

CHAOSIUM INC.

Ringworld Companion

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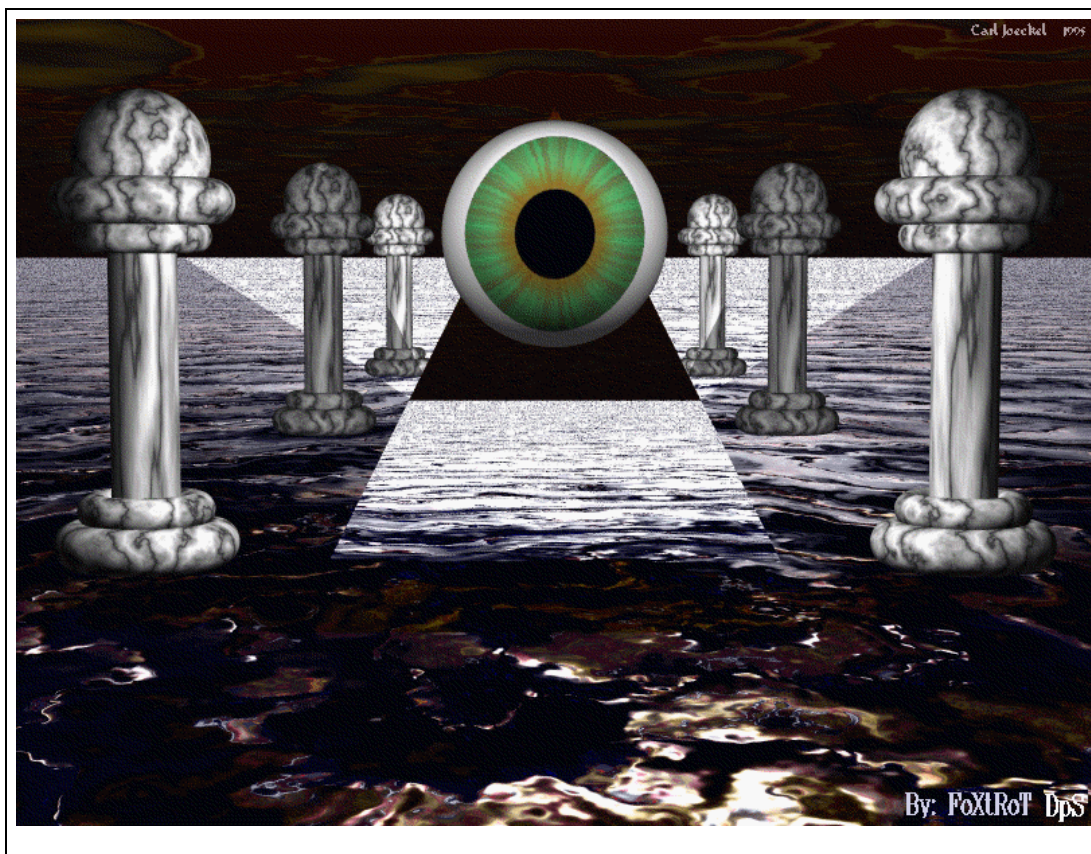


**New Hominids, Adventures,
Artifacts, and Aliens**

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-the Ringworld Scans-



Curiosity...

CHAOSIUM INC.

Ringworld Companion

**11 new hominids • Ringworld vehicles
hyperspace • UNSS Calatorie de Soare [GP3]
Thrintun, Tnuctipun, Pierin, and 3 other alien species
scenarios: The Kaladians; The Sand Eaters
A Ringworld Supplement;**

JOHN HEWITT — *narrative portions for Boat People, Eaters, Forest Fishers, Grazers, Hill People, Night Hunters, Runners, Shell People, Spill Mountain Folk, Wind Walkers, Martians, Orcas, Pierin, Sperm Whales, Thrintun, and Tnuctipun; Archmasters; narrative portions for the Anx-aoma, Bloath, Bushcanker, Chiller, Daukoon, Dire, Dusk Devil, Goron, Grelidik, Jibber, Loper, Munil, Onik, Pilk, Snorter, Stigfish, Trembler, Varmot, and all plants; Hyperspace Boundaries and Singularities; technical background and concept art for the Ringworld Schematic, Great Oval Ocean, Hyperspace Boundaries for Selected Stars, Distance-Time Comparison Table, Relative Positions of Selected Human Space Stars, Selected Human Systems and Governments; Evolution of Selected Species diagram; illustrations of Pierin, City Builder Ramship; Leaving for Ringworld; contributions to Human Space Technical Items and Ringworld Vehicles.*

LYNN WILLIS — *general editorial and coordination; Base Chances for New Hominids and Aliens; Ringworld Errata; Copter, Herocycle, Mapper Box, Beamer Caddy, Restraint Field, Rocket; additional description for UNSS Calatorie de Soare; expansion of Agamans description, Air Still, Voicebox, Heretical Saddle, Gansdedge, The Sand Eaters scenario; expansion of the Kaladians scenario; scenario maps; book cover; additional design, layout, and typesetting.*

GREG STAFFORD - *majority of the Kaladians scenario.*

SHERMAN KAHN — *additional editorial and coordination; Introduction; statistics for Ringworld hominids and aliens; Chemkit, Microcube Suit (with John Hewitt), Scanner, Searchbeam, Sleepset, Spy Beam, Stasis Shield, Tri-Dee Receiver, and Tri-Dee Transmitter; first draft of hyperspace article; Balloon Tram, Dirigible, Hydrofoil, Hydrogen-Jet Fighter, Scrith Repulser Lift Pack, Skysled, and Steam Yacht; most diagrams; majority of layout; additional typesetting.*

CHARLIE KRANK — *revised explorer sheet front and back; description and plan of the UNSS Calatorie de Soare; the 5040 Van.*

SANDY PETERSEN — *statistics for Ringworld animals, Text for Haemont, Rimspinner, Vindwight and contributions to several other animals; Original Agamans description, heavers, Agamans Heavy Gun, Bi-Runner, Fabron, Flywheel Power, Jet Rifle, Land-Ruler, and NAX Gun; helpful comments and insights.*

LISA FREE — *cover painting; illustrations on pages 10, 14, 15, 50, 55, and 66.*

MIKE BLUM - *Illustration on page 34.*

THERESA GRIFFIN SAVOY — *majority of typesetting; additional proofreading and editing.*

RUDY KRAFT — *contributions to Chiller, Daukoon, Dire, and several other animals.*

STEVE PERRIN - *proofreading, helpful comments.*

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Introduction

In this book are two full-length scenarios, eleven new hominids, six new aliens, twenty-one new animals, a page of plant descriptions, new Human Space and Ringworld technical items, game errata, and more.

For gamemasters who build their own scenarios, a new UN survey starship is provided, specially outfitted for long-range exploration. The dangers of hyperspace are further quantified, and a set of formulas by stellar class allow computation of any hyperspace boundary.

To aid players who create Ringworld natives as explorers, an entirely new explorer sheet is included with blanks in which base skills percentages can be entered to fit the species to be played. (The reorganized back incidentally allows explorers to have 30 general hit points.) Permission is of course granted to photocopy the explorer sheet front and back for personal use.

If all of its original material had been included, the cost of the *Ringworld* game would have been astronomical. We were forced to sift the text, choosing those entries most directly connected to Ringworld and those entries best explaining the relation of Known Space explorers to that fabulous structure. A lot got chopped. Most of it appears here: it is as authoritative as anything in the boxed game. View the *Companion* as a fifth book for *Ringworld*, the inclusion of which would have driven the game's price into hyperspace.

Extensive, well-thought-out submissions for further Ringworld supplements are invited. Scenarios probably will meet with the greatest acceptance, but new hominid or alien species may also be of interest. Use the Agamans section in this book as a guide for the presentation of new intelligent species: an essay covering physiology and culture provides the background for a scenario in which the explorers are introduced to the species; technical items (which may include domesticated animals) give additional background and at the same time position the Agamans within the technical strata of Ringworld. Should a species be widespread, and have cultures of varying technical levels, give technical items used by the

Much effort has been devoted to bridging physics as we know it and the physics of Known Space. The links that have been made are not perfect, but they are solid. In the future, however, authors should stay away from the creation of new physical principles, but interesting new devices based

If you intend to create Ringworld material for Chaosium, be sure to write a note or letter of inquiry: someone else may already be working on what you have just thought up. The note of interest in reply will include more detailed manuscript guidelines.

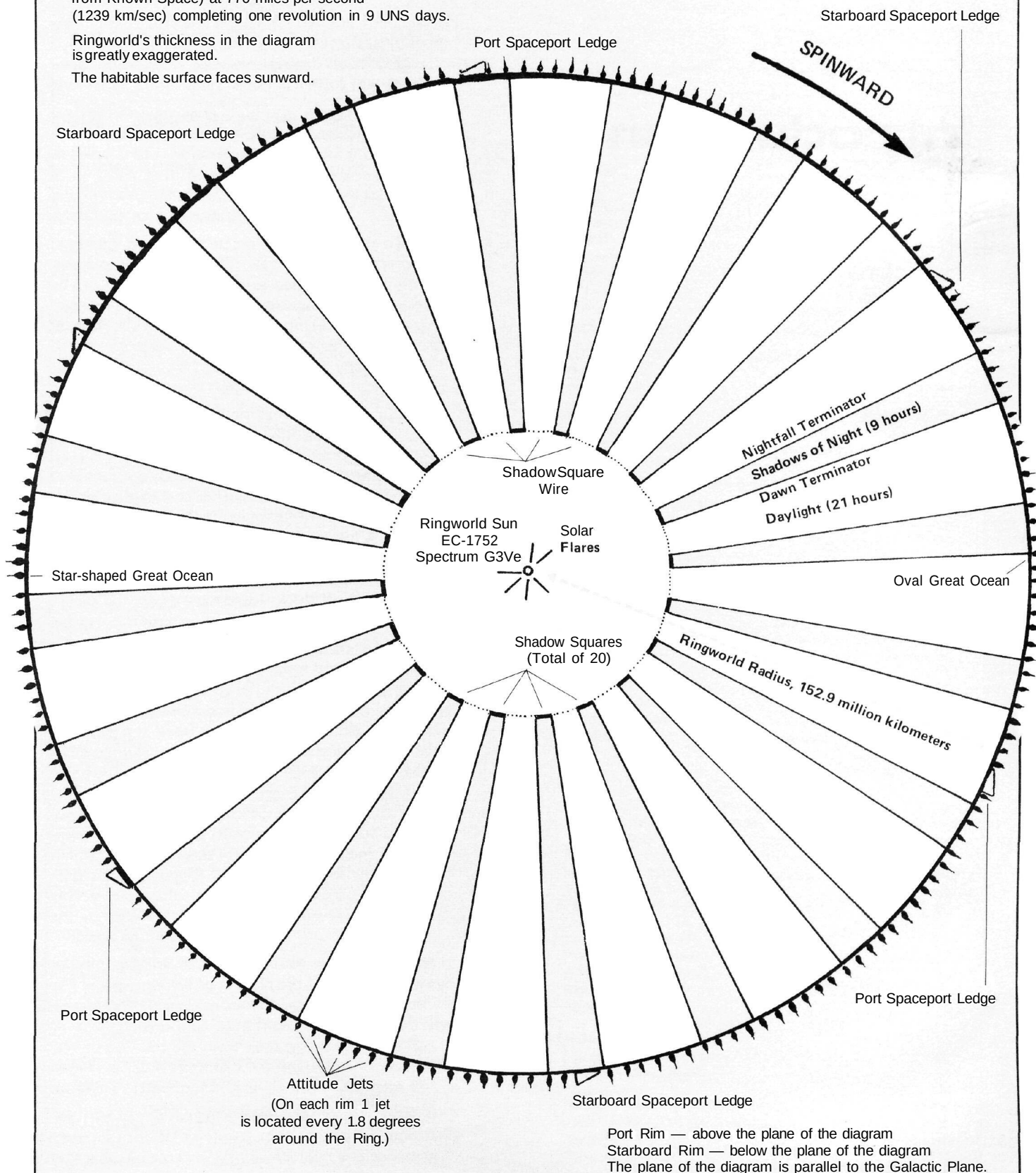
— Sherman Kahn
Lynn Willis

RINGWORLD SCHEMATIC

Ringworld rotates clockwise (anticlockwise as seen from Known Space) at 770 miles per second (1239 km/sec) completing one revolution in 9 UNS days.

Ringworld's thickness in the diagram is greatly exaggerated.

The habitable surface faces sunward.



Note — The elevation in the Ringworld sky of a distant location on the Ring can be determined from this diagram with the use of a protractor.

Ringworld Hominids

BOAT PEOPLE

Many Ringworlders build or use diverse nautical craft in a variety of ways. Across the vast habitable surface of the Ring, the large-scale distribution of seas, lakes, and river-systems is relatively uniform. Shorelines everywhere seem to have been contoured for the convenience of boats and shipping. The depth of the waterways and freshwater oceans seldom exceeds 9-10 meters [about 30 feet], though, so the biggest vessels all tend to be flat-bottomed and broad of beam.

One hominid species is widely-known for its ancient biological affiliation with seafaring and navigation. The Boat People (also called "Blues") always live on the water — never in and never around it. They are often highly-skilled mariners, naval warriors, shipwrights, and marine farmers who take much pride in their specialized modes of existence. Usually they do not like to swim, and are not well-adapted for it. To them a river is a highway, and a shallow sea is like a wide expanse of rich, fertile soil, and what land-dwellers enjoy crawling through the dirt of their fields?

The Boat People are heirs to a proud cultural tradition, the origins of which are lost in antiquity. Their myths tell of a dim age when their civilization, centered on the Great Oval Ocean, was more powerful than any save the Engineers'. Only in the saltwater Great Oceans are the depths and distances truly profound. There are tales of a once-fabulous floating-island megalopolis called *Violet Four*, surrounded by several million square kilometers of bountiful sea-farm polytopes. According to the legends, *Violet Four* was attacked and destroyed by hordes of fierce demons who arrived riding on the back of a gigantic ocean-monster. There was a furious battle. The ocean city was finally swallowed beneath the waves — drowning the plague of evil marauders as it sank. Many Blues believe they may live to see *Violet Four* rise again. Other hominids hear out these tales with varying degrees of patience, awe, or amusement.

Appearance and Activities

Boat People are distinguished by (or are marked with) what is termed the "blue gene" trait. Their heights range considerably, from 1.2 to 2.2 meters [about 4-7 feet], and

their body structure and physiognomy does as well, but their skin pigmentation is invariably blue, and their hair is always some shade of green. Sometimes their skin color is a deep, rich navy blue, and sometimes a fine fragile ivory blue, like china. The hair typically is a dark kelp-green, thick but usually kept well-trimmed. Intense pearly-grey eyes are the rule, though black and midnight-blue are also seen. The ears are often prominent, with crenelated or scalloped rims. The mouth is a slim, stark gash reminiscent of the City Builders', but a diverse spectrum of blue lips tends to relieve the impression of severity. There is almost always a sixth finger and toe. Webbed feet or hands are uncommon, and considered unsightly deformities. Otherwise, the physiognomy shows diverse humanoid influences. Their great genetic variability allows them to interbreed successfully with a surprising number of other hominid species — but the blue gene is dominant and the offspring are usually clearly recognizable as Boat People. They hold their conspicuous heritage in high regard, boasting that the Engineers raised the Arch for them, to keep the seas filled and the blue rivers of the world flowing. There is some indication, however, that the Boat People forebears merely had been genetically color-coded for occupational skill or social function within some ancient civilization long since vanished. Among present-day Blues, however, any such suggestion would be considered incredibly offensive.

In habits and habitats, the Boat People are as varied and adaptable as in their physical features. Their homes are always on the water, and they seldom feel at all safe on dry land. But otherwise they may be encountered anywhere, as ocean-crossing adventurers, shore-hopping traders, ferry operators, shipwrights, sea-farmers, bay fishers, and river wanderers. Many Blues preferring permanent, secure anchorages associated themselves with the seaports of the City Builders, in the days of their rule on Ringworld. Many others — the traders, for example — feel unfulfilled and useless unless they are traveling somewhere along the waterways. In general, they are quite independent, showing little interest in City Builder past glories.

The sea-farmers array their ships (some as long as 100 meters) in triangular, circular, hexagonal, and more complex geometric pat-

terns, connected by floating bridges. From 3-300 such ships may trace out a single sea-farm. The enclosed area, sometimes including an island or big barge, is divided up with netting and fences to create water-pens for a variety of aquatic plants, fish, and animals. Shellfish are raised in tray-beds suspended below the ships themselves. Elsewhere, Boat People cultures may trade, work, or hunt ashore during the day, keeping herds or even tending cultivated lands; but always they retreat to the safety of their moored villages at night. Occasionally, Blues are pirates and raiders.

Some groups of river Boat People live tens of millions of kilometers from the Great Oval Ocean, in smaller freshwater lakes and seas. Often they operate ferry-boat services across larger bodies of water. Many of these distant cousins believe in the continued existence of their lost *Violet Four*, pointing with pride toward the Ocean on the Arch in the Ringworld sky. Rarely, they have ancient maps of water-passages leading back around the Ring to floating-island cities, if not as far as to the Ocean itself. Boat People are skilled navigators. They can often pinpoint their location rather precisely by observing the exact shape of the sides of the Arch, and the elevation of the Great Ocean upon it.

Boat People Water Craft

The size and sophistication of their seacraft varies with the particular Boat People culture. In the upland rivers and lakes, there is seldom anything more advanced than a collection of durable utility-sized feluccas, dories with centerboards, half-decked sailing skiffs, square-ended junks, round-bottomed fishing boats, and house-barges. In major waterways, there are often traders, ferries, big catamarans, and river freighters with shallow hulls and high coaming. The Blues' distinctive flat-bottomed caravels and brigantines also ply the rivers between the larger seas. Sail and oar are used traditionally as motive power, while alcohol, methane, and hydrogen-powered boats are frequently found in more developed regions. One type of propeller-driven wind-boat is said to be capable of crossing even the swamps. In the larger oceans and bays, much bigger ships occasionally may be glimpsed. Some of these have MAGLEV repulsor units or hydrogen-floatation engines with independent power supplies unaffected by the superconductor plague. Such advanced craft at times appear overloaded and incongruously unseaworthy — but appearances can often be deceiving.

BOATPEOPLE(Blues)

Char.	Range	Averages	Hit Locations	Armor/Av. HP
STR	3D6	10-11	R Leg	0/8
CON	3D6	10-11	L Leg	0/8
MAS	2D10+3	14	Abdomen	0/8
INT	2D6+6	13	Chest	0/9
POW	3D6	10-11	R Arm	0/7
DEX	3D6	10-11	L Arm	0/7
APP	3D6	10-11	Head	0/8
EDU	negligible			

Age: 1D4 on age table
Average HP: 25
Speed: 3m/im
Action Ranking: 5

ARMOR: No natural armor. Blues seldom wear armor because it restricts swimming. Use the standard hominid hit location chart for Blues.

WEAPONS: Blues are found with weapons ranging from archaic to most sophisticated. As a general rule, the closer Blues are to existing City Builder enclaves, the more sophisticated will be their weaponry. Many Blues still use or affect the primitive warscoop.

