and devices. However, the power plant volume must be small enough to leave room in the chassis for power plant fuel and other necessary components.

A power plant requires fuel to operate. The power plant table lists the fuel consumption of each power plant. The fuel tanks are installed within the chassis. The installed fuel tanks should be large enough to provide enough fuel for at least 30 days of operation. For game purposes, robot fuel is considered to be the same as that used in starships.

In addition to the power plant and fuel, batteries may optionally be installed. Batteries allow the robot to continue to function even though the power plant is not operating. Batteries could replace the power plant entirely, at a greater cost and weight. To determine how long (in hours) the robot can continue to function on batteries alone, divide the total power requirement of all components into the total battery storage.

3. Locomotion

In order for the robot to move from place to place, locomotion units must be installed in the robot. The type of locomotion chosen determines the robot's base dexterity, from which the final URP (Universal Robot Profile) code for dexterity is derived. Choose from anti-grav modules (Grav), air cushion (AC), legs, tracks, and wheels. Grav and AC require only a suspension, which is installed in the chassis. Legs, tracks, and wheels all require both a suspension and a transmission.

A grav or AC suspension must meet these design requirements:

- The thrust must exceed the weight of the robot.
- Excess thrust is needed to maneuver.
- AC must occupy at least 10% of chassis volume.

Leg, track, or wheel suspensions must meet these design requirements:

- Each leg requires 5% of chassis volume (minimum of 2 legs); more legs reduce ground pressure.
- Tracks require at least 20% of chassis volume; volumes in excess of 20% reduce ground pressure.
- Wheels require at least 15% of chassis volume; volumes in excess of 15% reduce ground pressure.

Leg, track, or wheel transmissions must meet these design requirements:

- Multiply power plant output by 1000 to get the *number* of units of transmission required.
- Multiply the number of units by the volume of one unit to determine the total volume required by the transmission.
- For legs, the volume is *external to* the chassis volume; divide this volume by the number of legs to determine the transmission volume for each individual leg; a pseudo-biological robot's legs have a volume twice that of other

configurations--the transmission does not require any extra space so the extra volume is added to the chassis volume.

- For tracks or wheels, the volume must fit within the chassis volume.
- Multiply the number of units by the power requirement of one unit to determine the total power required by the transmission.
- Multiply the number of units by the weight of one unit to determine the total weight of the transmission.
- Multiply the number of units by the price of one unit to determine the total price of the transmission.

4. Brain

A brain is required so that programs can be used to control the robot's functions. The brain is a sophisticated computer, not unlike those used on starships. It consists of two parts: CPU (central processing unit) and storage.

A program must be in the CPU to be active and have its functions be part of the current "consciousness" of the brain. A non-essential program can be "on reserve" in storage until it is needed again. Storage is also used to remember data for future recall. Specific program requirements are covered in item number 7, **Programming**.

Select the desired number of "units" of CPU and storage to accommodate the necessary programs. The brain must fit within the available chassis volume.

5. Appendages

The appendages allow the robot to manipulate and interact with the outside world. The appendage chosen will affect the robot's final dexterity URP.

A head is a special appendage, almost an extension of the chassis. If a head is added onto the chassis, and as such adds its volume to that of the chassis. The desired, the minimum size for it is 5% of the chassis volume; the maximum size is 40% of the chassis volume. Multiple heads are possible as long as their total combined volume does not exceed 40% of the chassis volume. Multiply the chassis weight and price by the head's volume percentage to determine its weight and price. The power requirement in megawatts to provide the head with the ability to move is .2 times its volume in meters cubed. The volume of the head is added to the chassis volume.

Unless otherwise noted, all appendages are considered to be consistent with the chassis configuration. The price of all appendages is modified by the chassis configuration price factor.

Any appendage may support up to 2 times its weight in installed sensors or devices.

6. Sensors/Devices

The sensors and devices table lists components that can be mounted in or on the chassis, head, or an appendage. All sensors or devices installed must be able to draw power at the rate shown on the table to be functional. The items listed on the table are described below.

Visual Sensor: Gives the robot the ability to see. At least two are suggested. Other features can be added to the basic sensor at the listed increase in power requirement, weight and price.

Spotlight, Visual Spectrum: This is a bright spotlight that illuminates out to 100 meters with visible light.

Audio Sensor: Gives the robot the ability to hear. As with the visual sensors, at least two audio sensors are suggested. Increased sensitivity is possible at the listed increase in power requirement, weight and price.

Voder: Allows the robot to output sounds and to speak.

Olfactory Sensor: Gives the robot the ability to smell.

Touch Sensor: Provides the robot with the ability to sense through contact and touch. The values listed are for a robot with a chassis size URP code of 1. Larger chassis sizes require more sensors; multiply the chassis URP by the values in the table for power, weight and price to arrive at the actual values for any given robot.

Magnetic Sensors: Allows the robot to detect the presence of magnetic fields and ferrous metals.

Radiation Sensors: Detects excess radiation levels or dangerous radiation sources.

Basic Sensor Package: A combined sensor package is available that includes 2 visual sensors, 2 audio sensors, and 1 olfactory sensor. The package is optimized in size, weight and price. Pseudo-biological robots cannot use this package.

Electronic Circuit Protection: Provides the circuits of the robot with radiation and harsh environment protection through the use of heavier circuit components, backup circuits, and shielding of critical circuits. Including this multiplies the robot's final weight and price by 1.5.

Power Interface: This allows a robot with batteries to have its batteries recharged by connecting to a suitable power source. A robot without batteries could also use a power interface to continue to operate without a functioning power plant (i.e., one that is damaged or out of fuel).

Brain Interface: Gives the robot the ability to connect to other robots or computers and rapidly transfer data and programs.

Program Interface: Permits the owner of the robot to physically switch the programs that the robot currently is keeping in storage with others the owner has and wants instead to be in storage. This allows a robot with a minimum of storage still to be multi-purpose.

Zero-G Maneuver Package: Enables the robot to maneuver in a zero-G environment. Includes thrusters linked to a gyroscope to provide maximum stability and maneuvering ability. For game purposes, the thrusters are considered to use power plant fuel directly–each combat round of thrusting uses .01 liters of fuel. In other words, 100 combat rounds (25 minutes) would use 1 liter of the available power plant fuel.

Master Unit: A control center needed for a robot to have remote control capability over slave units that do not have brains installed. The master unit must be installed in the robot with the brain.

Slave Unit: Permits a brainless slave robot to be controlled remotely by a robot with a brain and a master unit.

Radio: Allows the robot to comunicate over long distances with another robot or being.

Counter ECM: This is a device to counter radio jamming.

VTR Recorder: Provides video recording equipment so that the robot may record all it sees and hears. This is somewhat more archaic than a holographer, as it provides only 2 dimensional images.

Holographer: Like the VTR Recorder, provides recording equipment so that the robot may record all it sees and hears. Provides much more realistic and informative 3 dimensional images.

Laser Welder: Used to repair hulls and other major work. Similar to a laser rifle in combat, but its maximum range is 5 meters. Local law level does not restrict laser welders.

Laser Welder, light: Lighter version of the laser welder; treat as a laser carbine in combat, again with a maximum range of 5 meters.

All weapons are modified versions of their regular *Traveller* counterparts.

7. Programming

Programs give a robot its intelligence and abilities. There are three program tables: fundamental logic, fundamental command, and applications.

Every robot requires the selection of a fundamental logic and a fundamental command program. These programs must be resident in the robot's CPU and also need a specific amount of dedicated brain storage.

The logic programs give the robot its basic intelligence. They are:

Information: The robot remembers all data taken in by its sensors. It will not analyze or conclude anything from the data. It will describe and reveal any stored data without partiality.

Learning: The robot can improve the skill level of its application programs on its own. This program includes all the abilities of information.

Self-actuation : The robot can take independent action without direct commands. It can analyze data and arrive at some simple obvious conclusions. However, robots with this program are not truly creative–they cannot originate ideas on their own. This is not yet artificial intelligence. Self-actuation includes all the abilities of information and learning.

Creative : The robot can reason and draw conclusions or originate ideas whose origins totally mystify the players. The robot has true artificial intelligence and may be mistaken as a sentient. The robot does not like being shut down. All the abilities of information, learning, and self-actuation are present.

The command programs provide the robot with its ability to decode and analyze the meaning of commands given to it. Select from:

Limited Basic Command: Provides the robot with a limited vocabulary of about 100 words. The speaker must enunciate words carefully or they may be misinterpreted or ignored. Foreign accents often cause commands to be misinterpreted.