Weapon	Attack	Damage	Parry
Warscoop	40%	1D8+3	40%

COMMON SKILLS: Aquatic Vehicle 80%, Archaic Melee Weapon 40%, Archaic Ranged Weapon 40%, Astronomy/Applied 40%, Bargain 50%, Biology/ Aquatic 20%, Botany/Aquatic 20%, Engineering 20%, Farming 45%, Handgun (projectile) 20%, various local Ringworld Languages 40%, Observation 30%, Orate 60%, Repair 60%, Weapons System 20% (if near City Builders).

EATERS

Char.	Range	Averages	Hit Locations	Armor/Av. HP
STR	2D6+6	13	R Leg	3/8
MAS	3D6	10-11	L Leg	3/8
CON	2D6+6	13	Abdomen	3/8
INT	2D6+5	12	Chest	3/9
POW	3D6	10-11	R Arm	3/6
DEX	2D6+10	17	L Arm	3/6
APP	2D6+2	9	Head	3/8
EDU	negligible			

Age: 1D4 on age table

Average HP: 24

Speed: 4m/im

Action Ranking: 3

ARMOR: Their thick fur gives Eaters 1 point of natural armor.

Often they wear treated leather armor made from animal pelts

(including those of Grazers) worth 2 extra points. Roll Eater hit locations using the standard hominid hit location chart.

WEAPONS: Eaters are masters of missile weapons and archaic traps. They rarely carry anything more sophisticated than grazer-bone longbows. Eaters have sharp claws and can attack with them in hand-to-hand combat. The base percentage for using these claws for a beginning Eater is 35%. Eaters can (but seldom do) bite at a base percentage of 30% for 1 D4 damage.

Weapon	Attack	Damage
Longbow	80%	1D10+1
Claw	60%	1D6

COMMON SKILLS: Archaic Melee Weapon 80%, Archaic Ranged Weapon 80%, Athletics/Climb 60%, Athletics/Swim 40%, Emergency Treatment 40%, Hide 80%, local Languages 40%, Musician-ship 20%, Observation 60%, Scent 40%, Sneak 80%, Strategy 40%, Track 40%.

That fraction of ships and boats with advanced-technology motors is very small, and they are concentrated mainly in the major seas and the Great Ocean. Most of the MAG-LEV craft must be sailed (or towed) to the big floating shipyards or island-cities for periodic recharging. The Boat People have a strict rule that sophisticated vessels must never be taken out of the water, because in the past many ceased to function when exposed to dry air, even for brief periods. The time of the Fall of Cities is remembered as an object-lesson in becoming over-dependent on land-dwellers. In many areas, the alliance was disastrous, because nearly all the floating ports built with City Builder technology sank without warning when the power failed. For this costly lapse in judgment, the Boat People blame only themselves. The big floating cities presently at the hub of Blue civilization use solar-electric repulsor-nets and slow-fusion hydrothermal plants from a much earlier epoch; while most of the lesser aquatic centers rely solely on mechanical buoyancy techniques. Occasionally, on the Great Ocean, submersible craft are outfitted to search for artifacts in sunken island acropolises.

Meeting Boat People

Boat People are generally courteous and friendly, but they prefer to be hospitable on their own terms — on the water. Rishathra is common only among groups preserving strong alliances with City Builder enclaves, and is elsewhere rare. Like the Machine People, Blues integrate many hominid species into their commercial activities and employ certain races extensively in specific industries. Their relationship with Sea People is usually cordial, except in remote areas of tough competition for limited resources. They detest Vampires, but claim to be mostly immune to the pheromones of all but the legendary salt-water variety. Boat People are not subject to scrutiny by the Ghouls, and bury their dead at sea. The social organization of Blue cultures ranges from loose associations of backwater gypsies to disciplined, almost military, hierarchies of command in the marine metropolises. Customary water sports include rowing and sailing competitions. The traditional archaic weapon of the Boat People is known as the warscoop or fighting-spoon (Interworld translation of City Builder phrase) — an enlarged razor-sharp version of a hand implement used in harvesting marine molluscs.

EATERS

An omnivorous, predatory species, Eaters superficially resemble the herbivorous Grazers.

The two races are in fact close biological relatives. They evolved together in the damp bogs, lowland marshes, and silted bays of Ringworld as its idealized ecosystems deteriorated. In many regions, Eaters and Grazers are still subspecies similar enough to produce half-breed progeny, though often these results are sterile and sometimes deformed. Their cultural lines diverged long ago, and Grazer and Eater have since become implacable foes; such matings have little significance.

The Eaters once were low-caste Grazers. They had become expert trappers, guarding the perimeters of primitive Grazer bog-farms in the unremembered past. They began trapping Grazers, however, and from that epoch to the Ringworld era Grazer-meat has remained a preferred food. Eaters may attack Grazers without provocation even when there is no hunger, because of the ancient, irreconcilable enmity between their species. Technologically-advanced Grazer cultures frequently support organized, on-going Eater extermination programs; the mutual antagonism is systematically sustained. When captured, Eaters are often enslaved. When killed, their bodies are hung in the bog-farms as fertilizer.

Light coats of slick fur entirely cover the Eaters. On their heads and feet the fur is thick and bright red, but everywhere else it is neutral gray and thinner. Eaters are excellent swimmers, preferring to spend much of their time in or near the water. They keep their coats meticulously oiled and scented, using refined animal fats and natural secretions. Their faces are more angular and flat than the Grazers'; and they have numerous small, dagger-like teeth. Eaters have small pointed ears and relatively large, orange eyes set wide apart, facing forward. Their night vision is very good, and their sense of smell is particularly acute. Male and female Eaters are the same size, averaging 1.7 meters tall. Both sexes have powerful hands with bright red nails as tough as claws, tapering to sharp points. They run faster and swim more swiftly than most modern Grazers. In diet, habitat, and physical vigor the Eaters are a bit like the African water-mongoose.

Among themselves, Eaters are gregarious and fairly-peaceful. Most have a fiery temperament, though, which can spark brief conflicts over important issues such as the distribution of Grazer-meat. As a species, Eaters are wary and rather reclusive. They show hostility toward anyone smelling of Grazer bog-farms or cities, but they attack other hominids only if they are starving or if left no other choice. Eaters are seldom friendly to strangers: attempts to destroy or invade their swamp-

lands are likely to be met with furious guerilla resistance. They automatically dislike and distrust herbivores, but omnivores and carnivores may earn their respect by skilled trapping and hunting. They do not do rishathra with outsiders. Their keen sense of smell enables them to detect Vampire scent from a considerable distance, and they are one of the few species only moderately affected by it. At the borders of their territory, where the water is fresh, Eaters sometimes hunt Vampires, and may be employed to track them. Eater tribes often migrate along riverbanks, and occasionally must travel long distances overland to reach new marsh habitats.

Mechanistic cultures are only rarely developed by Eaters. In general their intelligence has remained somewhat less than average for sentient Ringworld hominids. They are most likely to be encountered in their native swamps and marshes, or on the fringes of large Grazer civilizations and enclaves. Occasionally, Eater males take female Grazers as captive mates (and emergency food sources) — a practice guaranteed to enrage Grazers and draw them pell-mell into the swamps. A few such forced marriages actually last, but the couple is then cast out and permanently exiled from both cultures.

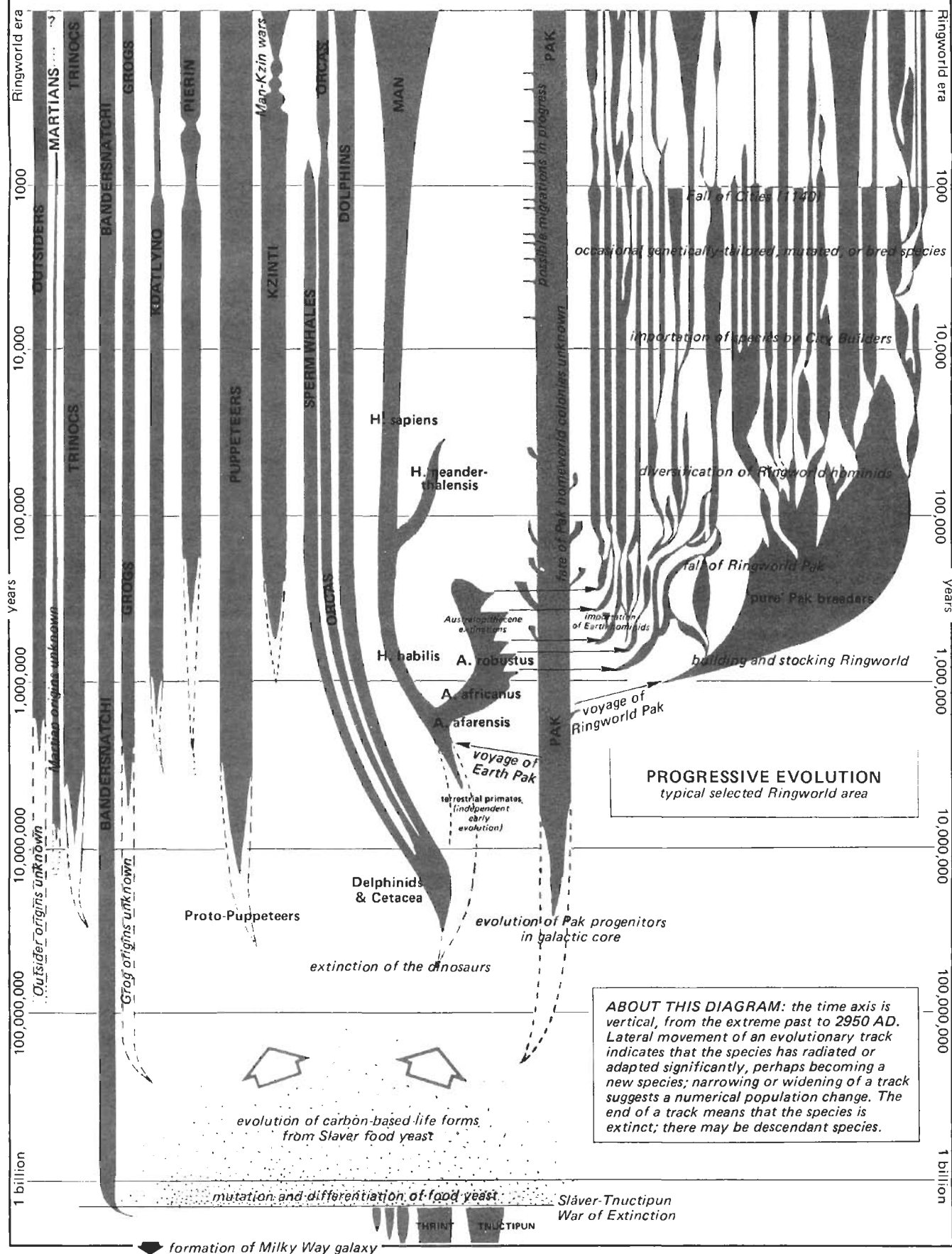
Young Eaters can alter their appearance convincingly enough to pass briefly as Grazers, infiltrate their cities, and steal technological items. Sometimes their permanent mates are determined by the status achieved on such a foray. The cleverest have the best chance of surviving such a mission; quests of this nature are now undertaken by Eater youths as rites-of-passage in many regions. Relatively powerful cultures occasionally have been prompted by fortuitous or inspired thefts, but in general Eater social progress has been painfully slow.

FOREST FISHERS

Forest Fishers are a species of big, tree-living hominids with limited psionic abilities. Sometimes they are called "People of the Woods." The term hominid is applied to many anthropoid species different enough from the advanced hominid races to require a distinct genus classification.

The Forest Fishers are completely arboreal, living among the branches of trees, preferring those with thick limbs overhanging streams and lakes. Only rarely are they obliged to descend to the forest floor to reach distant trees. On level ground, their gait is awkward because of the unequal length of their arms and legs, and because of the elongated conformation of their feet. Though generally slow and deliber-

Evolution of Selected Species



GRAZERS

Char.	Range	Averages	Hit Locations	Armor/Av. HP
STR	3D6	10-11	R Leg	1/6
MAS	2D6+1 (+3)*	8/10	L Leg	1/6
CON	2D6+3	10	Abdomen	1/6
INT	2D6+6	13	Chest	1/7
POW	3D6	10-11	R Arm	1/5
DEX	3D6	10-11	L Arm	1/5
APP	2D6+2	9	Head	1/6
EDU	1D6			

* male Grazers have MAS 2D6+1, females have 2D6+3

Age: 1 D4 on age table

Average HP: 19/21

Speed: 4m/im

Action Ranking: 5

ARMOR: 1-pt fur. Grazers occasionally wear 2-point armor made from thickly-woven cloth. Determine hit point locations for Grazers on the standard hominid hit location chart.

WEAPONS: Grazers are found with all types of primitive weapons. The higher-technology cultures have projectile weapons resembling those from early 20th century Earth.

Weapon	Attack	Damage
Rifle	20%	2D6+3

COMMON SKILLS: Athletics/Swim 100%, Botany 60%, Engineering 40%, Farming 80%, Handgun (projectile) 20%, Heavy Weapon (projectile) 20%, Hide 20%, local Languages 40%, Musicianship 35%, Observation 40%, Repair 40%, Search 40%, Sneak 40%, Strategy 20%.

Grazers are fairly intelligent hominids, though their appearance is unimpressive. The males reach about 1.5 meters [5 feet]; the females are perhaps another 15 cm taller. Both sexes are covered by a light, neutral-gray fur which becomes much thicker and darker around the shoulders, ankles, and feet. Only their hands and round faces are bare skin. Their feet are broad and flat, but not webbed. They have wide, expressionless mouths containing many small, rounded teeth which grow continuously. Their intense, quizzical, orange-brown eyes are set relatively close together, bulging forward slightly from the sockets.

Often highly-strung, almost temperamentally hyperactive, even when absolutely safe Grazers tend to glance about compulsively. Some display annoying nervous twitches over which they seem to have little control. Many carry small pouches filled with stringy, pressed *ikrel* weeds from the swamp farms. Habitually chewing these dried, blue-green tendrils seems to calm Grazers, but *ikrel* is rumored to have the opposite effect on most other hominids.

Grazers have very sensitive hearing, are good musicians on a variety of instruments, and prefer quiet surroundings.

Lands dominated by Grazers are typically remote from active City Builder centers. In those regions where the species have come into contact, Grazers generally dislike and distrust City Builders and their close allies. Most Grazer cultures do not make rishathra a regular practice. They avoid vampire scent, which (though they are susceptible to it) makes them ill. Grazers much prefer the aphrodisiac properties of the *yana* herbs grown in their own bogs. *Yana* is used by many Ringworld hominids as a painkiller and euphoric, and certain of the Grazers' periodic social rituals are performed only under its influence.

A compulsive idealism drives most Grazers to take life-long mates. In practice, their chronic nervous insecurity often plunges them into domestic and social chaos.

Many Grazer cultures exist, from rudimentary associations of bog-tillers to societies whose engineering achievements rival those of early 20th century Earth. Some of these civilizations have developed a technology which includes cities, heavy industry and non-aquatic agriculture.

Grazers are generally tolerant, though often suspicious of strangers. They will adamantly insist that omnivores never eat meat (or discuss eating meat) in their presence. They are unconscionably hostile toward carnivorous species, attacking them without

provocation on rare occasions. This attitude may be a holdover from their ancient enmity with the Eaters—a closely-related subspecies with whom they can still interbreed, producing sterile, mutant offspring. The Eaters are omnivorous, but their favorite food is, unfortunately, Grazer-meat. Whenever feasible, Grazer civilizations organize merciless campaigns of Eater extermination. Grazers are marginally more intelligent than Eaters, so in areas with advanced technology these campaigns are often fairly successful. (Sometimes, though, fortuitous thefts of technology turn the tables on the Grazers!) Eaters taken prisoner are enslaved, bodies of those killed are thrown into wiremesh cages and hung in the swamp farms for fertilizer. There is an uneasy truce with the Night People concerning this practice—in general, Grazers do not get along well with them. Fortunately, the Ghouls do not favor the dripping environment of stag-nant bogs.

HILL PEOPLE

The Hill People live on the summits and upper slopes of mountain ranges, high hills, and plateaus where the air is thin but breathable. They are uncomfortable at low elevations, and have adapted to altitudes between 1.6 and 4 km [1.9 to 4.7 miles] above sea level. At heights beyond this they cannot survive, so they do not compete for the icy domains inhabited by the Spill Mountain Folk. More frequently they are encountered in mountainous regions nearer the Ringworld median line than the rims. Hill People are omnivores whose tribes may originally have consisted of nomadic outcasts and wanderers, hunting and gathering along the highland ridges. Most have now progressed well past such origins. They live in settlements and rock cities on the mountains, raising hardy crops and a variety of semi-domesticated animals such as gredliks. They are known for their cultivation of an especially nutritious, high-energy seed plant called *achiya*, which does not do well below 2700 meters [9000 feet] or in humid climates.

Hill People are sturdy and tough. Their height ranges between 1.5 and 1.9 meters [between about 5-6 feet] tall. Though very sexually fertile, they almost never do rishathra with strangers. They are at their best scrambling up steep ragged terrain, but their endurance on treks, migrations, and long marches is fantastic. Their feet are always calloused and garbled, even though boots of soft, thick, gredlik-hide usually protect them. Hill People are almost completely covered with a coat of resilient, curly wool, 2-3 cm thick. The color

ranges from light brown to black depending on the individual and clan, and the woolly fur provides excellent thermal insulation. Their skin is yellowish, but can be glimpsed only on their faces, hands, feet, and over-sized knee joints (which are hairless and rough). Their eyes, set wide apart, are deep black and disturbingly hypnotic. They have broad, flattened noses, and massive, very human dentition set in powerful, jutting jaws. The lips are yellow-brown, leathery-textured, and prominent. Even without *achiya* seeds, Hill People have phenomenal powers of concentration.

Hill People Society

Hill People cultures are organized into small nation-states dividing up the available territory on a given mountain range or plateau. Each nation is presided over by a single benign Lord or Lady. The system varies from culture to culture, in that these potentates may be primarily male or exclusively female, according to local traditions. Matriarchal feudal societies are not uncommon in some regions. A single leader typically rules over all Hill People within one to two weeks foot-travel of his rock-dome or manor, dictating policy on foreign relations, trade, taxation, the raising of armies, and the dispensing of justice. In such matters the word of the Lord is absolute, but in most other political areas, control is far less rigid, and seldom enforced. In many nations the Lord's supremacy is hereditary, but in some it is determined by democratic processes. A small percentage have no rules at all, with the leader's position always up for grabs. Neighboring Hill People nations may be friendly or hostile toward one another, depending on politics-of-the-moment; but their disagreements are usually settled by shrewd bargaining, games of chance, and endurance competitions. They almost never war among themselves. But Hill People are usually hostile to other hominid species, and do not hesitate to attack them—especially if threatened. Nothing unites the nation-states more quickly and effectively than the real (or imagined) possibility of invasion of their highland realms.