Basic Command : Allows the robot to interpret simple, verb-object commands, like "get the red book" or "show the starport data". Complicated sentence structures like "I'm going to my cabin, so call me if anything appears on the sensors or an alarm sounds" cannot be used. Words must be enunciated carefully or they may become garbled. Foreign accents often cause garbling.

Full Command: Allows the robot to interpret all natural language commands without restriction. Poor enunciation and foreign accents are rarely a difficulty.

Certain application programs have these further descriptions:

General Language : Gives the robot the ability to quickly learn and understand an unknown language, based on language structure laws.

Emotion Simulation: Allows the robot to *appear* to have emotions–to seem frustrated, happy, angry, etc. Certain other programs require this program. This program requires the self-actuation or creative logic program and must be CPU resident.

Close Combat: Allows the robot to use its appendages and mass to fight and maneuver at close range, sort of a robotic brawling skill.

The other programs are described in the original *Journal* article.

A DESIGN EXAMPLE: AYBEE

Let's see how this system is used to design a robot by considering the design of the robot in this issue's feature adventure: AB-101, or simply "Aybee".

Before you begin designing any robot, you need to make some basic decisions concerning tech level, configuration, purpose, and so on. In Aybee's case, we knew we wanted a tech 15 pseudo-biological (human) valet/bodyguard robot.

Aybee	Power(Mw)	V(m^3)	Wt(kg)	Price(Cr)
1. Chassis				
a. size - 5	-	+0.1	10.0	1000
b. config 6 - pseudo-bio				
c. armor - normal (2)				
2. Power Plant - 1	+0.06	-0.03	17.5	800
3. Locomotion - legs (2)				
a. suspension	-	-0.002	2.0	70
b. transmission	-0.03	+0.03	60.0	900
4. Brain				
a. CPU, 45 units	-0.001	-0.009	4.5	450000
b. Storage, 30 units	-	-0.006	3.0	75000
5. Appendages				
a. head (10% of chassis)	-0.002	+0.01	1.0	100
b. lt. work arms (2)	-0.004	-	10.0	1000
6. Sensors/Devices				
a. 2 eyes, head	-0.001	-	1.0	200
+1 light intensifying eye	-0.001	-	1.0	200
b. 2 ears, head	-0.002	-	1.0	100
c. voder, head	-0.002	-	1.0	200
d. touch sensors (x5)	-0.005	-	2.5	1750
e. power interface,chassis	-0.001	-	0.5	100
f. brain interface, chassis	-0.005	-	1.0	1200
g. lt. laser welder, arm	-0.005	-	10.0	5000
h. holographer,chassis	-0.005	-	3.0	2000
i. circuit protection	-	-	-	-
subtotals	0.0	0.093	135.0	
7. Programs				
a. fundamental logic, type 2 - self-actuation				7500
b. fundamental command, type 2 - full				5000
c. medical-1				500
d. general language				800
e. general vehicle				400
f. valet				300
g. weapon handling (laser welder)				300
h. fire-fighting/rescue				200
i. emotion simulation				400
				555020

Fuel: 93 liters, wt 6.51 kg (enough fuel for 620 hours (25.83 days) of continuous operation, or 77.5 days at 8 hours operation per day)

- **Weight multipliers: 1.5 pseudo biological configuration**
  1.5 circuit protection
  141.51 x 1.5 x 1.5 = 318.3975 kg
- **Cost Multipliers: 8.0 pseudo biological config**
  1.5 circuit protection
  555,020 x 8.0 x 1.5 = 6,660,240 Cr

desired, but not included because of excessive power draw:

telescopic eye	**2.0**	**-**	**-0.001**	**200**
passive infrared eye	**1.0**	**-**	**-0.001**	**200**
2 extra sensitivity ears	**1.0**	**-**	**-0.002**	**400**
radio, chassis	**1.0**	**-**	**-0.001**	**200**

Apparent UPP: FD9C78

Final Notes: Aybee's excessive brain size limits fuel space.
Small chassis size limits power plant size, which in turn limits the number of installed devices/sensors.