The fertility, limited resources, and relative isolation of Hill People cultures leads to a chronic cycle of overcrowding and migration, since they do not exercise internal population controls. When a particular mountain range can comfortably support no additional population, nations of lowest status must emigrate. They convert their possessions, lands, and herds to weaponry and provisions. Supplies of *achiya* seeds form the bulk of the food: one tablespoon of *achiya* seed in water can power a hominid warrior for 30 hours on a forced

HILL PEOPLE

Char.	Range	Averages	Hit Locations	Armor/Av. HP
STR	2D6+6	13	R Leg	4/8
MAS	3D6	10-11	L Leg	4/8
CON	2D6+6	13	Abdomen	4/8
INT	1D6+12	15-16	Chest	4/9
POW	3D6	10-11	R Arm	4/6
DEX	2D6+3	10	L Arm	4/6
APP	3D6	10-11	Head	4/8
EDU	1D4			

Age: 1D4 on age table

Average HP: 24

Speed: 3m/im

Action Ranking: 5

ARMOR : The wool of the Hill People acts as 1 -point armor. Hill People also wear thick-woven shawls which are good for 1 more point of protection. They also wear 2-point greldik leather armor in battle. Use the standard hominid hit location tables.

WEAPONS: Hill People use primitive weapons almost exclusively. Occasionally the lord or lady of a mountain can obtain projectile weapons from the Machine People, or some similar species.

Weapon	Attack	Damage	Parry
Spear	40%	1D8+1	40%
Shield	20%	1D6	40%
Javelin	40%	1D10	

COMMON SKILLS: Archaic Melee Weapon 40%, Archaic Ranged Weapon 40%, Bargain 60%, Climb 80%, Debate 80%, Emergency Treatment 40%, Engineering 40%, Farming 40%, Fast Talk 60%, Hide 40%, local Languages 20%, Musicianship 60%, Observation 40%, Oratory 80%, Strategy 20%, Tracking 40%

march. Hordes of Hill People have been known to journey over vast expanses of inhospitable terrain to reach new mountain ranges. Their travels are seldom without incident, for despite their primitive weapons, migrating Hill People often leave bloody trails behind them where their lines of march pass through the territories of other species. More advanced cultures are sometimes overrun completely, their own weaponry disastrously turned against them. Occasionally a migration-wave will bargain with an intervening civilization, offering their services as mercenaries in exchange for assistance and supplies. In some cases, the destination mountain range is inhabited by other Hill People cultures. If the survivors of the exodus are relatively few, they are usually accepted; but if there are many, the marchers must move on, or compete successfully for permission to settle.

Rock Dome Architecture

Hill People are noted for their distinctive "rock dome" architecture. The fortresses of the Lords are particularly impressive and impregnable. Builders first pile up and carefully shape a mound of compacted dirt and rubble as a template. Precision-hewn stone blocks are then assembled upon the mound in a geodesic jigsaw pattern, one band at a time. Sometimes a circular or hexagonal opening is left at the very top. Upon completion, the dirt and rubble are removed from the interior, and the dome is left free-standing. The outer surface is initially unfinished, but the fortress-domes of certain very durable nations have been carefully enlarged and highly polished. From a distance these may sometimes be mistaken for advanced-technology structures.

Such rock domes are spacious, and their good acoustics make them natural assembly theatres and concert halls. Freedom of speech is highly valued among the Hill People: they enjoy many forms of verbal exposition, debate, oratory, and argument. Equal opportunity for all points of view to be heard is guaranteed by the Lord or Lady. The speaking-domes are also used for music, often from neighboring states, and occasionally even brought from outside the Hill nations. The native instruments preferred by the Hill People are greldik and unik-horn pipes, with stretched skins and bones for percussion. They also play yadakis and awesome bass-flutes made from hollow logs. There are thousands of traditional tunes, all of which sound very much the same to the uninitiated ear — and Hill People sometimes take offense if the rare visitor does not relish listening to at least a hundred of them at a sitting.

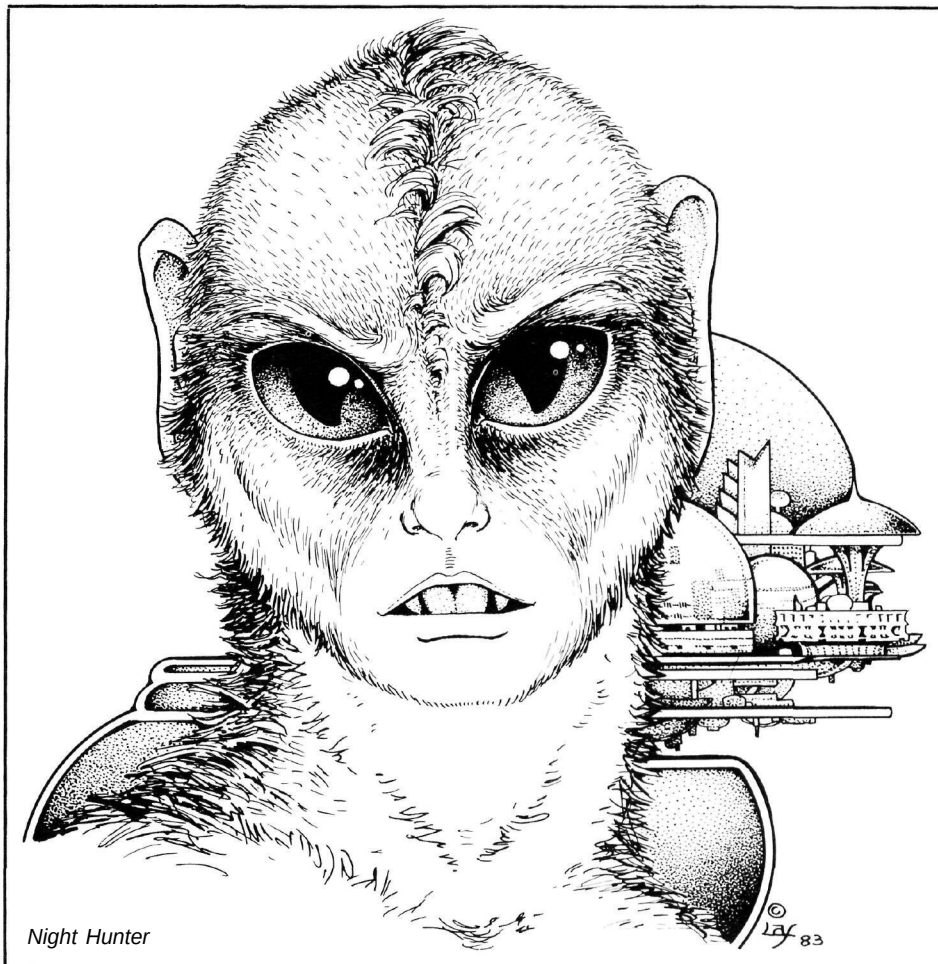
NIGHT HUNTERS

Night Hunters are a nocturnal hominid species with exceptionally good night vision and an even more acute sense of smell. They are widely found closely-associated with surviving pockets of City Builder civilization, although in primitive regions isolated Night Hunter families still prowl in the darkness. These big-eyed sentient carnivores have voracious appetites. In their natural habitats, they catch varmots and other small nocturnal vegetable-eaters, but they may also prey upon grazing herds bedded down for the night, and will pursue larger creatures if they need. Since they neither cook nor use fire, the smell of fresh blood is often on their breath. Their relatively high intelligence breeds caution and respect, though, so they rarely attack if it is

unnecessary or clearly unwise. The ecology of any particular locale can generally support only a few wild Night Hunter families.

Their keen olfactory sense allows Night Hunters to detect vampire-scent in tiny concentrations, well below the level at which it becomes overpowering and irresistible. Normally, it sends them running. They have an intense hatred of the vampires, with whom they must share the night. Occasionally, they team up with (or are hired by) more advanced, settled hominid species to track down and exterminate vampires in their realms. Night Hunters are usually suspicious of outsiders, at least initially. They consider Ghouls repulsive and annoying, but do not challenge them.

Night Hunters appear quite humanoid, despite several major evolutionary adaptations. They are much less repugnant to humans than



Night Hunter

to the City Builders they traditionally serve. Standing tall and erect, they sometimes topping two meters, round, catlike eyes are as big as goggles, and seem to glow in the darkness. Usually they are shades of blue or green. They appear close-set only because of their relatively enormous size, the orbits hardly separated by the pointed nose. The head is rounded, with large, naked ears lacking lower lobes. The brain, though marginally less complex, is physically larger than that of a human being. The incisors are buck-teeth like ax-heads; the triangular canines are sharp but not protruberant. The lips arch above slender jaws in graceful cusps. The body is entirely covered with a thin layer of dark fur, grey or brown, and with occasional reddish-brown mottling. The

evolved a close-knit, longstanding association with the City Builders and their rise to rule on Ringworld. In many regions they are still closely-tied to City Builders, Machine People, and certain other species whose technological and cultural development has aided and protected them. Very rarely do the Night Hunters undertake to build mechanistic dominions of their own.

RUNNERS

Runners are frequently encountered within the 2.5 billion square kilometer area centered on the Machine Empire, a region partly-explored by Louis Wu and his party during the second expedition to Ringworld. The over-

ufacturing and transportation industries; and they also serve as rapid overland couriers to its distant, nearly-independent kingdoms. Biomass distilleries, chemical-processing plants, and refueling depots are frequently staffed by Runner clans. In borderland regions, Runners sometimes live on the fringes of civilization as brigands, using their swiftness, strength, and stealth to prey on unwary travelers. They may be armed with chemical-projectile guns stolen from Machine People, or, very rarely, they may possess more devastating weapons taken elsewhere. Because of these robber bands, the great majority of civilized, trustworthy Runners are often unfairly considered potential thieves. Among the City Builders, this paranoid attitude is particularly common.

NIGHT HUNTERS - do not confuse with Ghouls (Night People)

Char.	Range	Averages	Hit Locations	Armor/Av. HP
STR	3D6	10-11	R Leg	1/8
MAS	2D6+6	13	L Leg	1/8
CON	3D6	10-11	Abdomen	1/8
INT	2D4+8	13	Chest	1/9
POW	3D6	10-11	R Arm	1/6
DEX	4D6	14	L Arm	1/6
APP	3D6	10-11	Head	1/8
EDU	1D6	3-4		

Special Ability: with only a few steps (1 AR) for preparation, a normal Night Hunter can leap horizontally a distance equal to half his STR in meters and vertically a distance equal to a third his STR in meters.

Age: 1D4 on age table

Average HP: 24

Speed: 4m/im

Action Ranking: 4

ARMOR: 1 point fur. Night Hunters may wear leather or wooden armor in battle and sometimes have sophisticated ceramic or metal armor from the Machine People. Determine hit locations on the standard hominid hit location chart.

WEAPONS: Night Hunters can be found employing weapons from all technical levels. As close associates of the Machine People, they often carry manufactured, chemical-powered projectile arms.

WEAPON	ATTACK	DAMAGE
Rifle	60%	2D6+3

COMMON SKILLS: Archaic Ranged Weapon 40%, Athletics/Climb 60%, Athletics/Run 50%, Debate 20%, Emergency Treatment 40%, Fast Talk 20%, Ground Vehicle 20%, Handgun (projectile) 60%, Heavy Weapon (projectile) 60%, Hide 80%, local Languages 20%, Observation 80%, Orate 20%, Repair 20%, Scent 40%, Sneak 80%, Strategy 60%, Tracking 60%, Unarmed Combat 40%.

shoulders are thick and sloping; and the arms taper to hands of rather human proportions, with long, straight fingers. The nails of fingers as well as toes are compressed into formidable claws which do not retract. The legs are longer than the torso, and the hind feet are oversized, permitting extraordinary leaps. Night Hunters have good hearing and an excellent sense of balance.

It is at times difficult to tell male and female Night Hunters apart, particularly civilized individuals wearing uniforms. Both sexes have equally-deep gravelly-bass voices. Generally a formal introduction includes the gender as well as the name and species: "I am Mar Korsil, a female of the Night Hunters." Rishathra is performed with sincerity, but never using vampire-scent. Socially unsophisticated, self-conscious, and over-sensitive, Night Hunters sometimes take offense where none is intended in the wisecracks of others. If they feel insulted, they may abruptly leave. When in the employ of more-advanced species, they are loyal, dutiful, dignified, and obedient. Often they are hired as police, guards, night-watchers, and mercenaries for special missions. Though they may be impressed by the superior technology or weapons of adversaries, they remain undaunted. They are expert fighters, using natural weapons and complex systems with equal skill and precision. With chemical-projectile weapons such as those manufactured by the Machine People, they are excellent shots.

Night Hunters are not at all cruel or combative by nature; but whatever their job, they do it well. In the areas of security and specialized administrative duties, the Night Hunters

all extent of the species' distribution is unknown — although their ancient alliance with the City Builder civilization suggests that these hominids may have become widely spread around the Ring.

The Runner breed is tall and muscular, with long, powerful legs and big feet. Deep, massive chests give them the impression of over-development, or adherence to an extensive weight-training regimen. They average well over two meters in height. Their skin is a deep reddish-brown, their hair dark and glossy. The males' hair grows only on the tops and sides of the heads, but the women's often covers their foreheads and cheeks as well, framing tiny, T-shaped faces. Their eyes are the color of deep midnight-violet, beneath heavy lids and thick brows. The women are certainly as impressive as the men, with over-large busts on big, muscular chests. Few flatlanders would regard them as attractive. All Runners are plant-eaters, and their flat-topped teeth show it. Unlike some hominid herbivores, they harbor little instinctive animosity toward more carnivorous species.

The early evolution of the Runners took place in the wide open grasslands of the veldt and plains. There they gained the great speed and endurance necessary to outdistance predators, and to evade pursuit by members of more advanced hominid settlements. Runner tribes still live on the veldt; but many groups have progressed to some degree of more sophisticated cultural development. Most commonly, they are found cooperating with, but subordinate to, other civilized species. The mighty empire of the Machine People, for example, uses Runners extensively in man-

Runner clans tend to view strangers with suspicion, but (unless they are bandits) are seldom overtly hostile. The females tend to treat with other species; they are more sociable and more adept at discourse than the males. In many instances, the women control the organization of the Runner culture and its political arrangements with outsiders, while the males are sent out on lengthy jobs or on distant missions. Runners do rishathra; but the males usually do not enjoy it, except as a craft, since it is often among the duties assigned to them by the clan in conjunction with their outside employment. Naturally, Runner clans encountered in unexplored regions of Ringworld may have evolved quite different social structures.

In their dress, Runners prefer simple, sturdy garments of woven leather. Articles used for protection or for support are made of tougher hides, with thick straps. Although synthetic materials are frequently employed, any colorful or obviously-artificial fabrics are avoided. Metal decoration is not uncommon. Some Runner clans have an odd fascination for technological jewelry: medallions made from small, intricate pieces of ancient machinery are among the favorite items, frequently handed down for generations. CH

SHELL PEOPLE

Below the age of six Ring years (about 36 UNS years), Shell People appear to be a rather typical hominid species. They are completely hairless, with rich, dark chocolate-brown skin. Omnivorous and non-aggressive, they show a marked preference for orderly agricultural

RUNNERS

Char.	Range	Averages	Hit Locations	Armor/Av. HP
STR	4D6	14	R Leg	1/8
MAS	2D6+6	13	L Leg	1/8
CON	2D6+6	13	Abdomen	1/8
INT	2D6+6	13	Chest	1/10
POW	3D6	10-11	R Arm	1/7
DEX	1D6+12	15-16	L Arm	1/7
APP	2D6+4	11	Head	1/8
EDU	1D4	2-3		

Age: 1D3 on age table
Average HP: 26
Speed: 3m/im
Action Ranking

ARMOR: No natural armor. Their typical leather garments give them 1 point of protection. They may buy or steal better armor from advanced civilizations. Determine hit locations on the standard hominid hit location table.

WEAPONS: Runners commonly use Machine People-made projectile weapons. Occasionally, they have better equipment. In wilder areas, they often have only archaic weapons.

WEAPON	ATTACK	DAMAGE
Submachinegun	40%	1 D8+2/shot

COMMON SKILLS: Archaic Melee Weapon 20%, Archaic Ranged Weapon 20%, Athletics/Acrobatics 40%, Athletics/Climb 20%, Athletics/Run 50%, Athletics/Swim 40%, Bargain 40%, Emergency Treatment 20%, Handgun (projectile) 40%, Heavy Weapon (projectile) 40%, local Languages 20%, Musicianship 20%, Repair 20%, Sneak 40%, Strategy 40%, Tracking 40%.

settlements and specialized cultivation. Their crops include oyster plant, frostberry, arrow-root, and 16 varieties of sausage plant, each with a distinctive, delicious flavor. In some regions, Shell People operate large plantations of ivory trees. They raise a dozen species of domesticated animals, including munils and pilks which they harness and ride. For fences they almost always grow a certain tall, thorny variety of elbow root.

The Shell People are best-known for what they themselves call "the change." It is an attenuated version of the Protector transformation, limited and distorted by mutation and lack of Tree-of-life. Suddenly, sometime between the ages of six and seven Ring years, their body chemistry alters. Their skin toughens and hardens into a horny, chitinous shell, almost like a carapace. Their joints enlarge visibly and their strength increases. They lose interest in sex. Their curiosity diminishes; unlike the Pak, their intelligence declines. All the teeth except the molars, premolars, and bicuspids fall out. The process then terminates, resulting in a strong, well-armored hominid which calls itself a Chellon. It is fierce and tough, but relatively slow-moving and rigid in its patterns of thought.

"The change" has created an unusual social structure with a permanent schism based on age. The post-change adults become quite aggressive. In most human cultures, the youths are those who fight, but Chellonite warriors are at least six Ring years old. The imposing shelled adults are always in charge, enforcing strict social controls and codes of behavior upon the vulnerable, unshelled youths. They give little or no consideration to the opinions, desires, and interests of the younger people. They allow them little responsibility, but require and expect them to perform most of the physical tasks of the society. The younger folk in turn view the Chellons as excessively hostile, stupid, humorless, and overbearing. They are generally thankful that, because of frequent duels and conflicts, there are not more Chellons. Young Shell People confidently assure one another that their generation will bring social justice to their species at last, but this never happens.

The "generation gap" suffered by Shell People cultures is severe and irreversible. Their societies are usually very conservative, and rarely do they possess significant technological capabilities. Naturally, unshelled youths are not permitted to do rishathra, and

the adults have no such desire. Relations with other hominid species are often strained, because the Chellonite adults tend to treat outsiders as they behave toward their own young — except that they feel no protective urge toward strangers.

The traditional (and preferred) weapon of Chellonite warriors is the "white-bow," beautifully carved from a single piece of cured, gleaming ivory-wood. The ornate stave is strung with a very tough composite filament, woven meticulously from gut, hair, and resilient stretch-vine fibers. The shafts are carefully-selected, hardened lengths of arrow-root, with polished ivory-wood tips. For inter-species conflicts, a variety of more efficient pellet-bows and stockbows (vertical crossbows with stocks) is available. Metals are almost never employed in Shell People weaponry — although rare ceremonial arrows are rumored to be tipped with tiny shards of scritch. Duels are fought with the white-bows, unless the disagreement is really serious, in which case throwing-hammers are used. Although slightly less accurate, these are much more lethal, often shattering the shell upon impact. Losers are disgraced. Even if they survive the duel they are banished.

SHELL PEOPLE

Char.	Range	Averages	Hit Locations	Armor/Av. HP
STR	3D6	10-11	R Leg	0/8
MAS	2D6+6	13	L Leg	0/8
CON	3D6	10-11	Abdomen	0/8
INT	2D6+6	13	Chest	0/9
POW	3D6	10-11	R Arm	0/6
DEX	3D6	10-11	L Arm	0/6
APP	3D6	10-11	Head	0/8
EDU	negligible			

Age: 1D2 on age table
Average HP: 24
Speed: 3m/im
Action Ranking: 5

ARMOR: No natural armor, and do not wear artificial armor before the change - Shell People are pacifistic; Chellons do all the fighting. Determine Shell People hit locations on the standard hominid hit location table.

WEAPONS: Shell People might occasionally carry knives, axes, scythes, or other tools, but rarely if ever have increased in skill with these as weapons

COMMON SKILLS: Athletics/Climb 60%, Athletics/Run 50%, Emergency Treatment 20%, Fast Talk 40%, Fine Arts 40%, Hide 40%, local Languages 20%, Psychology 20%. White

CHELLONS

Char.	Range	Averages	Hit Locations	Armor/Av. HP
STR	3D6 x 1.5	16	R Leg	6/10
MAS	2D6+7	14	L Leg	6/10
CON	3D6+6	16-17	Abdomen	9/10
INT	2D6+6-1D6	9-10	Chest	9/11
POW	3D6	10-11	R Arm	6/8
DEX	3D6-1D4	8	L Arm	6/8
APP	1D6	3-4	Head	9/10
EDU	negligible			

Age: 1D2 on the age table plus 20 years
Average HP: 31
Speed: 3m/im
Action Ranking

ARMOR: Chellons have 6 point shell over their limbs and 9 point shell over their torso and head. This is only rarely supplemented with artificial armor. Determine hit locations on the standard hominid hit location table.

WEAPONS: These great warriors are particularly skilled with primitive missile weapons. Their traditional weapons include the white bow, a carved wooden bow, and throwing hammers.

WEAPON	ATTACK	DAMAGE
Fist/Punch	80%	1 D6+1 D3
Bow	100%	1D10+1
Throwing Hammer	100%	2D6+1D3

COMMON SKILLS: Archaic Melee Weapon 80%, Archaic Ranged Weapon 100%, local Languages 20%, Observation 60%, Orate 60%, Strategy 60%, Tracking 20%, Unarmed Combat 60%.

SPILL MOUNTAIN FOLK

The Spill Mountain Folk live at extremely high elevations on the slopes of inactive Spill Mountains. These isolated peaks rise some 55 kilometers [35 miles] high, and are regularly-spaced along both rim walls at intervals of about 40,000 km [25,000 miles]. The Spill Mountains play an essential role in recycling the topsoil for Ringworld's ecosystems. About two-thirds of these mountains function at greatly-reduced efficiency, or not at all — and these provide permanent habitats for hominids. The Spill Mountain Folk are adapted to life between the coldest white levels above and the towering 'foothills' below, where the air becomes too dense and too warm for the Folk to breathe.

Spill Mountain Folk are well-insulated, baboon-like hominids; these often-chubby sentients bear a slight resemblance to the lion-maned Abyssinian gelada, Ethiopia's high simian. The Folk's truncated muzzles protrude only mildly, though, and they lack tails. Their noticeably-enlarged canine teeth are not visible when the mouth is closed. Spill Mountain Folk are heavy-bodied with powerful limbs, standing on the average not far below two meters. They are covered entirely with thick, soft, golden-brown fur, and the fore-quarters of most older adults are cloaked in mane-like mantles of long hair. The males often have a single dark stripe 15 centimeters wide running up their backs and tapering to a point at the top of the forehead. The people of the Spill Mountains have extremely efficient, oversized lungs. At altitudes below five kilometers [or about three miles], they begin to experience hyperoxygenation and breathing discomfort — at the normal atmospheric pressure of the Ring floor, they are unable to live. These hominids did not evolve naturally: their strange physiology and metabolism derive from City Builder genetic-engineering programs, millennia ago.

airless realms, many became seasoned spacers. Biologically, though, they were overspecialized, and they were technologically over-dependent on the City Builders. They once flew between their Spill Mountain habitats on magnetic-repulsion skysleds, but for centuries now they have had to rely almost exclusively on balloons for transportation. Only a few skysleds with slow-charge solar power-packs still operate, and these are always heavily-guarded and closely-watched. It is known that Spill Mountain Folk worked in large numbers in the repair crews seen remounting Ringworld's attitude-jet toroids. Some such crews were also said to be engaged in unblocking spill-pipes. For the most part, however, the people of the Spill Mountains have reverted to a technologically primitive existence. Oral traditions alone keep alive among them legends of the ancient star-travelers, and of the secrets of the interiors of the Spill Mountains. Many enclaves might be expected to resist the efforts of repair crews or of anyone else whose activities could re-awaken their slumbering mountain, rendering it uninhabitable.

Natural resources are limited in the domains of the Spill Mountain Folk, so the hoarding of treasure or the unnatural accumulation of material goods is seldom looked upon with favor. Their spirit is one of cooperation, not competition for wealth. They trade among themselves and play games not so much for personal gain as for variety and novelty. Although they're omnivorous, their usual diet is simple. They love sweet-roots, fruit, spice nuts, sausage-plant, eggs, insects, dried fish, nectar, birds, and even larger creatures — which some enjoy catching and tearing apart by hand. Unfortunately, such delicacies can be obtained only by laborious descent to the foothills. In some areas, they use tethered-balloon trams, the baskets of which are sent down loaded with pure, clean ice-blocks and figurines. In exchange, the baskets are filled up with food by hominids living far

times share them without possessiveness. Long-term breeding partners are generally chosen for the variety of their experiences and imaginative skills, not because they represent security, dominance, status, or wealth. Spill Mountain Folk are adept at rishathra, but get few opportunities to practice (they thoroughly enjoyed their golden era of co-enterprise with the ancient City Builder civilization). Their dead are launched festively into the air on balloon rafts filled with figurines, ice sculptures, and ceremonial brahl bowls. Spill Mountain Folk use reflected-light signals to maintain regular contact with the Ghouls in some areas. Most know of the Healers only through grossly-misrepresentative City Builder myths from before the Fall of Cities.

A Spill Mountain Folk City

The vertical habitats of the Spill Mountain Folk are carved into the great gray rocks and blocks of permafrost and dormant Spill Mountain ice floes. From a distance, an ice-rock city exhibits dozens of huge, shadowed shelves with fine threads draped between them. Close inspection reveals myriads of individual entry porticoes, window ledges, sculpted balconies and awnings — hundreds of suspended bridges strung up and down and sideways between them. Narrow, twisting stairways are also hacked into the rock and ice, running for kilometers in strange branching curves, like two-dimensional vertical mazes. A single, guarded stairway usually leads all the way down into the high foothills, to the timberline. Tethered-balloon trams sometimes parallel these solitary paths of descent through the swirling fog at the base of the Spill Mountains.

Spill Mountain Folk do not relish isolation. Their cities usually have populations of 10,000 or more. The center of each city has a large public square carved into it, though a fortuitous flat rock surface often serves the

SPILL MOUNTAIN FOLK

Char.	Range	Averages	Hit Locations	Armor/Av. HP
STR	2D6+8	15	R Leg	2/9
MAS	3D6+6	16-17	L Leg	2/9
CON	3D6	10-11	Abdomen	2/9
INT	2D6+6	13	Chest	2/10
POW	3D6	10-11	R Arm	2/7
DEX	2D6+10	17	L Arm	2/7
APP	2D6	7	Head	2/9
EDU	2D6	7		

Age: 1 D4 on age table
Average HP: 27
Speed: 3m/im
Action Ranking: 3

ARMOR: Spill Mountain Folk get 2 points of protection from their thick wool. They seldom wear artificial armor (resources are scarce where they dwell). Determine hit locations for Spill Mountain Folk on the standard hominid hit location table.

WEAPONS: In battle, a Spill Mountain person may bring a modern weapon left over from the Fall of Cities, or a crossbow, or might use a primitive throwing stick. Since each spill mountain is isolated by enormous distance from the next, the Folk of each mountain may be equipped completely differently.

Weapon	Attack	Damage
Lasergun	40%	20 points
Crossbow	40%	2D6+2
Throwing Stick	40%	1D6

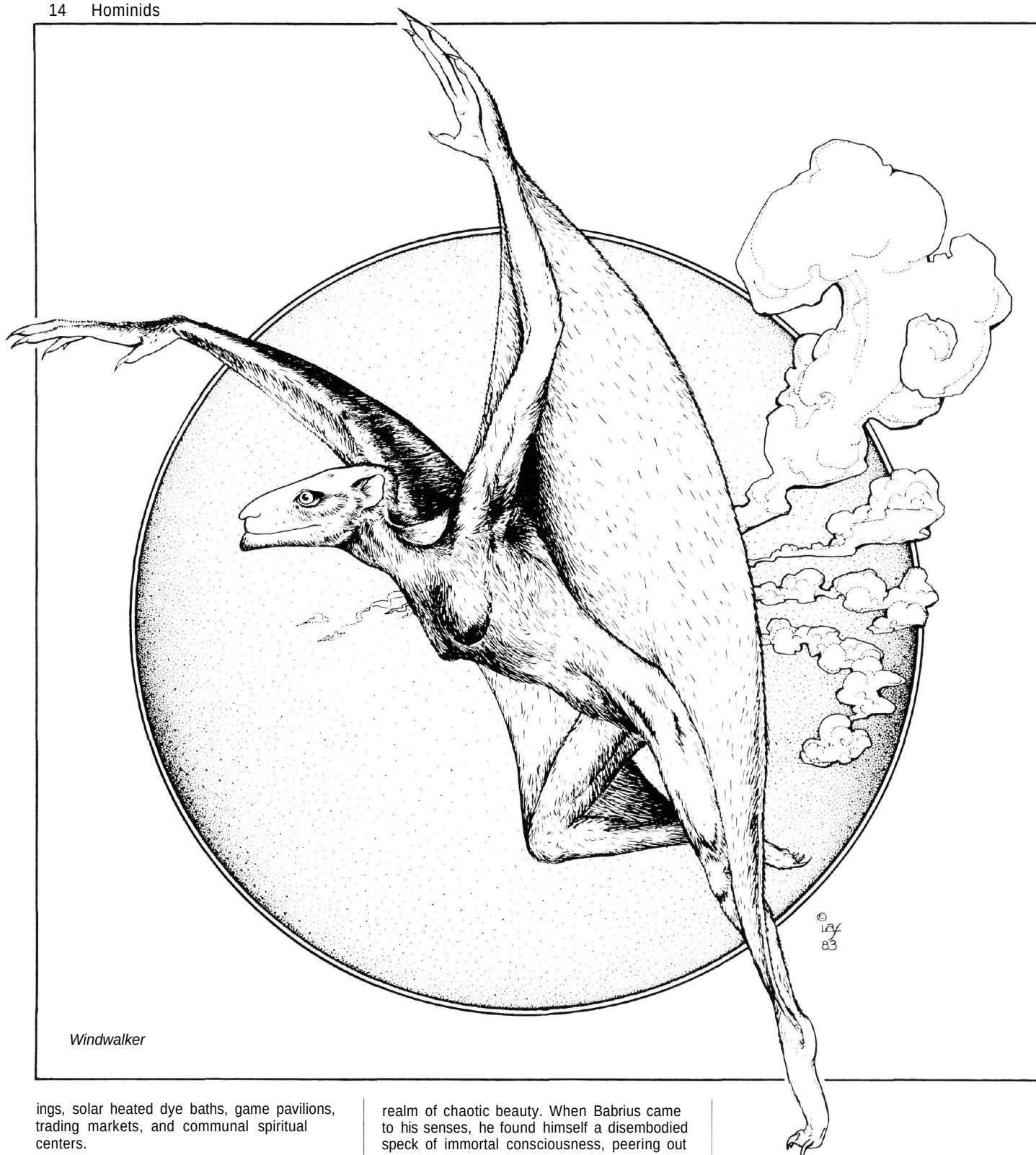
COMMON SKILLS: Archaic Melee Weapon 40%, Archaic Missile Weapon 40%, Athletics/Climb 100%, Atmospheric Craft/Balloon 60%, Emergency Treatment 60%, Fine Arts 40%, Handgun (energy or projectile) 40%, Heavy Weapon (energy or projectile) 40%, Observation 60%, Repair 80%, Search 60%.

Spill Mountain Folk are highly intelligent and educable, but since the Fall of Cities their isolated environment has severely restricted their activities. Long ago they worked with the City Builders to construct and operate the Rim Transport System. They later maintained the elevator tubes climbing up the rim walls, and the rim stations. Before the walls closed forever, Spill Mountain Folk were among those who loaded and serviced the great ramships. Comfortably adapted to nearly

below — Hanging People, Ghouls, Wind Walkers, and, rarely, even City Builders. Most of the time Spill Mountain Folk meals consist mainly of a coarse, thick soup called *brahl*, which they refine from partially-processed flup in the Spill Mountain ice-floes. Brahl is organically nutritious but tasteless, an utterly monotonous staple.

Spill Mountain Folk seek diversity and innovation in family relations. They traditionally change mates every few falans, and some-

purpose. These gathering places typically are crowded with hordes of Spill Mountain dwellers. The staccato squeals, grunts, barks, chatterings, and shriller howlings of their native language quickly die, however, in the thin air. Elaborate posturing and a complex system of hand signals supplements their verbal communication, or substitutes for it. Many decorate their pelts with imaginative designs and mystical symbols. The public squares are sites of pageantry, balloon launch-



Windwalker

ings, solar heated dye baths, game pavilions, trading markets, and communal spiritual centers.

There is generally a large statue in the shape of a hairy, fat, jovial baboon sculptured out of some great boulder at the back of the square, or onto the sheer rock face above. The image often represents some version of the god figure christened "Babrius" by Louis Wu. In a favorite myth, Babrius rose beyond the Rim on a great skysled, passing above the stars. He came to rest at last on a vast, fabulously-varied plateau ideally suited to the tastes of Spill Mountain Folk. He hastened to return to lead his people to freedom in the marvelous new land. Abandoning his depleted skysled, he entered a large, clearly-marked elevator tube — but the bubble would not descend. Instead it went up, through a confused

realm of chaotic beauty. When Babrius came to his senses, he found himself a disembodied speck of immortal consciousness, peering out through the eyes of an early ancestor. All around, wherever he turned, Babrius saw himself in the eyes of others, staring back, grinning. Variety and sameness form a central duality in the philosophy and culture of the Spill Mountain Folk — they are always on the lookout for high adventure.

Each Spill Mountain is unique, because of its extreme altitude and isolation. Each has its own ecology. The cultural sketch given in the foregoing is most likely to fit Spill Mountain Folk living on the starboard rim wall within 40° of the Great Oval Ocean. Elsewhere around the Ring, they may be quite different — and of the folk living on the port rim wall Spill Mountains, nothing is known.

WIND WALKERS

The Wind Walkers (Interworld translation of the City Builder term) are an intelligent, winged hominid species native to the foothill forests along the rim-wall regions. "Foothills" on Ringworld are as steep and rugged as the Andes or Himalayas of Earth. These great mountains were designed to keep breeders away from the Spill Mountains and the rim-wall faces. The winds of Ringworld re-circulate here, where topsoil is also recycled. Strong currents blow along the rim walls, and there are vast stable turbulences in the air-forms of

the foothills. The Wind Walkers flourish as dive-gliders in the high forested terrain where the wind always flows. In many lands much nearer to the Ringworld median-line, they are known only in myths of tree-spirits, air-sprites, and flying demons. Wind Walkers are very old as a species. They may be the products of ancient biological science — though they have evolved in the wild formillennia. They eventually became rather widely distributed on the Ring, because the City Builders discovered their abilities and brought them to live in many of their metropolises.

Wind Walker Life Cycle

The Wind Walkers prefer high places: cliffs, steep ridges, big trees, floating cities, and even tall buildings. They are true acrophiles, with a natural urge to explore inaccessible vertical domains. On the flatlands, they are awkward and ungainly. They dislike warm, dry climates, but ground-level atmospheric pressure does not seem to bother them. Wind Walkers are tall, light-boned creatures often reaching 1.9 to 2.2 meters [some 6-7 feet] as adults. Their infants are born very tiny and helpless, since adult females cannot carry heavy fetuses. The immature form develops rapidly. It resembles a small, brown, wooley-monkey, though it is blind and without gender. For a ring year (roughly six UNS years), the young depend almost completely on their parents. They are fed and trained and protected. They climb well, with prehensile tails and sharp claws, but never stray far from the smells of their home cave or tree-top aerie. When they are older, the parents allow them to cling aboard on short airborne excursions. Their vision is very poor, but they learn to echo-locate by issuing strings of audible chirps and clicks, like the cave-dwelling oil-bird of South America on Earth.

As the young grow to a maximum length of a meter, they gradually lose their agility and their bulk increases. Eventually the day arrives when their parents must hang them up, and they spend the rest of their adolescence undergoing metamorphosis. The process is triggered by feeding them special mulch inoculated with biochemical catalysts and genetic material from their parents' reproductive systems. A tough chrysalis soon forms, and the protoplasm inside begins to restructure itself. Every few months, more mulch must be supplied (through a porous flap) as the transition to the adult form progresses. The adolescents are always hung in secure places: a cavern, a cliff-cave, a hollow tree, or even a long-deserted artifact will do if they are unlikely to be discovered. The light-level must be low, and the air must not be too dry. Civilized Wind Walkers (or Flying People, as some call

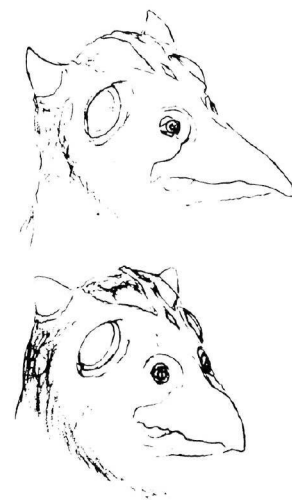
them) often build special nursery-rooms for their growing children, with climate-controls carefully monitored. They enjoy showing off the kids to visitors.

After another ring year has passed, the adult form emerges. The chrysalis dries up and disintegrates after several falans if mulch is no longer supplied, so offspring have a chance to survive even if the parents die. In the wild, newly-born adult Wind Walkers sometimes travel remarkable distances to their people, using their acute senses and an inborn homing ability. Their life begins again as fledglings when they find their families, and they may share for a time in caring for their infant siblings. A big coming-out party is always given for newly-emerged young-adult Wind Walkers.

Adult Flying People come in all shades of green, from dark forest- to yellow-green. There is a soft blue underbelly, visible mainly when the wings are spread, and the dorsal surface of the wings is also light-blue. The fur is like goose-down, but not as thick. The tail is gone. Their relatively small, thin heads are aerodynamically-elongated to serve as rudders. Oval green eyes are set at the widest part of the head, almost in line with a narrow, downwardly-hooked nose. The jaw is slender but deep, with a jutting, triangular chin. When opened, the mouth makes a good air scoop. The lower teeth are sharpest, for snagging prey in flight. The ears are big, streamlined, and flattened against the skull. The "parachute skin" of the wings attaches to the sides of the torso, and down the legs to the ankles. Long, thin feet aid in steering. The hands themselves are free, with spindly muscular fingers. There are small talons like fish-hooks, on the fingers and toes. Wind Walkers in flight resemble a colorful humanoid blend of pteranodon and coluga (the flying lemur).