Part II will describe the Universal Robot Profile (URP), give more examples of robot design, and discuss using robots in a *Traveller* game.•

Chassis Size Table

URP	*V(m^3)*	*WT(kg)*	*Price(Cr)*	*Notes*
0	.005	.5	1500	
1	.01	1.0	2500	infant human torso size
2	.02	3.0	4000	
3	.05	5.0	7500	Chassis type I
4	.08	8.0	9500	Chassis type II
5	.1	10.0	1000	Chassis type III; adult human torso size
6	.15	15.0	1500	large torso size
7	.2	20.0	2000	Chassis type IV
8	.5	40.0	3000	Chassis type V
9	1.0	100.0	4000	Chassis type VI
A	2.0	200.0	5000	Chassis type VII
B	3.0	300.0	6000	

Chassis Configuration Table

URP	*Configuration*	*WT mod*	*Price mod*	*Armor Val*
0	Open Frame	0.5	0.5	0
1	Box/Wedge	---	---	5
2	Cylinder/Cone	---	1.1	5
3	Sphere	0.8	1.5	5
4	Dome/Disk	0.9	1.2	5
5	Contoured	1.2	2.0	5
6	Pseudo-Biological	1.5'	8.0'	2

' modifiers to the total weight and cost of the robot, not just the chassis weight and cost.

Power Plant Table

URP	*TL*	*Type*	*V(m^3)*	*Output*	*WT(kg)*	*Price(Cr)*	*Fuel*	*Notes*
0	12	fuel cell	.02	.01	20	600	.10	type A
1	12	fuel cell	.03	.02	35	800	.15	type B
2	12	fuel cell	.04	.03	55	1,000	.20	type C
3	12	fuel cell	.05	.04	75	1,200	.25	type D
4	12	fuel cell	.06	.05	95	1,400	.30	type E
5	12	fuel cell	.08	.07	130	1,500	.35	type F
6	12	fuel cell	.10	.09	165	2,000	.40	type G
7	12	fusion	.25	.17	1000	300,000	.80	
8	12	fusion	.50	.50	2000	250,000	1.0	
9	12	fusion	.75	1.0	3000	225,000	1.2	
A	12	fusion	1.0	2.0	4000	200,000	1.5	

Output: megawatts/hour. TL 13-14 multiply by 2, TL 15 multiply by 3, TL 16-17 multiply by 3.5.
WT: weight in kg. TL 13-14 multiply by .75, TL 15 multiply by .5, TL 16-17 multiply by .4
Fuel: liters consumed per hour. Each liter takes .001 m^3 in volume and weighs .07 kg per liter.

Battery Table

URP	TL	Storage	Price(Cr)
0	12	.001	850
1	13	.003	3000
2	14	.004	5000
3	15	.007	10000
4	16	.011	15000
5	17	.018	20000

Storage: amount of energy stored per kg of battery. The figure shown is in megawatts for a duration of one hour.
Price: Cr per kg of battery.
Volume: .001 m^3 per kg.

Grav and AC. Locomotion

Type	Power	V(m^3)	WT(kg)	Thrust(kg)	Price(Cr)
Grav Module	.010	.001	10	100	2500
Air Cushion	.005	.01	15	50	1500

Suspensions. Locomotion

Type	V(m^3)	WT(kg)	Price(Cr)
each Leg	.001	1	35
Tracks	.001	1	25
Wheels	.001	1	12.5

Locomotion Transmissions, per "unit"

Type	Power	V(m^3)	WT(kg)	Price(Cr)	Base Dex
Legs	.0005	.0005	1.0	15	8
Tracks	.0004	.0006	1.5	15	3
Wheels	.0003	.0003	0.5	15	2

CPU, per "unit"

V(m^3)	WT(kg)	Price(Cr)
.0005	.1	10000

Storage, per "unit"

V(m^3)	WT(kg)	Price(Cr)
.0005	.1	2500

Power requirement is .001 Mw/hour for any sized brain.

Appendage Table

Type	Power	WT(kg)	Price(Cr)	Dex+	Str+
Arm, very lt.	.001	1	750	+3	+1
Arm, lt.	.002	5	500	+2	+5
Arm, med.	.005	20	700	+1	+20 (L)
Arm, hvy.	.010	50	1000	+0	
Tentacle	.005	10	750	+3	
Tentacle	.015	30	1500	+2	
head	----------see text----------				

Fundamental Logic Programs Table

URP	Description	TL	CPU	Storage	Price(Cr)	Dex+	Int
0	information'	12	2	10	400	+0	TL-5
1	learning'	12	5	25	3000	+1	TL-4
2	self-actuation	12	15	25	7500	+2	TL-3
3	creative	17	30	25	20000	+3	TL-2D