Adult Wind Walkers

Unless the wind gusts to at least 50 km [about 30 miles] per hour, average adult Wind Walkers can rarely take off under their own power from a flat surface. Once airborne, though, they are expert gliders and navigators. Their distance-vision is excellent, their sense of smell is heightened as adults, and their acoustic echo-location is as good as radar. In their native state they use these abilities for communication as well as for finding food-targets in the air and on the ground beneath them. Incredible sensitivity to tiny amounts of their own ectohormone chemicals, however, allows them to convey information to others of their species and family over much greater distances than sight or sound. Their pheromone-specificity makes them immune to vampire-



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Pierin heads; see entry, pp. 18-20.

scent, unlike most hominids. Though expert wind-hunters, Flying People are omnivorous, able to sustain themselves on diverse foods. Some cultures practice extensive aviculture. In the vicinity of some Spill Mountains, they operate balloon-lifts, trading with the Spill Mountain Folk living far above on glacial slopes. In overcast, windy realms near eye-storms, or in thermal-updrafts near the Great Oceans, isolated populations are said to have built their own tall needle-cities on the Ring floor, far from their origins along the rims.

As hominid species go, Wind Walkers are moody, but generally friendly — unless their habitats are threatened, or unless their helpless young are endangered. The City Builders found their mode of living intriguingly exotic, useful for their natural abilities and daring. They became pilots, navigators, scouts, guides, messengers, and specialists in vertical exploration and salvage operations. Although adept at using high-technology items, Flying People have not often evolved advanced mechanistic cultures themselves. Many have fallen back to a relatively traditional existence on present-day Ringworld, though some doubtless survive in pieced-together floating cities. When stranded or abandoned on the flatlands, Wind Walkers are miserable and usually suspicious of strangers. They become quite resourceful in such circumstances, and will not hesitate to take whatever materials, weapons, or vehicles might help them return to their lofty homes.

WIND WALKERS

Char.	Range	Averages	Hit Locations	Armor/Av. HP
STR	2D6+6	13	R Leg	0/6
MAS	2D6+1	8	L Leg	0/6
CON	3D6	10-11	Abdomen	0/6
INT	2D6+6	13	Chest	0/7
POW	3D6	10-11	R Arm	0/5
DEX	3D6+12	22-23	L Arm	0/5
APP	2D6	7	Head	0/6
EDU	1D6	3-4		

Age: 1D3 on age table

Average HP: 19

Speed: 2m/impulse on the ground, 6m/impulse in the air

Action Ranking: 2

ARMOR: Wind Walkers have no natural armor, nor can they use artificial armor and still fly. Their hit locations are determined on the standard hominid hit location chart.

WEAPONS: They use a variety of archaic ranged armament as well as available advanced ranged weapons. They are masters at Aiming while moving, and suffer no penalties for firing on the move, unless they are actually performing acrobatic stunts or dodging.

Weapon	Attack	Damage
Javelin	60%	1D8
Pistol	60%	1D8+2

COMMON SKILLS: Archaic Ranged Weapon 60%, Emergency Treatment 40%, Languages 20%, Observation 80%, Scent 20%, modern weapons skills if living with or near to City Builders.

Base Chances

SKILLS	Agamans	Boat People	Eaters	Forest Fishers	Grazers	Hill People	Night Hunters	Runners	Shell People	Spill Mountain Folk	Wind Walkers	Martians	Orcas	Pierin	Sperm Whales	Thrintun	Tnuc.
Anthropology	—	03	0	—	0	0	0	0	—	0	0	0	0	0	0	—	0
Aquatic Vehicle	—	10	0	—	0	—	—	—	—	—	—	—	10	0	01	0	0
Archaic Melee Weapons	08	08	05	0	05	05	05	07	10	05	05	07	—	05	—	0	0
Archaic Ranged Weapons	05	05	05	0	05	06	09	08	10	05	08	05	—	05	—	—	0
Astronomy	03*	05*	02*	0	0	0	05*	0	—	0*	0*	0*	0	0	0	0	05
Athletics	06	03	03	10	03	02	05	03	05	05	05	04	05	05	05	—	05
Atmospheric Craft	—	0	—	—	—	—	—	—	—	0	0	—	—	03	—	0	0
Bargain	0	09	03	—	02	04	05	03	05	03	07	01	10	06	05	0	10
Biology	—	0	0	—	0	0	0	0	—	0	0	—	0	0	—	0	08
Botany	—	0	0	—	0	0	0	0	—	0	0	—	0	0	0	0	08
Chemistry	—	0	0	—	—	—	0	—	—	0	0	—	0	0	0	0	05
Computers	—	—	—	—	—	—	0	—	—	—	—	—	0	03	—	0	08
Debate	06	05	02	—	03	05	06	05	05	03	10	03	05	05	05	05	10
Emergency Treatment	10	10	10	—	10	10	10	10	05	08	05	03	05	05	05	0	08
Engineering	0	05	0	—	—	0	01	0	—	05	0	0	0	0	—	0	15
Farming	—	05	0	—	05	06	0	0	0	0	0	0	0	0	0	0	08
Fast Talk	0	04	03	—	03	04	05	03	02	05	05	03	06	07	0	05	15
Fine Arts	—	04	0	—	02	02	02	05	02	04	05	02	03	06	10	0	03
Ground Vehicle	0	0	—	—	—	—	0	—	—	—	—	—	—	08	—	02	04
Handgun (energy)	0	0	0	—	—	—	0	—	—	—	—	—	—	04	—	0	05
Handgun (projectile)	02	03	0	—	03	—	02	02	—	03	03	0	0	03	—	—	04
Heavy Weapon (energy)	0	0	0	—	—	—	03	—	—	—	—	—	—	05	—	0	07
Heavy Weapon (projectile)	06	04	0	—	03	—	02	02	—	04	04	0	0	05	—	—	06
Hide	09	05	07	10	02	02	08	10	05	05	08	10	05	08	0	0	15
History	0	05	0	—	0	0	02	0	—	0	0	0	03	03	15	0	12
Hyperdrive	—	—	—	—	—	—	—	—	—	—	—	—	0	0	—	0	03
Law	0	0	0	—	0	0	0	0	—	0	0	0	0	0	0	—	—
Listen	08	05	08	10	05	05	10	12	05	05	05	05	15	10	20	05	08
Mathematics	—	0	—	—	—	—	0	—	0	0	0	0	0	0	15	0	10
Musicianship	07	03	05	0	06	05	09	09	0	0	0	01	09	06	25	0	0
Observe	10	05	10	12	05	05	12	15	05	07	08	04	05	10	05	0	15
Orate	09	04	02	—	03	05	05	05	05	05	05	03	05	05	25	15	0
Own Language	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/5
Perform	0	01	0	0	04	03	02	01	0	05	03	0	07	05	15	0	15
Personal Flyer	—	0	—	—	—	—	0	—	—	0	—	—	0	—	—	03	05
Physics	—	0	—	—	—	—	0	—	—	0	0	—	0	0	0	0	10
Planetology	—	—	—	—	—	—	—	—	—	—	—	—	0	0	0	0	05
Psychology	—	0	—	—	—	—	—	—	0	05	05	05	06	06	0	0	15
Reaction Drive	—	0	—	—	—	—	—	—	—	0	—	—	0	02	—	0	10
Reactionless Drive	—	—	—	—	—	—	—	—	—	—	—	—	0	05	—	—	10
Repair	0	03	0	—	02	02	03	0	—	04	01	0	02	05	—	0	15
Ringworld	05	10	0	0	0	0	02	0	0	05	05	0	0	0	0	0	0
Scent	06	03	20	10	09	02	12	01	05	04	04	03	04	05	09	05	06
Search	08	05	09	06	05	05	10	12	05	06	05	05	05	10	05	0	15
Second Language	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	—	0
Sneak	10	05	10	05	05	05	10	12	05	05	05	10	05	10	0	0	20
Strategy	05	05	01	0	03	03	10	08	—	0	0	03	05	06	—	—	20
Theology	12	0	0	0	0	0	0	0	0	0	0	03	05	10	25	05	0
Track	10	—	05	—	12	14	08	10	05	02	0	08	0	04	—	—	05
Unarmed Combat	07	0	05	0	0	0	08	0	0	0	0	0	0	0	—	—	05
Var. Sword/Flashlight-Laser	—	—	—	—	—	—	—	—	—	—	—	—	0	07	—	05	10
Weapons System	0	0	—	—	—	—	0	—	—	—	—	—	0	0	—	0	05
Zoology	0	0	0	0	0	0	0	0	—	0	—	0	0	0	07	0	15

* This skill known is Astronomy/Observational

The accompanying table lists base chance skill percentages for the hominids and aliens included in the Ringworld Companion. Ringworld hominids may become important explorers in some campaigns; the table (along with the species essays and statistics) gives enough information to create native explorers. Table values are starting values. You will have to choose learning rates and pursuits to match the societies from which these sentients come. In general, follow the human age/occupation scheme in the Ringworld rules for human explorer creation; an individual might earn more or less than 20 occupation points per UNS year, but the game is calibrated for about that yield. The Kzin and Puppeteer sections provide procedures for alien creation. To use the explorer sheet for another species, the human base chances must be systematically replaced by the base chances appropriate to the species. Zero as a base chance indicates that the skill is specialized, but that it exists in some form within most or within representative cultures of the species: for instance, Chemistry might amount to how to make dyes and soap in very primitive cultures, and be alchemical in nature in medieval-style eras. The dash (—) indicates that the particular skill is very unusual for the species, or that is ordinarily impossible for the species to achieve, physiologically or psychologically. Creatures with natural weapons have base chances with those weapons equal to the chance given in the appropriate creature description.

Aliens

MARTIANS

The world that never mankind hath possessed.

- Dante, *Inferno*, XXVI

Robot reconnaissance of the planet Mars began in 1965 A.D. with the Mariner 4 fly-by mission, and culminated in the spectacular Viking landings of 1976 and the Project Gulliver marsrovers of 1990. On July 20, 1996, the first manned landing took place — highlighted by the astonishing discovery of a mummified Martian, incompletely preserved, and a few badly-eroded artifacts. The weathered corpse unfortunately was lost: it burst into flames when, in an emergency, an astronaut dashed it with water. Volatile and radically non-terrestrial, Martian biochemistry is based on highly-reactive acids and oxides of nitrogen; it has never been fully understood.

There followed a brief wave of intense interest in the Red Planet — despite the evident lack of industrially-usable resources on Mars, the planet's inhospitable environment, and the great expense of planetfall in its 0.38 gee gravity-well. The disastrous failure of Lacus Solis Base early in the 21st century, however, and the bizarre death of a stranded smuggler (a Belter named Muller) near the ruins of that base in 2112 ended UN plans for immediate Mars colonization. Muller and the earlier explorers at Lacus Solis, it became clear, had been murdered by still-living Martians.

Only a few humans ever saw an intact Martian alive or dead. Eyeless, with an oversized head balanced on a skinny neck, it is not known how the xenophobic aliens perceived humans. Martians were attenuated, fragile beings about 1.25 meters tall, humanoid in general plan but described as 'goblin-like' in appearance. They were bipeds, with broad, webbed flat feet and long, spindly limbs. Their delicate-looking hands had three digits: two enormous, fragile, tapered fingers, and a long, flattened opposable thumb. Though weak, Martians possessed considerable strength for their size, and were tirelessly single-minded in their ant-like devotion to a task. Their intelligence evidently was high, despite the apparently-primitive state of their civilization. Diamond-tipped spears were their only weapons, yet they rapidly learned how best to sabotage equipment vitally-necessary to Mars-bound humans.

Over the eons, as their world dried and cooled and as its reddish air thinned, the Martians adapted to life within vast seas of soupy marsdust. Far from the moist polar caps and the permafrost of ancient channels, in endless deserts of crescent-shaped dunes and beneath debris-strewn wastelands, the Martian sands are soft, and fine enough to flow like thick oil. An exotic ecology survived, with solar-powered microorganisms in the sulfur and iron-rich upper layers, feeding intermediate stages of life further down. At the bottom of these viscous, dry oceans the Martians endured, shielded from meteor strikes and the harsh surface climate. They once must have had a respectable technology. Much later, they built only stone maze cities, with curved walls, rounded corners, and multifarious openings. Their written language is a strange, slanted script which has yet to be well-deciphered. They wore clothing. They brought their dead to the surface for burial in crematorial wells the mouths of which were rings of inscribed cut-diamond blocks slightly more than two meters high and three in diameter. Of Mars' ancient culture little else remains.

No peaceful contact with Martians ever was established. Olympus Base was eventually rebuilt, isolated, and safeguarded from possible hostile Martians — but interest in them and their world dwindled as the Belt prospered from the wealth of the asteroids, and as the UN found habitable planets elsewhere to populate. A large ice-asteroid, Mahmen, impacted Mars in 2293, briefly straining Earth-Belt relations even though no humans died. This event probably caused the extinction of any remaining Martians, to whom free oxygen, liquid water, and water vapor were lethal poisons.

Whether Martians ever were advanced enough to develop spaceflight, whether they were even originally native to Mars, and whether their remote cousins may flourish elsewhere remains sheer conjecture. In the Ringworld era, Mars is only sparsely populated by humans, although interest in terraforming it runs high in some circles. Corrosive superoxides in the Martian soil destroy terrestrial organic compounds, however, and the few previous attempts to introduce gene-tailored plants have ended in failure.

The Ringworld Map of Mars contains a thriving colony of Martians, but due to their

peculiar metabolism, it is highly unlikely that they would be met with anywhere else on Ringworld. These Martians, adapted to a 1-gee environment, will be correspondingly robust.

ORCAS

I sometimes wonder what our human lives would be like if we were not, as we are, creatures of fear.

— P. Spong, *Mind in the Waters*

Killer whales (*Orcinus Orca*) were granted federal protection as early as 1972 A.D. in the archaic sub-state United States, under the Marine Mammal Protection Act. Early in the 21st century, Orcas were found to be sentient, first achieving full human equivalence under the comprehensive Cetacean Rights Act of 2017.

Orcas are easily identifiable by their sharply defined, flamboyant coloring. They look like black-and-white oversized dolphins; they are in fact the largest species of the dolphin family (*Delphinidae*). Males grow as long as 10 meters and as heavy as 9 tons; females are smaller, 6-8 meters, and may weigh over 5 tons. Both have glossy black bodies, with rounded heads and massive conical teeth, 10-14 per jaw half. Behind each eye is a conspicuous white patch, and the underbelly from head to tail is also white. Behind the large, triangular dorsal fin is a distinctive gray "saddle patch" which varies in size and shape with the individual. Vision is excellent, due to an extra crystalline layer in the eyes. Orcas can swim in excess of 50 kilometers per hour. They have long life-spans, up to 100 years for the females. On Earth, they may be found in polar, temperate, or tropical oceans.

Orcas rely mainly on a diet of fish, particularly the large schooling species of tuna and salmon. They are voracious eaters, exceptional in that they are the only cetaceans who regularly feed upon marine mammals, on aquatic birds as big as penguins, on squid, and occasionally even on larger whales. Because of their appetite for warm-blooded prey, they were dubbed 'killers' originally. Today, however, Orcas are often compared to humans because of their intelligence, independence, playfulness, individual identities, family units, and ability to communicate with one another. For their codes of honor, senses of personal dignity, fearlessness, and courage they sometimes are referred to as 'Kzin of the Sea.' Unlike the Kzinti, giant dolphins have never attacked humans without clear cause.

MARTIANS

Char. Range Averages

STR	3D6*	10-11	Average Hit Points: 17
MAS	1D6+3	6	Speed: 3m/im
CON	3D6	10-11	Action Ranking: 4
INT	2D6+6	13	
POW	3D6	10-11	
DEX	2D6+6	13	
APP	3D6	10-11	
EDU	unknown		
Age	unknown		

*Add 3 to STR if Ringworld native.

ARMOR AND HIT LOCATIONS: Martians have no natural armor. There is no evidence that martians wear any form of artificial armor. Martians, though they have similar body shape to humans, distribute their locational hit points differently: they have 35% in their heads, chest, and abdomens, and 25% in their limbs.

Location	D20 roll	Armor/HP
Right Leg	01-03	0/4 (.25)
Left Leg	04-06	0/4 (.25)
Abdomen	07-10	0/6 (.35)
Chest	11-15	0/6 (.35)
Right Arm	16	0/4 (.25)
Left Arm	17	0/4 (.25)
Head	18-20	0/6 (.25)

WEAPONS: the only weapon which humans have identified as of martian origin a long diamond tipped spear. These spears do 1D6 damage. Undoubtedly the martians on Ringworld have other, as yet undiscovered, weapons.

SKILLS: Archaic Melee Weapon 65%, Astronomy/Primitive 90%, Athletics 70%, Emergency Treatment 65%, Engineering/Primitive 65%, Fine Arts 70%, Planetology/Mars 50%, Hide 75%, Own Language (INTX5), Repair 30%, Strategy 60%.

ORCAS

Char.	Range	Average
STR	4D6+12	26
MAS	3D6+50	60-61
CON	2D6+6	13
INT	2D6+6	13
POW	3D6	10-11
DEX	2D6+6	13
APP	2D6+6	13

EDU as for humans
Age: 1 D6 on age chart

ARMOR AND HIT LOCATIONS: Orcas have thick blubber which protects them for two points. Orca hit locations are found on the cetacean hit location table. Their hit points are distributed as follows; 25% in the flukes and fins, 30% in the hind-body and the head, and 35% in the forebody.

Average Hit Points: 74
Speed: 8m/im
Action Ranking: 4

Location	D20 roll	Armor/HP
Flukes	01-02	2/22 (.25)
Hind-body	04-08	2/22 (.30)
Forebody	09-13	2/26 (.35)
Right Fin	14-15	2/19 (.25)
Left Fin	16-17	2/18 (.25)
Head	18-20	2/22 (.30)

WEAPONS: Orcas have huge and powerful jaws with which they can bite for 6D6 damage. A limb bitten by an orca is torn off and swallowed if the damage exceeds twice the hit points of the member. Orcas base chance to bite is 65%.

SKILLS: Orcas can learn all the knowledge and communication skills available in Known Space and, by purchasing Hands, they can learn most of the agility, perception, and technical skills as well. The Hyperspace skill may not be possible.

Orcas live, hunt, and travel in permanent family groups called pods (*Tschi'Larhi*). A pod-family consists of 5-50 close-related adults and young, who all bear the hereditary pod name. The pod name often is given before the name of the individual, as in *Korla Na'gring* or *Korla Maree*. Each *Tschi'Lar* has its own social structure, always highly organized. Each adult possesses special areas of expertise and responsibility, though the larger males generally are charged with defense.

A number of the smaller Orca families are nomadic, preferring to travel extensively in pursuit of their favorite schools of migratory fish. They most frequently visit bights and estuaries along undisturbed coastlines like that of archaic British Columbia on Earth; these sites are marked by their peculiar rubbing rocks and beaches. Larger pods are usually more cosmopolitan, building and maintaining impressive labyrinthine sea-castles (*Ls'Ni*) just offshore in home waters. These fortress-like structures are often natural formations much-modified over centuries. Inside, kilometers of smooth, round water-tubes connect galleries big enough to breach in; these galleries vary in shape from asymmetrical toroids to perfect spheres. The antipodal capital cities of the Korla family, *Ti'Ekwak* and *Ti'Nianasa-noongliak*, are splendid, but humans rarely are allowed to visit them. There are thousands of Korlas, and on Earth this royal dynasty is traditionally empowered to speak for the entire species.