' robot will act on direct command only

Fundamental Command Programs Table

URP	Description	CPU	Storage	Price(Cr)
0	limited basic command	1	1	500
1	basic command	2	2	1000
2	full command	3	5	5000

Sensors/Devices Table

Sensor/Device	*Power*	*WT(kg)*	*Price(Cr)*
Visual sensor (1 eye)	.0005	.5	100
+telescopic	.001	2.0	200
+light intensifying	.001	1.0	200
+passive infrared	.001	1.0	200
+active infrared	.002	2.0	300
Spotlight, visual spectrum (1)	.001	1.0	50
Audio sensor (1 ear)	.001	.5	50
+extra sensitivity	.001	1.0	200
Voder (speaker)	.002	1.0	200
Olfactory sensor (nose)	.002	1.5	1500
Touch sensors	.001'	.5'	1000 +150'
Taste sensor	.001	1.0	1750
Magnetic sensors	.001	.5	1000
Radiation sensors	.001	.5	1200
Basic Sensor Package	.004	3.0	1700
Electronic circuit protection	--	x1.5	x1.5
Power Interface	.001	.5	100
Brain Interface	.001	1.0	1200
Program Interface	.001	1.5	1000
Zero-G Maneuver Package	.001	4.0	2000
Master Unit	.003	2.0	400
Slave Unit	.002	2.0	200
Radio	.001	1.0	200
Counter ECM	.002	2.0	300
VTR recorder	.003	4.0	600
Laser welder, light	.005	10.0	5000
Laser welder	.015	25.0	8000
Holographer	.005	3.0	2000
Body/Snub pistol, modified	.001	1.0	700
Auto-pistol, modified	.001	2.0	700
SMG, modified	.001	5.0	800
Autorifle, modified	.002	5.0	1500
Laser pistol, modified	.005	5.0	2500
Laser carbine, modified	.005	8.0	3000
Laser rifle, modified	.015	14.0	5000
PGMP-12, modified	.010	10.0''	11,000
PGMP-13, modified	.010	18.0''	70,000
PGMP-14, modified	.015	27.0''	325,000
FGMP-14, modified	.010	12.0''	125,000
FGMP-15, modified	.015	30.0''	450,000
LAG, modified	.003	4.0	820
Lt MG, modified	.002	60.0	1400
Auto grenade launcher, modified	.002	7.0	1000
RAM grenade launcher, modified	.002	7.0	1000

' multiply by chassis size URP.

'' these weapons require a chassis URP of 6+.

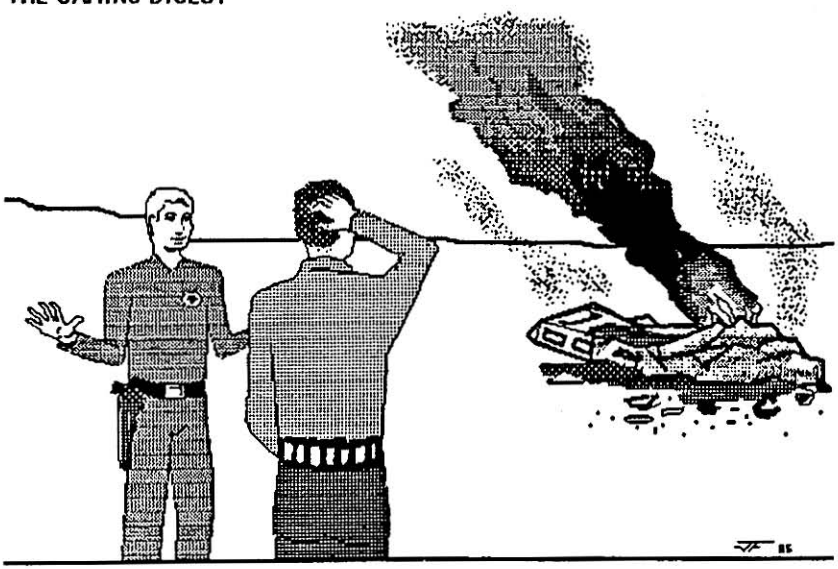
Application Programs Table

	LEVEL - 1		ADD'L LEVEL	
Description	*Space*	*Price(Cr)*	*Space*	*Price(Cr)*
pilot	4	500	.8	100
navigator	4	500	.8	100
steward	2	300	.4	100
medical	4	500	1.0	100
survival	1	300	.4	100
air/raft	2	400	.8	100
ship's boat	2	400	.8	100
ATV & AFV	1.4	300	.8	100
gunnery	2	400	.6	100
electronic	2	400	.4	100
mechanical	2	400	.4	100
engineering	4	400	.8	100
forward obs	2	400	.6	100
demolition	2	400	.6	100
language (specify)	5	600	1.0	100
tactics	8	800	4.0	100
recon	2	400	.3	100
interrogation'	3	500	1.0	100
bribery'	6	700	3.0	100
recruiting'	5	600	1.0	100
gambling'	4	400	.8	100
administration'	4	400	.8	100
general language	10	800		
general vehicle	4	400		
valet'	2	300		
close combat	3	400		
weapon handling	1	300		
gen wpn handling	2	400		
zero-G movement	1	200		
minimum security	2	200		
medium security	4	300		
maximum security	5.4	300		
ground cbt, inf	5	400		
ground cbt, armor	6	500		
fire-fighting/rescue	4	200		
cargo handling	2	200		
emotion simulation	2	400		

' requires emotion simulation

Using Skills Effectively

THE GAMING DIGEST



No Problem! I've got Jack-of-all-Trades-1.

"What's the chance that my character with jack-of-all-trades two and mechanical one can fix the captured air/raft?", the player asks. The referee, unsure how to handle the situation, frantically reads the skill descriptions for guidelines and finds "the referee must generate specific throws for the situation". Finally our uncertain referee decrees "roll 10+, with a DM of +2 for JOT and +1 for mechanical". Almost certainly, the player will respond: "Ten plus! What do you mean ten plus? I'd believe more like...". Sound familiar?

In this issue's *Gaming Digest* we discuss an alternative to the "seat of the pants" method of generating rolls for tasks. The system herein provides the Traveller referee with a consistent, easy to remember rule of thumb for determining the chance of any given character succeeding at any task. In the absence of specific rules for accomplishing the task, this can be a lifesaver.

First, however, it is important for a referee to develop an acute sense of *when* a roll is called for. Require the players to roll for everything ("John, roll 10+, with a DM of your admin skill level, to convince the clerk to sell you that candy bar") and they will soon lose interest because the game has turned into a constant parade of dice rolls and little else.

On the other hand, fail to force dice rolls at pivotal points in the adventure and you have lost a valuable chance to add some good ol' fashioned suspense and excitement. Rolling to accomplish a task also gives players a chance to use some of those hard-earned skills and helps them get a better sense of the place their character is filling in the adventure.

As the referee, ask yourself the question: "Does the outcome of this situation have a significant effect on the flow of the adventure?" If the answer is yes, a

roll is probably in order. That's one reason players like combat situations so much–they enjoy being involved as the characters they are playing, and influencing the outcome of the adventure.

WHAT DO I NEED TO ROLL?

First, determine the chance of success by choosing the level of task difficulty:

Task Difficulty	*Chance of success*	
Simple	97%	3+ on 2D
Routine	60%	7+ on 2D
Difficult	10%	11+ on 2D
Formidable	0%	15+ on 2D

In our air/raft example, let's say the air/raft was badly damaged during the gunplay in which it was captured, so we rate the repair task as DIFFICULT. Thus a base roll of 11+ is needed for the character to succeed.

Next, determine one skill and one characteristic (strength, dexterity, endurance, intelligence, education, or social class) that are most useful in fulfilling the task. For repairing our damaged air/raft, we will assume that the damage is more than superficial and adversely affects the air/raft's propulsion, so we select gravitics as our skill and dexterity as our characteristic.

Having no skill in the one "required skill" is always a -5 DM to the roll to succeed. Alternatively, useful related skills can be accepted as skill level 0 in the required skill. Don't be too lenient in this situation, however. Demand a truly convincing relationship. In our example, our player does not have gravitics, so he would get a -5 DM to his roll to succeed, which means the character will fail (best roll of 12 - 5 = 7, still less than 11). However, if the referee had decided that mechanical skill is useful in this case, he could allow the player to count his mechanical skill as a temporary "gravitics-0". For our example, we will decide that mechanical skill is of no real benefit.