The Orcas' complex system of sonar language is intriguing. They vocalize nearly 70% of the time, producing a variety of sounds. Each pod has its own dialect. Echo-location sounds, usually high-frequency clicks, are used mainly to interpret the environment. Social and communication sounds — whistles and rapid low-frequency clicks (burst pulses) — are used to identify and to converse with each other or with Dolphins, at distances of up to 80 UNS kilometers [50 miles] .

The Orca language is *Sharrul'K*; inter-species dialog is always conducted in the Korla dialect. Many complicated treaties have been drawn up with the Dolphins, but with humans only basic assured-mutual-assistance and non-aggression pacts exist. Orcas do not war amongthemselves.

Killer whales have been rather less willing than Dolphins to forgive and forget the past predations of man. Before the Cetacean Rights Act ended all forms of whaling, Orcas had first learned fear from the merciless factory-ships of the 20th century. Killer whales had occupied a place in the oceans equivalent to the one humans enjoy on land: capable of

preying upon anything alive, but not themselves preyed on by other creatures. By 1979, however, Soviet commercial whalers were killing nearly a thousand Orcas each season, mostly for oil and byproducts. It is not surprising that Orcas have only gradually begun to show much interest in human enterprises.

Though they supervise certain underwater shipping industries on Earth in order to purchase "Hands," they mainly have been pleased to help re-establish the natural harmony of the oceans. Few pods have ventured to the seas of other worlds as yet, although one courageous family, the *Unimak Achernari*, has migrated to the fabulously untamed Circle Sea of Gummidy.

Orcas are believed to inhabit the Great Oceans of Ringworld, but none have been sighted or contacted.

THE PIERIN

We view things not only from different sides, but with different eyes — we have no wish to find them alike.

-Pascal

These intelligent, spacefaring aerial aliens were first encountered by humanity just before the onset of the third Man-Kzin War. Initial contact occurred in the Zeta Reticuli system, where the short-lived Wunderland Coalition's cartographic resource ship *Hopewell* (piloted by the later notorious Serpent Belter, Darlita Domergue-Munro) happened upon a bustling Pierin base. UN probes and independent scout craft had long ago mapped the inner planets and reported one as suitable for colonization — but events in human space forestalled settlement of so distant a world — 12 light years beyond Silvereyes. The Pierin captured the *Hopewell*, then released and warmly welcomed the crew. A cooperative alliance arose from this meeting.

Centuries before, the Kzinti had enslaved the Pierin home planets; from that time, four unconquered Pierin colony worlds in the galactic south had been marshalling resources in a final effort to free the rest of their species. The spectacular destruction of the Warhead military complex on Canyon (accomplished by the human-built Wunderland Treatymaker) was of crucial strategic significance to the free Pierin, enabling them to retake and to successfully hold their devastated ancestral system. The double suns of Zeta Reticuli remained under Pierin control, and is their nearest major colony to Earth in the Ringworld era.

To understand the evolution of the Pierin, it is necessary to review the characteristics of the stellar system in which they evolved, Pup-peteer star catalog TC 1211, a double-star called Vinijir, after the primary. Vinijir is a brilliant main-sequence star of spectral type F, somewhat similar to Procyon. Its companion Tawi is an M-type red dwarf. (Picture the Solar System if it had more mass: the sun would be brighter, and Jupiter might shine as a faint, crimson star.) The remarkable twin-planet of the Pierin orbits Tawi, whose modest output provides enough warmth to create a stable, habitable shell at an otherwise excessive distance from Vinijir. The combination of predominantly long-wavelength (red) radiation from Tawi and abundant ultraviolet from Vinijir has given the Pierin a much broader range of vision than humans — and the benefit of a second set of large, infrared-sensitive eyes.

The Pierin 'home world' is a beautiful double-planet system consisting of two terrestrial, oxygen-atmosphere worlds in orbit around their common center of mass, with a minimum separation of 623,000 kilometers [about 387,000 UNS miles] . Both planets are somewhat smaller than Earth. Tidal forces have slowed but not stopped the spins of the worlds with respect to each other. The larger planet, Cimalor (Pierin B), rotates in 55.3 hours; the lesser, Tereke (Pierin A) rotates in 8.1 UNS days. The surface gravity of the lesser, rocky world is 0.64 gee, nearly as light as Wunderland; that of the larger, oceanic planet is 0.79 gee. The ancestors of the Pierin evolved on Tereke, the smaller mountainous world, where they flourished along the windy shores of its many lakes.

Pierin as Individuals

Many humans find the appearance of Pierin bizarre and disturbing, yet somehow oddly familiar. Light and graceful flyers, Pierin have little else in common with terrestrial birds. The species seems to trace its origins to a large 12-armed amphibious creature vaguely reminiscent of the marine cephalopod *Vampireteuthis*. Adult Pierin average 1.8 to 2.1 meters tall. Their 'wings' are flexible and elastic, but become quite rigid in fully-extended flight by means of internal fluid redistribution. Each wing-structure incorporates four tough, tube-like 'arms' of variable length, for support, trim, and motive power. The arms contain central muscle-and-ligament segments (some of which slide past one another) ultimately anchored to both sides of a muscular 'keel' — part of a Pierin's so-called 'internal exoskeleton' (flatlander students of the Pierin must discard any notion of Earthly analogs). Maximum adult wingspans are 4.8 to 6 meters.

Two large, tubelike limbs beneath the wings give the Pierin effective bipedal locomotion, while two smaller ones above the wings serve as true arms, terminating in 'hands' of six mutually-opposed tendrils, with roughened surfaces for grasping. Two of the tendril-fingers are twice as long and much stronger than the other four. The 'toes' are similarly constructed, but flattened and considerably larger.

The mouthparts of a Pierin are protected within a slightly flexible, pointed beak-like structure which emerges from the skull in a pattern of symmetrical ridges. There are two short, horn-like projections on either side of the head, which house a Pierin's keen acoustic, electromagnetic, and barometric senses. A single narrow nostril-slit is located equidistant from the sense-horns, in the front of the head. The eyes are perhaps the most unsettling aspect of a Pierin's appearance. The large infrared eyes are spaced widely apart, directed nearly 90° from one another, and covered with an opaque membrane. Below them, closer-set and just above the beak, are rather human-looking green eyes, facing forward. A human's gaze involuntarily shifts back and forth between the two sets of eyes — the lower set alert and familiar, the upper set inscrutable and monstrous. Pierin are always at a disadvantage on worlds with a single sun (except at night), and few can lift unassisted from a one-gee surface.

compounds, and have shown little interest in developing them.

Pierin are omnivores, though most prefer a diet rich in raw fishlike creatures, crustaceans, and other marine organisms. Infrared vision, mobility, and intelligence allowed their ancestors to evade predators and ensured emergence as the dominant life form on Tereke. In the sky above always floated the blue world of Cimalor ("farthest lake" in Old Pierin).

Relations with the Universe

Science and civilization eventually brought interplanetary space travel, and the fulfillment of the ancient dream of flight to Cimalor. Its oceans held a magnificently abundant marine ecology, and the development of its food resources heralded the beginning of a long age of leisure and enlightenment for the twin-planet system. Many Pierin became expert, colorful pilots whose skill and daring in high-altitude aerobatics, atmospheric skips, and dive-turns has rarely been matched.

Extensive traffic between Tereke and Cimalor attracted Puppeteer traders, who began supplying the Pierin with advanced, highly-aerodynamic spacecraft which closely resembled the outlines of traditional Pierin Monitor design. These ships were two variants of the spherical GP no. 1 hull, about 21 and 36 meters in diameter respectively — thinner, but fully transparent to certain narrow bands of

and an annoying hindrance to rational discourse. It is called *Tiagra*, which translates loosely as "holding onto the truth of Tia," an ancient teacher. No Interworld phrase captures the essence of its meaning. Adherents say Tiagra is "an old religion, a good religion — the way of our ancestors who flew no machines." Tiagrans view nature as a delicate harmony of forces, natural and supernatural. They believe that sentient beings, material objects, natural phenomena, and perhaps the universe itself all possess spirits akin to souls, which interact with one another in a realm that parallels physical reality. The tradition teaches that if one does not live an attractive life, his soul will desert him in darkness — flying away to join ancestors who dwell in the rising sun beyond a twelve-peaked mountain. Tiagra holds that many diseases of the soul cannot be cured by autodocs or any other technology. Expelling evil spirits and diverting evil forces are looked on as personal and social duties. Pierin often little-distinguish between their religion and their other activities, examining even routine situations for anything that might seriously upset the balance of supernatural harmony, careful not to anger the souls of things. They are much given to ritual, and conduct clandestine ceremonies despite any proscription.

Pierin society is communal, with collective ownership of resources, free access to information, and relatively equal distribution of goods and services. Narrow specialization in social or

PIERIN				Location	D20 roll	Armor/HP
Char.	Range	Average		Right Leg	01-02	0/7 (.30)
STR	2D6+6	13	Average Hit Points: 24	Left Leg	03-04	0/7 (.30)
CON	2D6+6	13	Speed: 7 (flying); 3 (land-bound)	Torso	05-12	0/8 (.35)
MAS	2D6+4	11	Action Ranking: 4	Right Wing	12-13	0/7 (.30)
INT	2D6+6	13		Left Wing	14-15	0/7 (.30)
POW	3D6	10-11		Right Arm	16-17	0/6 (.25)
DEX	2D6+6	13		Left Arm	18-19	0/6 (.25)
APP	3D6	10-11		Head	20	0/7 (.30)
EDU	as for humans			WEAPONS: Pierin have full access to Known Space weapons technology and, though they are not fond of combat, can become quite effective with weapons.		
Age	1D6 on age table			SKILLS: Pierin have access to every skill on the standard skill list, and have a special skill called Fly, at which they are 90% efficient.		
ARMOR AND HIT LOCATIONS: Pierin have no natural armor and they never wear artificial armor. Pierin hit points by location are as follows; 30% of total hit points in each leg, each wing, and the head, 35% in the torso, and 25% in each arm.						

Most Pierin are white or sulfur-colored, with black to golden-brown markings. Their faces are sharply outlined in a pattern that some humans compare to the mask of Alaskan malamutes. (Darker-hued Pierin look like they're wearing pantomime make-up.) Their bodies are almost entirely covered by a downy, fur-like material. From a distance Pierin resemble great horned birds, but closer up they seem like occult idols brought to life. Individual Pierin often are nosey and overly-friendly, though usually intelligent and fairly efficient. Pierin music is ethereal and highly-regarded by many humans. Pierin on occasion have an elusive, sardonic sense of humor; some are so given to visionary poetry (often related to their religious philosophy) that they quote it annoyingly in lieu of a direct answer to a question. Pierin voices are hard for most humans to appreciate — their speech sounds like a series of raspy screeches and complex atonal clicks. There are two sexes, both sentient and rather similar in physiology: both bear young — the males always give birth to females, and vice-versa. The Pierin mature slowly, and may live as long as 200 UNS years. They use no life-extending

infrared light. The main hulls are sunk into smoothly-tapering disks of Puppeteer hull-metal, 40 to 90 meters in diameter (in their hottest aerobatic maneuvers, Pierin pilots claim they must "risk the disk"). Monitors land as gracefully in water as on a solid surface. A number of GP no. 3 hulls were also obtained, as mother ships.

When the Kzin Empire traced a Pierin scientific scout back to Tereke and Cimalor (ca. 1964 A.D.), Pierin space exploration was already several thousand years old. Six interstellar colonies flourished, and scientific-monitor research vessels had even visited Earth from time to time. The Patriarchy conquered the twin planets of the home system, but the Pierin brilliantly defended four of the colony worlds.

In the Ringworld era, there is a Pierin starport on Silvereyes, leased for two centuries. Despite its disadvantages (single sun, high gravity, short day), Silvereyes is the only world in Human Space which slightly resembles Cimalor.

Many Pierin follow an animistic religious philosophy which most humans find primitive

industrial tasks is frowned upon as unnecessary, elitist, self-limiting, and (worst of all) boring. Nonetheless many distinctions exist among individuals and clans in Pierin society that seem to be taken for granted as part of the mysterious harmony of the universe. The cultures of Tereke and Cimalor are quite different. Natives of Cimalor are more apt to lack a sense of urgency than Terekeans, and less likely to follow Tiagra. Cimaloreans have been heard to remark, "If there is much work to be done, someone may do it."

In dealing with alien civilizations, the Pierin sometimes have attempted to translate their mystical outlook into action, often showing undisguised contempt for diplomatic protocol and governmental secrecy. From time to time, this had made them unwelcome on a number of Known Space worlds, including Earth. Planetary officials often stereotype Pierin ideas as subversive, economically dangerous, and unfathomably obscure. Many flatlanders view the Pierin as, at least potentially, posing a serious and fundamental challenge to flatland values. There is truth to this. Many Pierin who follow Tiagra see themselves as agents of change, with a profound duty to divert evil

forces. They advocate impractical schemes to entirely restructure the political and economic priorities of Known Space in terms of collective cooperation, not incentive competition between individuals and species. Tiagras believe that ever-increasing industrialization and mechanization do not in themselves hold answers to the problems of sentient beings, and usually prove too costly to the majority for the benefits which those achievements provide for the few. Tiagra teaches that economic exploitation is a form of organized violence, that true progress must take into account the common good first, not profits. A cosmic brotherhood of intelligences and the restoration of supernatural harmony can only come about from redefining traditional concepts of property, employment, wealth, and social institutions on unenlightened worlds.

Pierin are not militarists, though they can fight tenaciously and in a disciplined manner. Tiagra holds that there is an internal spiritual force latent in all sentient beings which is ultimately more powerful than any external force. Pierin tactics frequently presume that a small, brilliant gesture of defiance or sacrifice will be enough to mobilize the energy of a whole population, and that a peaceful chain-reaction of change will follow inevitably. At times this has been successful (as on Wunderland in 2772), but more often this naively optimistic view of alien psychology has led to new injustice, disaffection, and even bloodshed. Pierin-inspired cults on several human worlds have experimented with communal economics and emphasized what they term "the search for right livelihood."

furious whales. The whale symbolizes hugeness, and in fact these marine mammals include among their species the largest organisms known to have evolved upon the planet Earth. Both the whale and the Dolphin have constellations named after them.

Several species of great whales became extinct during the 20th century, including in the last decade of the century the sentient Sperm Whales. These majestic beings fell victim to intensive whaling by the archaic sub-states of Japan, the Soviet Union, South Africa, and others; and to widespread poisoning of the seas by pesticides and industrial chemicals. They were driven to final extinction by experimental underwater sonar stations funded as aids to oceanography and shipping, but actually intended to track nuclear submarines. Many Sperm Whales were driven insane; the rest, unable to communicate with one another or to navigate, could no longer breed efficiently enough for the species to survive. Prized for their meat and high-grade body oil, they had suffered terrible depredations during the centuries man hunted them. Their depleted numbers could not recover.

The Cetacean Rights Act of 2017 was passed because of the loss of the Sperm Whales, and because of the resoundingly positive results of the Dolphin experimental program. Sperm Whales were declared sentient and given full human equivalence — posthumously. This was the end of a shameful episode in human history.

Sperm Whales were large, even for aquatic mammals. The males could exceed 20 meters in length, while the females occasionally

is nearly dark, and only auditory signals can accurately assess the environment. Cetaceans can perceive a far-greater range of sounds than can humans, and they emit a wide variety of noises and whistles when communicating and echo-locating. In general, their vision as modified for underwater use is adequate, and their sense of smell almost altogether lacking. Their ability to taste minute concentrations of chemicals in the water is acute.

The most direct information concerning the lives and history of the Sperm Whales is from a single source, an underwater recording made in 1996 by a naval research team. The existence of this tape was made public by the Dolphins at the beginning of their legal proceedings against humanity, but only portions remained intact when the tape was de-classified. The tape holds a final, resigned attempt to communicate with humans or, failing that, at least to leave some minor cultural legacy. The poignant Dolphinese translation may still be heard at the Smithsonian. One well-known passage is particularly haunting:

In the ocean of immortal stars you gave us a home [a reference to the constellation Cetus] ; in the ocean of home our death and madness All our lives, dissolving in the endless sea, unnoticed, like dying storms And we too shall leave the Earth and the sea . . . in dreams among the stars . . . we shall swim forever.

The message was the work of a single individual, whose reward for delivering it was deafness and starvation.

There may be Sperm Whales in the Great Oceans of Ringworld.

SPERM WHALES

Char. Range Averages

STR	5D6+20	32-33	Average Hit Points: 95
MAS	3D6+70	81-82	Speed: 14m/im
CON	2D6+6	13	Action Ranking: 5
INT	2D6+6	13	
POW	3D6	10-11	
DEX	3D6	10-11	
APP	3D6	10-11	
EDU	unknown		
Age	unknown		

ARMOR AND HIT LOCATIONS: Sperm whales are heavily girded by up to a foot of blubber, giving them eight points of protection. Sperm whale hit points are distributed as follows; 30% in the flukes, hind-body, and head, 35% in the fore-body, and 25% in the fins.

Location	D20 roll	Armor/HP
Flukes	01-03	8/29 (.30)
Hind-Body	04-08	8/29 (.30)
Fore-Body	09-13	8/34 (.35)
Right Fin	14-15	8/24 (.25)
Left Fin	16-17	8/24 (.25)
Head	18-20	8/29 (.30)

WEAPONS: Sperm whales have powerful jaws with which they can bite and do 8D6 damage. Any limb damaged to twice its hit points by a sperm whale bite has been chewed beyond recognition and should be considered permanently lost. A sperm whale's base chance to bite is 65%.

Sperm whales are renowned for their powerful ram. In the days of the whaling industry a sperm whale occasionally sank a ship with a single buffet. The sperm whale has a 75% base chance to ram. The ram does 10D6 to the target.

Sperm whales can also slap with their flukes, an attack which once sent whaleboats foundering. The flukeslap has a base chance of 50% and does 6D6 damage.

SKILLS: Sperm whales are extinct on Earth, and it is unknown whether there are any on Ringworld. The skills of these magnificent sentients are entirely unknown, though speculative base chances for them have been included on page 16. They certainly would not much resemble either Orcas or Dolphins.

SPERM WHALES

Future things swim before me, as in empty outlines and skeletons; all the past is somehow grown dim. — Starbuck: Moby Dick

The unfathomable mysteries of the great whales have always roused human curiosity and imagination. From antiquity the whales and the Dolphins have inspired charming legends and fables. Even before the time of Biblical mythology, travelers told tales of boats beached upon sleeping whales, of adventurers mistaking whales for islands, and of ships smashed or swallowed whole by

reached 12 meters. Their backs were gray or brownish, brightening on the sides to silver-gray, sometimes with a white belly. Lacking baleen, Sperm Whales were the only toothed great whales. Their conical teeth, up to 20 centimeters long, were numerous in the lower jaw but vestigial or absent in the upper jaw. They dined almost exclusively on large squid, but also took fishes. They preferred to feed in warmer waters.