Notice we have ignored the player's jack-of-all-trades skill so far. Jack-of-all-trades skill should not be treated as a level-0 in everything with this method, or it becomes too powerful. Instead, allow JOT to *reduce* a negative "no skill" DM to a limit of zero (i.e., the JOT cannot create a +DM, it can only reduce a -DM). In our example, our player's JOT skill reduces his -5 DM for no skill to a -3 DM. The character will still fail, since the best possible roll is 12 - 3 = 9, still not enough.

In all cases where a player has no skill, allow him to reduce a -DM by taking the lesser of his intelligence or education, dividing it by five and applying the result as a reduction to a negative DM. Our player in question has an intelligence of 12 and an education of 11, so we take his education of 11 and divide it by 5 (drop fractions) and get 2. Thus, we allow the player to further reduce the -3 DM to a -1 DM on the basis of his education. Success is now possible if our player is extremely lucky and rolls a 12, since the cumulative DM of -1 would still give him the needed roll of 11+.

The crucial characteristic we selected is dexterity. The characteristic selected, after dividing it by 5 as above, is *always* used as a plus DM, skill or no skill. Our player has a dexterity of 4, so dividing it by 5 and dropping any fractions we get 0. He gets no help from his dexterity.

With a final DM of -1, our hero must roll 12 to succeed, higher than the original roll the referee selected to begin with in our example. The players may still complain, but the system is simple and can be used consistently, which means they

can understand how the referee arrives at his numbers. This method also gives solid meaning to skill levels, characteristic levels, and the sometimes all too powerful jack-of-all-trades skill.

One final suggestion: when the player rolls to succeed, on a natural roll of 2 implement an accident (at the least, this is failure for the character). Detailed suggestions on how to implement accidents will be covered in this column in a future issue.

If we list the various task difficulties and the roll possibilities for a below-average character (UPP 444444) and an average character (UPP 777777), we get the following:

For a simple task:	below average, no skill; becomes a difficult task
	average, skill level 1+; cannot fail (no roll needed)
For a routine task:	below average,no skill;slightly more than difficult
	average, skill level 3+; becomes a simple task
	average, skill level 4+; cannot fail
For a difficult task:	below average, no skill; task is impossible
	average, skill level 3; becomes a routine task
	average, skill level 7; becomes a simple task
	average, skill level 8+; cannot fail
For formidable task:	any negative DM, task is impossible
	average, skill level 3; becomes a difficult task
	average, skill level 7; becomes a routine task
	average, skill level 12+; cannot fail

How long did the task take? We will discuss that topic in this column next issue.●

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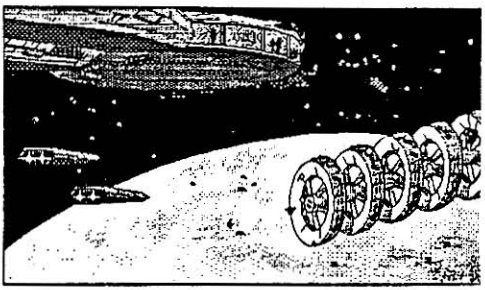
continued from page 36

Sika'im/Inar (1613 A-100644-F): This tiny, airless world houses an Imperial Naval Depot. Over 1 million Imperial personnel can be found here, engaged in all forms of training, supply and repair. Many of these individuals are civilian specialists hired by the Navy; they have been given some voice in the government through elected representatives. The highest level of Imperial technology is available here, including the best of medical care. Visitors must arrange clearance through the Naval base nearest their system of origin and observe the security restrictions while here.

Usani/Usani (2225 A-886836-C): Usani is the Imperial subsector capital for the subsector in which Deneb is located–this arrangement serves to keep governmental functions clearly separated. The 570 million inhabitants of Usani are governed by offworld Imperial Nobles, much to the dislike of the locals. The law level six is enforced mainly to prevent anti-government violence.

Orbital Complexes

TRAVELLER TECH BRIEFS


Parker

As a traveller journeys about the Imperium, he will find wide variation in the sizes, shapes, and ecologies of orbital complexes. The most obvious reason for this variety is the technological level of the local system. In a system with a lower tech level, where gravitic engineering is expensive or non-existent, the older toroidal and cylindrical orbital stations will be more numerous. On the other hand, more advanced systems have much more freedom of choice when building orbital complexes, because they need not maintain a spin in order to simulate gravity with centrifugal force. While a spinning station's structural design must account for the stress produced by the required spinning motion, the "localized" gravity possible with grav-plates allows almost any shape or size complex desired.

The tech level progression generally seen for orbital complexes is:

Tech Level 7: Early zero-g space stations are converted from space vehicles.

Tech Level 8: The first "true" space stations appear, designed from the drawing board as space stations. These are at first zero-g, later centrifugal "gravity". Generally of toroidal design (*High Guard* configuration 6), some cylindrical designs (*High Guard* configuration 3) appear later.

Tech Level 9: Cylindrical designs and multi-torus (*High Guard* configuration 4) designs reach their peak. Grav-plate technology is still new and expensive; grav-plates in ends of cylindrical stations give the zero-g areas gravity.

Tech Level 10: As gravitic technology becomes less expensive, it is used more often, especially to extend traditional designs. Lower tech stations are also upgraded to grav technology in some cases. The first small planetoid stations appear.

Tech Level 11: Traditional designs are abandoned in favor of designs made possible by grav-plate technology. The number of small planetoid stations increases.

Tech Level 12: From this level upward, designs reflect the specialization and purpose of a station, rather than technological limitations.

A modern (TL 11+, totally grav-plate technology) station can be considered a spaceship with limited local maneuvering capability. To create such stations, you can use Book 5, *High Guard,* with these restrictions:

- Do not install any jump drive.
- Install a maneuver drive of .5% of the station tonnage, used only to maintain the station's orbit.
- To determine the power plant tonnage, use the table below, reproduced from High Guard.

------- *Tech Level*-------			
7-8	**9-12**	**13-14**	**15**
4	3	2	1

Number is percentage of station tonnage required to produce a power plant that can maintain all station functions.

- Fuel for four weeks operation of the power plant takes .5% of the station tonnage. Stations usually store enough fuel for 52 weeks of operation.
- As a rule of thumb, permanent stateroom facilities on space stations require *at least* 20 times the basic 4 ton stateroom size per person on starships (i.e., 80 tons), up to and including government type 8. Governments 9 through C require at least 10 times the space (40 tons) per person, while government type D+ needs only 5 times the space (20 tons) per person. This varies from race to race; the K'kree, for example, require even greater quantities of space per individual—while Solomani can get along with less.
- The "practical" upper limit for orbital complex size is 40 trillion tons; in other words, a sphere about 10 km in diameter. A station this size could hold at least 300 million people. To appreciate the size of such a structure, let's assume you have 1000 ships a day each with a 50 ton cargo hold bringing in materials. We'll assume the work force is not a problem, so the next day the entire 50,000 tons have been put into place. At this rate, it would take only 2100 years to construct. (This is recommended only as a stunt! Find an asteroid to hollow out and save a few hundred years.)

To create the older station designs (TL 7-11, mixed centrifugal/grav-plate technology), Book 5, *High Guard,* can still be used, with these further restrictions:

- Divide the station tonnage by 10000 to get the power plant size number required to maintain all station functions.
- Only *High Guard* configurations 3, 4, and 6 may be used.
- Space is typically much more restricted. As a stateroom tonnage guideline use: TL 7, 4 tons; TL 8, 8 tons; TL 9, 16 tons; TL 10, 32 tons; TL 11, 48 tons. Government effects will be seen starting at TL 8. Racial effects on stateroom size are *always* present, no matter what the tech level is.
- The rotational speed cannot exceed 1 revolution per minute, for physiological reasons. Formulas to determine size, rpm, or gravitational forces are:

where: G = gravity in g's (Earth = 1)
R = radius in meters of station structure
N = RPM

As can be seen, an older style orbital facility is not necessarily an unpleasant place to live. The revolution in station design that occurs at tech level 11 is caused by economic factors rather than by discomfort. Gravitic technology gives a new flexibility in size and design, and allows for more efficient use of volume as opposed to area.

Jode, the location of this issue's feature adventure, is a good example of a system with the latest in the "new" gravitic technology found at tech level 11.●

Coming in the Next Issue...

- An all new feature adventure...
  Journey of the Sojourn Moon
- Robot Design Revisited, Part Two
- A new character type: Journalist
- An 11" x 17" foldout map
- Traveller Tech Briefs, Gaming Digest, another detailed subsector, and more...

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