Extraordinarily-efficient divers, Sperm Whales were able to stay submerged for well over an hour, and to reach depths of nearly two kilometers. That far below the surface it

THRINTUN (Slavers)

The Power separates Thrint from Animal.

Two to three billion years ago, a race of ravenous telepathic carnivores, the Thrintun, enslaved most of the sentient species in the Milky Way galaxy. Their home world, a small light-gravity planet with a dense terrestrial atmosphere, has never been located, and may no longer exist. Thrintun have been extinct for at least 1.5 billion years — victims of their own degenerating intelligence, and of a final empire-wide revolt led by the cleverest of their slave-races, the Tnuctipun.

THRINTUN

Char.	Range	Averages	
STR	3D6	10-11	Average Hit Points: 19
MAS	1D4+4	6	Speed: 5m/im
CON	2D6+6	13	Action Ranking: 4
INT	2D6	7	
POW	5D6+6	17-18	
DEX	2D6+6	13	
APP	3D6	10-11	
EDU	unknown		
Age	unknown		

ARMOR AND HIT LOCATIONS: Thrints have scaly integument worth one point of armor. Often they armored their vac-suits. Thrints distribute their hit points in the same manner as do humans; 30% of general hit points in their legs, abdomens, and heads; 25% in each arm; and 35% in their chests.

Location	D20 roll	Armor/HP
Right Leg	01-03	1/6 (.30)
Left Leg	04-06	1/6 (.30)
Abdomen	07-10	1/6 (.30)
Chest	11-15	1/7 (.35)
Right Arm	16	1/5 (.25)
Left Arm	17	1/5 (.25)
Head	18-20	1/6 (.30)

WEAPONS: Thrintun weapons include the variable sword and the famous mining disintegrator. Thrints have no natural weapons, but see the psionics section below.

COMMON SKILLS: Thrints have access to all the Known Space standard skills, though most will have few knowledge skills; they rely on slave races for knowledge. All thrintun know Athletics/Acrobatism to at least 50%. Instead of the Hyperdrive skill Thrints have the skill, Jump Drive.

PSIONIC ABILITY: The Thrintun had the most powerful psionic ability ever known, by humanity, to exist. Each Thrint can exert a psionic compulsion over that number of sentient creatures equal to its POW x1. This compulsion is irresistible unless the victim has the Mind Shield psionic ability, or possesses a device equivalent to the ability. If a Thrint successfully exerts the power over a creature, that creature cannot act of its own will, and will commit any action that the slaver wishes — even self-destructive or suicidal deeds. A single slaver using a power amplifier can control millions of individuals, without the amplifier he can control 20-30. In Known Space, only bandersnatchi are immune to the Thrintun power.

The Thrintun species died out billions of years before the Ringworld era. The threat still remains that a Thrint or even a whole Thrintun colony is trapped in stasis somewhere, and upon emergence will attempt a re-subjugation of the galaxy.

Then the suns of Known Space lay dispersed in "lawless" sectors of the galaxy, on the fringes of the still-expanding Slaver Empire. In many systems, new Thrint masters seeded the oceans of primitive planets with Tnuctipun-developed food yeast, the first step in Thrint-forming their worlds. On a few others they had already introduced whitefood herds (Bandersnatchi) to graze on the food-planets' thick, cheesy-gray scum. To guard their food planets, and to oversee the operation of meatpacking ships, Thrint caretakers often built lunar palaces and observation posts on their worlds' circling moons. Most of the carbon-based life currently known ultimately descends from the prolific, adaptable unicellular micro-organisms spread by the Slavers. Mutated descendants of whitefood yeast still choke the steamy, pressurized sea of Jinx, along whose shores early human colonists first encountered Bandersnatchi. Humanity has met only a single Slaver, Kzanol, buried for an eternity in silent stasis — the "Sea Statue" permanently in possession of the UN Comparative Cultures Exhibit at the Smithsonian.

A typical adult Thrint stands 1-1.25 meters tall, and weighs 30-50 kilograms. Despite its small size, its appearance would terrify any sane human. A Thrint seems a monstrous perversion of the humanoid form: one-eyed, two-armed, bipedal, and covered with tough, iridescent-green scaly integument. The single large eye, centrally-located on the squat, massive head, is usually bluish or greenish in color, though its hue may vary with the Thrint's emotional state. Beneath the eye is a broad slash of a mouth lined with numerous piranha-like teeth, needle-sharp with a metallic glint. At its corners are six pairs of prehensile eating-tendrils, three large and three much smaller on either side. Resembling giant grayish-pink earthworms, these may writhe reflexively when the Thrint is agitated, flatten for protection against the cheeks, stand away from the mouth as the Thrint probes distant minds, or hang relaxed to the side in limp arcs. Eating-tendrils also serve as sensitive flexible fingers. Powerful shoulders meet in a triangular hump behind the Thrint's globe-like head, while its oversized arms terminate in bulky, club-like hands. Set like mechanical grabs, each hand has three thick clumsy fingers. Proportionally less-massive legs end in great

splayed chicken feet with three toes and prominent heel-spurs. Startled, a Thrint tends to jump like a terrified gazelle rather than to run, and its natural gait is more a hop than a walk. Well-fed Thrintun had very long lifespans, perhaps greatly exceeding a thousand UNS years.

There were various Thrintun spoken languages, and each family had its own distinct dialect. Two languages were most important: Thrintun, for use only between adult Thrints, and Overspeak (Overtalk) for use between Thrint and slave. Most Thrintun speech sounds like unmodulated guttural growls that would shock any human throat, punctuated by sharpbleats.

The Power

On this particular point all 12 Thrint religions were agreed: the Powergiver's primal decree, given before he lit the stars, made the Thrintun the chosen Lords of Creation, masters over every intelligent beast. The awesome Slaver telepathic ability, the Power, was irresistible to lesser beings. Far beyond mere telepathy, the Power enabled Thrintun to probe the minds and to control the behavior of all the protoplasmic sentients they encountered, utterly enslaving them. Its effect has been described as absolute telepathic hypnosis or compulsion. The Power had various modes, attributes, and faculties: active/passive, conscious/preconscious, cognitive/empathic/motor, listen/tell/attention, and so forth. Using his native ability, a single Thrint could normally control 20-30 slaves (non-Thrints) within a 50 km radius, independently or simultaneously — at least on modestly-populated worlds with nominal telepathic noise. Boosted by a thought-amplifier, a Thrint could impose its will upon an entire planet. Distance, though, was of much less importance to the Power than other factors: numbers, noises, and velocity-differences. A slight difference in relativistic time-rates, for example, could make communication impossible, even between two Thrintun. In empty space, a lone Thrint once paralyzed a human at a range of more than 1.6 million kilometers — and it could probe the minds of others at distances several times more remote. Even the emotional mental outburst of a Thrint may unintentionally cripple unshielded minds for miles

around, sometimes leaving them permanently insane.

The Power is better-protected than human sight or hearing: adult Thrintun possess formidable mind-shields, impenetrable telepathic walls under both reflexive and voluntary control, like an eyelid. The mind shield may be raised or lowered suddenly, or cautiously, only part way. (In telepathy-prone humans, this ability is latent, attainable only with great effort.) The teeming masses of the Thrintun worlds always kept up their mind shields in public. Those rare Thrintun who reached adulthood without manifesting the Power were called *ptavvs*. Tattooed permanently pink, or with Overspeak inscriptions in dots and curls, *ptavvs* were sold into slavery or secretly killed by their families. Some adult Thrint stricken with the humiliation of Powerless became wildly unpredictable or went catatonic: they might commit suicide; they might go on killing sprees, slaughtering every slave or thrint who crossed their paths; or they might compulsively forget even the existence of a Power. Thrintun considered their females non-sentient perhaps because no female possessed the Power.

Attitude and Outcome

Over the millennia, the Slavers built a vast interstellar empire, eventually drawing upon the resources, labor, and technologies of many advanced slave-races. Often single wealthy families owned and ruled entire slave planets. New worlds belonged to their Thrint discoverers for life, to be transformed into rich plantations under the absolute rule of their overseers. Wealth and power, respect, hundreds of mates, and tens of thousands of personal retainers to serve one's every whim were the tangible rewards for a Thrint master. The amplifier helmet was the universal symbol of his authority.

Thrintun Slavers rarely were intentionally cruel or sadistic masters — at least they did not consider themselves so. Rigid and complex Thrint traditions, religions, and codes of ethics made it dishonorable for owners to mistreat their slaves, as long as those slaves obeyed without resistance and always showed proper deference. Furthermore, though hardly squeamish, Thrintun recoiled at the thought

of eating intelligent food animals. Nonetheless, their callous arrogance, childish naivete, emotional petulance, inattention to detail, lack of patience and foresight, and limited capacity for mature, rational consideration sometimes resulted in hideous atrocities beyond the comprehension of the normal reader. Though enjoying the benefits of the most sophisticated technological civilization that the galaxy had produced, the aristocratic Thrintun believed that anyone who worked was a slave. Ultimately, their lordly overconfidence killed them all.

In Known Space and far beyond, scattered relics of the ancient Slaver Empire have survived into the Ringworld era. Most eagerly sought after are valuable artifacts of vanished technology preserved virtually unchanged in stasis boxes (sometimes detectable by deep-radar on narrow-beam maximum setting). Only a small fraction of stasis boxes contain priceless items — on rare occasions, such finds have revolutionized human society. For example, the Slaver disintegrator was a common Thrintun digging tool, and the variable-knife was a standard personal weapon with the ceremonial significance of a sword. Most Slaver technology, however, has been entirely lost: their high-velocity jump drive, telepathic amplifier helmets and recorders, total conversion batteries, self-sustaining anti-gravity fields, and an endless list of simple, elegant devices so compact and so efficient that beside them the finest human machines seem complex, jury-rigged makeshifts. Biological relics of the Thrintun Empire have also endured; among them Bandersnatchi, stage-trees, air plants, Slaver sunflowers, and in a sense we ourselves.

In the end, Thrintun no longer understood the technologies they controlled and upon which they had become so thoroughly dependent. The Power, which once had separated Thrint from Animal, ultimately relegated the Slavers to oblivion. When it became clear that the Tnuctipun-inspired rebellion would succeed in destroying the Empire, Thrint military leaders built a doomsday machine: an immense thought-amplifier. With it they Ordered every sentient species in the galaxy to commit suicide. With no slaves, cut off from their distant food-planets, the remaining Thrintun themselves rapidly died out.

TNUCTIPUN

Why would the Tnuctipun have made an intelligent food animal? A slave that can't be controlled can't be trusted.

Kzin nobles aren't supposed to be superstitious — yet there are ghost legends among them. Some of the most fearsome speak of captured weapons haunted by their dead owners, weapons that wreak vicious and vindictive retribution upon those who defile the spirits of their former masters. There are strange legends, too, among spacefaring sentients far beyond the Patriarchy: tales of being overtaken in hyperdrive by huge ships; of worlds in hyperspace; of sunless phantom planets between the stars, glimpsed once and never again; of whole planets in stasis, crowded with exotic life-forms awaiting shipment to unimaginably remote destinations; of billion-year relativistic hibernation; of exotic civilizations scattered through the obscure dark masses beyond the galactic rim. Ringworld era storytellers often attribute such manifestations to the past or present activities of a mysterious, long-vanished species, the Tnuctipun. In a very real sense, Known Space is haunted by the ghosts of the Tnuctipun.

Fifteen million centuries ago, the Tnuctipun, the most advanced of the Thrintun slave races, engineered a galaxy-wide revolt against the Slavers. The Tnuctipun slaves possessed high intelligence, higher technology, and a slyness more terrifying than even the Thrintun telepathic Power. By developing machines, energy sources, and gene-tailored life-forms for the Slavers' convenience and amusement, they proved the worth of their free-thinking brains — and eventually earned more freedom than any other slave race. Many Tnuctip gifts, though, turned out to be deadly traps. In the long Slaver-Tnuctipun war there could be no neutrals and no quarter. Countless covert operations and minor battles must have occurred before open warfare broke out. In the end, Slavers, Tnuctipun slaves, and every other sentient being then in the galaxy died, exterminated by a Slaver-developed ultimate weapon.

Humanity's knowledge of the Tnuctipun is limited, deriving only from a few sources: fragmentary records and artifacts found in stasis-boxes; the incomplete reports of Larry

Greenberg, based on telepathic contact with the Sea Statue in 2106; the Papandreous' partially-declassified descriptions of a mutable Tnuctip spy-weapon; the squiggly Tnuctip science-language of the Jinxian Bandersnatchi; the detailed studies of mutated Tnuctip biological creations (beginning with Dr. R.H. Schultz-Mann's pioneering field work); and a handful of lesser references. Greenberg, the only human capable of recognizing a Tnuctip, unfortunately was lost aboard a Lazy-Eight-series slowboat which blew its drive systems while moving at near light-speed. [The ship is now somewhere hundreds of light years from Known Space, its crew and passengers probably still alive, riding in stasis.] At the time of his departure for Jinx to contact Bandersnatchi, Greenberg had not been subjected to total hypnotic recall — the importance of the Tnuctipun had yet to be fully appreciated.

The Tnuctipun are believed to have been small, carnivorous sentients, highly dextrous, agile, and compactly built. To the Slavers, they seemed too small to be intelligent animals, and thus probably did not exceed 0.5 meters in height. It has been suggested that they vaguely might have resembled terrestrial tarsiers. Quick, wiry bipeds, the Tnuctipun are thought to have had hands with six tapering fingers and two long opposable thumbs on each. Their manipulative abilities were unquestionably exquisite. A few authorities speculate, however, that there may have been many strains of Tnuctipun; or that in some cases their Slaver masters had ordered them to genetically alter their own physiques for aesthetic (or other) reasons. Some have suggested that the general behavior and diet of the Tnuctipun pleased the Slavers, corresponding in many ways to proper Thrintun customs.

Bioengineering and Technology

The Tnuctip were already accomplished biological engineers when the Slavers found them — and the Slavers soon put their talents to work devising biological tools and toys for Thrintun use. Most such Tnuctip creations have long since disappeared or mutated beyond recognition. A few, though, have survived into the Ringworld era, among them stage trees, air plants, sunflowers, food yeast, and Bandersnatchi. Stagetreestrees are organically-grown solid-fuel rockets: gene-tailored *mpul* trees on

TNUCTIPUN

Char.	Range	Averages
STR	2D6+2	9
MAS	1D6+3	6
CON	3D6	10-11
INT	2D6+6	13
POW	3D6	10-11
DEX	1D6+13	16
APP	3D6	10-11
EDU	unknown	
Age	unknown	

ARMOR AND HIT LOCATIONS: Tnuctipun have no natural armor. It is unknown whether they wore artificial armor, or whether they manipulated their own genes to make themselves more resistant to damage. Use the hominid hit location table to determine locations affected, but the chest and abdomen switch in physiological importance. Tnuctipun have 30% of general hit points in their legs, chest, and head, 25% in their arms, and 35% in their abdomens.

Location	D20 roll	Armor/HP
Right Leg	01-03	0/6 (.30)
Left Leg	04-06	0/6 (.30)
Abdomen	07-10	0/7 (.35)
Chest	11-15	0/6 (.30)
Right Arm	16	0/5 (.25)
Left Arm	17	0/5 (.25)
Head	18-20	0/6 (.25)

WEAPONS: Tnuctipun weapons technology is the most powerful known. If a gamemaster wishes to revive a Tnuctipun for use in a campaign, he or she should make up an appropriately advanced hand weapon for the alien to carry. See the story *The Soft Weapon* for an elaborate description of a particular Tnuctipun weapon.

COMMON SKILLS: Tnuctipun have full use of Known Space skills, particularly biological skills. Every tnucltipun is proficient to at least 60% with the Biology/Genetics skill. Tnuctipun are also master technologists, and should be well-skilled in all the physical sciences.

The discovery of a living Tnuctipun might revolutionize all the sciences and technology of Known Space.

the outside, with powerful chemical-propellant cores on the inside, around a star-shaped hollow. Slavers used these as booster rockets to lift their ships far from places where fusion drives would have done damage. The Tnuctip-bred air plants for Slaver ships produced oxygen, filtered and regenerated air and water, and performed other basic life-system duties. A few of these have been discovered floating naked in space in cellophane bubbles between the stars. Slaver sunflowers were another Tnuctip development: these plants had flexible parabolic mirrors mounted on thick bulging stalks — mirrors to send concentrated sunlight to their dark-green photosynthetic nodes, or to direct their deadly focus elsewhere, on wild animals, rebellious slaves, or even on attacking enemy Thrints. Sunflowers, planted for defense around Slaver estates, never attacked the members of the House they protected — until the rebellion; Tnuctipun house slaves must have controlled them.

The creation of food yeast may have been another Tnuctip trap: seeded on remote worlds to transform them into food planets, its introduction logistically overextended the Thrintun empire. Soon enough, the food supplies became easy to cut off. Bandersnatchi (whitefoods) were meat-animals designed to feed on the Tnuctip yeast. Everything but the flexible, jointless skeleton was edible, and the huge brain was particularly tasty. It was one of the Tnuctipun's ultimate weapons. Unbeknownst to the Slavers, Bandersnatchi had been built sentient, so that they could be used as spies. They somehow had been made immune to the Slaver Power, and were mutation-proof. Probably there came a day when huge herds of docile, 60-ton herbivores all turned upon their Thrintun overseers. The Tnuctipun were always efficient, the Slavers believed, but never cruel; the Slavers could not believe that an intelligent food-animal had been created — the Powergiver forbade it!

If not cruel, the Tnuctipun were certainly not squeamish. The lovely simplicity of their mutated racing viprin was typical of their work. The natural animal had been the fastest alive; there was little the Tnuctipun could do in the way of redesigning. They had narrowed the animal's head and brought the nose to a point, leaving the nostril like a single jet nacelle, and they had made the skin almost microscopically smooth against wind resistance, but this had not satisfied them. They removed a kilogram or two of excess weight and replaced it with extra muscle and extra lung tissue. The weight removed was all of the digestive organs. The mutated racing viprin had a streamlined sucker of a mouth which opened directly into the bloodstream to admit predigested pap. In action the result was worth the trouble: their bowed skeletal shapes like great albino whippets seemed to skim the dirt surface of the track, their jet nostrils flaring, their skins shining like oil, racing around and around the audience standing breathless in the center of the circle.

Tnuctipun also were master technologists. They settled and colonized many worlds, and possessed space drive systems possibly capable of reaching the great galaxy in Andromeda (M-31). Indeed, a fleet of free Tnuctip escaped into space when Thrintun found the Tnuctipun home system, and the Slavers always believed they had fled the Milky Way in just such an attempt. Probably, though, that fleet stayed between the stars — and a few 'civilized' Tnuctip slaves in each Thrint system must have taken their orders. Slaver ships in subsequent

millennia used a variable-jump hyperspace drive [governed by the Uncertainty Principle] which may have been a Tnuctip invention. The touchy fusors which powered the Slaver drives may have been Tnuctipun-developed total conversion power sources — for the Tnuctipun had the secret of complete matter-to-energy transformation. Near the end of the Slaver empire, Plorn's Tnuctipun are said to have created and released true anti-gravity propulsion systems (as opposed to gravity polarizers or energy-hungry negative artificial generated-gravity) to trigger economic chaos, accelerating the Thrintun downfall.

The weapons and devices used by Tnuctip saboteurs and spies, powered by small total-conversion batteries, are masterpieces of technological sophistication. A single, mutable hand weapon might have many settings, flowing from one configuration to the next at the touch of a button. One such versatile device contained a variable sword with a 60-meter blade, a reaction-pistol, two projectile weapons, a powerful sonic projector, a plasma gun which emitted a firestream of fearfully-hot incandescent gas, a remarkably-efficient energy-absorber, an extremely-advanced

computer/translator, and a matter-conversion beam (a hazy blue line that evidently set up spontaneous mass-conversion in anything it touched!). The weapon also contained a self-destruct, and was lost.

Other Tnuctipun technology produced sub-miniature hyperspace communicators of wholly-unknown design, which could function within gravity wells. They may have produced devices which defended against the Slaver Power, and devices which detected the thought-signatures of enemies concealed from view. Stasis fields were used by the Tnuctipun, and may have originated with them. Perhaps because they too may have been — or might still be — Tnuctip traps, Slaver stasis fields make some humans (and aliens) feel uneasy. Governments supervise the initial opening of stasis boxes, and restrict their later use.

The discovery of total conversion may someday make fusion power as obsolete as the internal combustion engine. Meanwhile, any species learning the principles behind Tnuctip weaponry, regardless of power-source, would be in a position to command Known Space utterly. Probably only an entire world of Protectors could defeat such power.

Ringworld Animals

Anxaoma Description

Anxaoma are land animals living only in moist, overgrown, lowland habitats such as river-banks, swamps, marshland, jungles, and cloud forests. They estivate during dry periods, emerging once again when rains come.

Anxaoma vaguely resemble gigantic armored slugs. There are several different species on Ringworld, but their ranges do not overlap. Adults exceed 2 meters in length, and may approach a meter in height. They weigh over 200 kilograms. The dorsum of an anxaoma is covered with a tough, resilient, jointed plating resembling horn. This flat-shell is like the inverted hull of some alien barge. Thorny falcate spines mark periodic growth.

An armored crown at the center of the shell houses three bright blue eyes on individually-retractable stalks. When the beast is feeding or moving it will shoot out its eyes, seemingly at random from under this protective ridge. When the anxaoma sights prey or is frightened, the eyes

ANXAOMA

Char.	Range	Average	
STR	4D6	14	Average Hit Points: 51
CON	3D6+18	28-29	Speed: 1 m/im
MAS	3D6+12	22-23	Action Ranking: 7
POW	2D6	7	
DEX	1D4	2-3	

ARMOR AND HIT LOCATIONS: 7-point shell, 2-point flesh. When frightened, the creature curls up, leaving only its shell as a potential target (roll 1D10 + 4 to determine hit location under these conditions), but if it is wounded through the shell, the anxaoma will uncoil and begin to spray its tormentors.

Location	D20	Armor/Average	HP
Rear Body	01-04	2/16	(.30)
Mid Body	05-11	7/21	(.40)
Turret	12-14	7/13	(.25)
Right Eyestalk	15	2/11	(.20)
Center Eyestalk	16	2/11	(.20)
Left Eyestalk	17	2/11	(.20)
Fore Body	18-20	2/16	(.30)

NOTE: there is a 50% chance that an eyestalk will be retracted when its hit location is rolled. If the stalk is retracted, treat the hit as a turret hit.

Weapon	Attack%	Damage
Spray	60%	special

SPECIAL DAMAGE: the spray has a range of 5 meters. This highly alkaline fluid acts both as a contact poison and as a solvent. The target takes 1 D3 points of general hit point damage immediately (clothing or armor will not protect against this unless it covers the entire body and is waterproof). The substance then slowly corrodes the target, who will take 1 point of damage every 10 minutes after first being hit. Any clothing, even plastics and synthetics, will hang in rags after less than a half-hour exposure. If the anxaoma scores a special success with its spray attack, the target is poisoned as well, with a class B, potency 14 poison.

After the spray has been rinsed off with prodigious quantities of alcohol-based solvents, the target will cease to take damage after another 30 minutes. Unprotected equipment will almost certainly be ruined by this spray.

protrude more frequently and for longer periods of time, looking like the creature is under a strobe-lamp.

Anxaoma feed on fungi, fleshy plants, and animals, though they can usually only catch small animals or large animals that are asleep or injured. They cannot digest cellulose, and avoid plants containing this material. Thus, a barrier of paper will prevent them from molesting an encampment.

When the anxaoma sights food (anxaoma hunt both by chemical signs and visually), it will spray the food with noxious digestive fluids squirted from three thick extensible proboscis mounted on its down-sloping front. Objects sprayed by anxaoma juice become inedible and poisonous to hominids and most animals. Hominids sprayed by this fluid may die or become quite ill if not treated. The spray includes chemical cues to ward off other anxaoma, who will not eat anything sprayed by another anxaoma.

Anxaoma are most active at night. The day is spent in moist dens, where they digest food engulfed during the night. Anxaoma require comparatively enormous amounts of food, and must eat every night, except when estivating.

An anxaoma spends the first part of each night roaming and spraying potential food organisms. The creature normally only sprays immobile targets. The latter part of the night is spent retracing its path and engulfing the sprayed, now digested food organisms. Anxaoma have no territories, but wander randomly, often seeking or digging a new den each night.

Anxaoma go into periodic breeding fits in which all the anxaoma of an area fanatically follow one another's odor trails. These fits culminate in mad orgies and huge seething breeding masses. Each participant then buries eggs in a nearby riverbank.

Anxaoma are vulnerable to drying, but are not amphibious, and will drown if immersed. Anxaoma will spray threatening predators. They are inedible to most Ringworld natives, and evidently hail from a non-earthlike planet.

yellow-skinned tetrapods up to 2 meters high at the shoulder. Their necks reach up another 2 meters and culminate in a large, spherical head with a gaping, toothed mouth. A half-meter tail ends in a pom-pom of fluff, and is used to signal other bloaths.

Bloaths feed on tall plants and tree leaves. They prefer to flee rather than fight. They are sometimes solitary, though they are usually found in small groups of no more than a dozen individuals. The young receive no maternal care, and are born capable of running with the herd. Bloaths have two sexes.

Bloaths can be domesticated as riding beasts and are easily trained as cavalry mounts, learning how to bite and kick in battle. Though edible, they are unsuitable as food beasts, because they breed slowly, though they live a long time. Some tribes of hominids live as hunting nomads upon bloath-back.

shield of hard, thorny tubing. After attachment, the only motion possible to the animal is a reflex jab of the protective shield, which discourages all but the duller herbivores. The adult absorbs nutrients from the tree, and may live several hundred falans quiescently parasitizing its host, spewing out clouds of zygotes every two falans without fail.

The body juices of adult bushcankers are bitterly alkaloid, sufficient to dismay most potential predators with a single bite. The young are less noxious, and are eaten by a variety of hardy predators.

Chiller Description

Chillers are carnivores native to rugged areas, such as mountains, badlands, and ruined cities. A related species (identical in game terms) is native to swamps and bogs.

These creatures have extremely thin bodies with six even thinner stalk-like legs.

Their skin is like soft magenta velvet. Their heads are large and ungainly, covered with warts and ridges. A typical chiller stands just under a meter high at the shoulder, but weighs only 20 kilograms.

Chillers have a potent psionic ability to broadcast fear. When hunting a chiller pack emits waves of uncontrollable panic, causing their chosen victims to flee blindly. Even a lone chiller can bring panic to most creatures.

A chiller can attack one target for each of its action rankings by matching its POW vs. the target's POW on the resistance table. If it succeeds, the victim is panicked, and will remain frightened until its player successfully rolls a reasoning roll (or 01-05 in any case). He may attempt to recover from the panic once every (25 - POW) impulses. A frightened target will remain scared even after the chiller switches to another target, until it succeeds in a reasoning roll. A panicked victim cannot perform any actions beyond running directly away from the chiller at maximum possible speed, possibly exhausting itself. If no chillers are visible, the victim will run in a random direction.

BUSHCANKER

Char.	Range	Average	
STR	1D6	3-4	Average Hit Points: 6
CON	2D3	6	Speed: 1 (larval)/0 (adult)
MAS	1D3	2	Action Ranking: 7
POW	1D4	2-3	
DEX	1D4	2-3	

ARMOR AND HIT LOCATIONS: 3 point cartilage

Location	D20	Armor/Average HP
Body	01-20	3/6 (1.00)
Weapon	Attack%	Damage
Shove	60%	1D2

Bushcanker Description

Bushcanker larvae are small, 15-limbed, disc-shaped organisms topped by a branching umbrella of pink-and-blue cartilage. The legs are segmented and tipped with tiny claws. A tangle of fine pink and yellow filaments with a shiny, acrylic look at the tips covers the body. The umbrella is a central stalk of flexible cartilaginous tubing which contains extensible optic and olfactory receptors, fluid-intake pores, nephrons, and airducts.

The bushcanker's poorly-understood life-cycle aids the maintenance systems of many temperate Ringworld forests. Rainfall triggers

the emergence of immature bushcankers.

These larvae scuttle over the forest floor for several falans, feeding on detritus and burying seeds and half-eaten leaves in tiny feeding burrows.

Upon reaching 25-50cm across, each bushcanker picks

out a suitable tree and attaches itself firmly to the trunk, protected beneath its loosely-woven

BLOATH

Char.	Range	Average	
STR	3D6 + 6	16-17	Average Hit Points: 50
CON	4D6	14	Speed: 7m/im
MAS	4D6 + 22	36	Action Ranking: 5
POW	2D6	7	
DEX	2D8	9	

ARMOR AND HIT LOCATIONS: 3 point skin

Location	D20	Armor/Average HP
Right Hind Leg	01-02	3/13 (.25)
Left Hind Leg	03-04	3/13 (.25)
Hindquarters	05-07	3/18 (.35)
Forequarters	08-10	3/18 (.35)
Right Fore Leg	11-12	3/13 (.25)
Left Fore Leg	13-14	3/13 (.25)
Head and Neck	15-20	3/15 (.30)

Weapon	Attack%	Damage
Bite	40%	2D10
Kick	30%	1 D6 + 3D6

NOTE: the bloath does not have the ability to make simultaneous attacks, though it can choose which attack it is to make on a particular action ranking.

Bloath Description

Bloaths are roaming plains animals, also found in the fringes of forests and jungles". They are

CHILLER

Char.	Range	Average	
STR	2D6	7	Average Hit Points: 15
CON	3D6	10-11	Speed: 4m/im
MAS	2D3	4	Action Ranking: 4
POW	2D6+12	19	
DEX	2D6 + 6	13	

ARMOR AND HIT LOCATIONS: 1 point hide

Location	D20	Armor/Average HP
Right Hind Leg	01	1/3 (.20)
Left Hind Leg	02	1/3 (.20)
Hindquarters	03-05	1/4 (.25)
Right Center Leg	06	1/3 (.20)
Left Center Leg	07	1/3 (.20)
Forequarters	08-10	1/4 (.25)
Right Fore Leg	11-12	1/4 (.25)
Left Fore Leg	13-14	1/4 (.25)
Head	15-20	1/5 (.30)

Weapon	Attack%	Damage
Bite	40%	1D10

Chillers hunt in two ways. One is to scare prey towards a group of hidden chillers. The second is to frighten prey toward a natural obstacle such as a cliff, hot spring, or bog, where the victims will be killed or trapped.

This fear projection is also a potent defense mechanism. Only a few Ringworld creatures are resistant to the chillers' fear projection, and no hominids are. The chillers can broadcast their fear effectively more than a kilometer, but usually wait till they are closer before attacking prey.

dwellers, but instinctively occupy the huts or vehicles of those whom they destroy. They may have derived from certain diminutive herder species, which they parallel: lean and wiry, nearly hairless, rapid runners with legs long in proportion to the torso.

Dusk Devils hunt nocturnally in packs which range in size from a dozen to a

Dire Description

Dires live on plains and in open forests. These brown, hairless, vaguely-porcine beasts grow over two meters in length, and up to almost a

DAUKOON

Char. Range	Average	
STR 4D10 + 30	52	Average Hit Points: 93
CON 2D10 + 30	41	Speed: 2m/im
MAS 4D10 + 30	52	Action Ranking: 7
POW 3D6	10-11	
DEX 1D6	3-4	

ARMOR AND HIT LOCATIONS: 12 point bone on head, 9 points elsewhere

Location	D20	Armor/Average HP
Right Hind Leg	01-02	9/28 (.30)
Left Hind Leg	03-04	9/28 (.30)
Hindquarters	05-08	9/38 (.40)
Forequarters	09-12	9/38 (.40)
Right Fore Leg	13-14	9/28 (.30)
Left Fore Leg	15-16	9/28 (.30)
Head	17-20	12/32 (.35)

Weapon	Attack%	Damage
Ram	50%	1 D6 + 8D6

Daukoon Description

The adult daukoon is a forest-dweller weighing 2 to 4 metric tons. Black fuzz covers its gray skin. The daukoon's head is a hideous mask of horny growths, spines, and lumps. Beak-like jaws driven by powerful muscles shear plants and trees for food.

Daukoons are herbivores, and feed solely on cellulose obtained from treetrunks and uprooted stumps. They are placid, and only attack in perceived self-defense. They are solitary and not territorial, but wander seemingly at random.

Male daukoons leave shiny blue packets of gelatinous genetic material about as they travel. Gene transfer is accomplished when a female, attracted by the scent of a packet, swallows it whole. Subcutaneous buds then grow upon the back of the females, and immature daukoons are rubbed off after about four falans. These young are capable of feeding themselves, but for protection remain near their mother up to three UNS years.

Domesticated daukoons tend to wander off if not kept strictly penned up. Valley people sometimes use them to uproot trees and clear farmland. The male genetic material is very high in protein, and is eaten by hominids and many other creatures.

Dusk Devil Description

Dusk Devils (also called bastrils) are savage, non-sapient, carnivorous hominids with bluish-black skin. They seldom exceed a meter and a half in height, and often are no more than a meter tall. Sharp teeth set in an elongated skull protrude from behind glossy lips. Large dark eyes and wide mobile ears give dusk devils excellent sight and hearing. The hands are large and possess hooked claws. Dusk devils are frequently armed with rocks or crude spears. They are nomadic plains-

hundred. Ambushes are a dusk devil specialty, and stories of their cunning have spread to lands where they themselves do not dwell. They devour prey on the spot and leave only bone fragments for the morning scavengers.

Dusk devils are extremely aggressive, but do not attack large parties of armed hominids. If the chosen prey fights back effectively and kills one or more dusk devils, the rest respond more ferociously in an instinctive attempt to kill off such dangerous enemies. If the prey continues to kill dusk devils, even the most persistent killers will eventually flee by suddenly breaking off the attack and unanimously racing into the dark. If pursued, they will turn and fight.

Dusk devils do not communicate vocally among themselves, and observe strict silence on the hunt. Yet they have an eerie ability to mimic the voices of hominids and the cries of animals — a talent both offensively and defensively advantageous, and potentially dangerous to explorers.

Expanding dusk devil populations have occasionally forced hominids possessed of moderately high technology to abandon their territory — evidence of the persistence of these little horrors.

Little is known about the actual lifestyle or culture (if any) of the dusk devils. However superstitions abound.

DUSK DEVIL

Char. Range	Average	
STR 2D6	7	Average Hit Points: 16
CON 3D6	10-11	Speed: 5m/im
MAS 2D3 + 1	5	Action Ranking: 3
INT 2D3	4	
POW 2D6 + 3	10	
DEX 2D6+10	17	

ARMOR AND HIT LOCATIONS: none

Location	D20	Armor/Average HP
Right Leg	01-03	0/5 (.30)
Left Leg	04-06	0/5 (.30)
Abdomen	07-10	0/5 (.30)
Chest	11-15	0/6 (.35)
Right Arm	16-17	0/4 (.25)
Left Arm	18-19	0/4 (.25)
Head	20	0/5 (.30)

Weapon	Attack%	Damage	Parry%
Thrown Rock	40%	1D4	
Spear	40%	1D6 + 1	40%
Bite	50%	1D6	
Claw	30%	1D3	

NOTES: each action rank, a dusk devil may attack once, except that if it attacks with claws, it can attack twice. It must drop any weapons it is carrying to do so.

SKILLS: Hide 60%, Sneak 80%, Track 50%

meter high at the shoulder. A pair of sharp red spikes thrust upward from the angle of the upper jaw, and a double row of teeth decorate a small ventral mouth.

Dires subsist on offal, decaying fruit, and burrowing animals uprooted by their tusks. They are omnivorous, but primarily feed on plant matter.

Their rutting season occurs every 4-5 falans. Normally solitary, they band into small family groups and savagely assault any lesser beings which venture near.

At the best of times dires are ferocious and have uncertain tempers, and are avoided, except by hunters.

DIRE

Char. Range	Average	
STR 3D6 + 8	18-19	Average Hit Points: 40
CON 4D6	14	Speed: 5m/im
MAS 4D6+12	26	Action Ranking: 5
POW 3D6	10-11	
DEX 3D6	10-11	

ARMOR AND HIT LOCATIONS: 3 point hide

Location	D20	Armor/Average HP
Right Hind Leg	01-02	3/12 (.30)
Left Hind Leg	03-04	3/12 (.30)
Hindquarters	05-08	3/14 (.35)
Forequarters	09-13	3/16 (.40)
Right Fore Leg	14-15	3/12 (.30)
Left Fore Leg	16-17	3/12 (.30)
Head	18-20	3/14 (.35)

Weapon	Attack%	Damage
Gore	75%	2D8 + 2D6
Trample	75%	4D6 vs. prone opponent only

NOTES: can attack with Gore once per action ranking. Alternatively, it can use the Trample once per impulse if there is a downed foe within reach.

SKILL: Observation 40%

TABLE OF CREATURE HABITATS

Creatures in Ringworld

deserts	forests	hills	marsh	mountains	plains	ruins	water	domesticated
	dendrobrach	dar'los	bogworm		breakneck	razor-wasps	bogworm	breakneck
	doublescream	razor-wasp	doublescream		dak-dak		flob	dar'los
	hueti		flob		dar'los		willabee	havlig
	zongo				razor-wasp			hueti
					sarkbeste			sarkbeste
					zanjii			

Creatures in Ringworld Companion

deserts	forests	hills	marsh	mountains	plains	ruins	water	domesticated
chiller	anxaoma	chiller	anxaoma	chiller	bloath	chiller	stigfish	bloath
jibber	bloath	dusk devil	chiller	grelidik	dire	dusk devil		daukoon
	bushcanker	loper	dusk devil	loper	dusk devil	goron		haemont
	daukoon	munil	pilk	onik	haemont	varmont		loper
	dire	snorter	varmot	rimspinner	loper			pilk
	dusk devil	varmot			munil			rimspinner
	loper				pilk			snorter
	trembler				snorter			varmot
	varmot							vindwight

MOUNTAINS: means above tree line — otherwise see Hills

FOREST: includes jungle

RUINS: creatures may be found on abandoned floating cities or buildings as well as surface ruins.

DOMESTICATED creatures that do not appear on any other chart are only found where there are domesticators — nowhere else.

Goron Description

Gorons are odoriferous flying creatures, producing an ozone-like stench. Their bodies are usually no more than a half-meter long, but their wingspan can reach 2m across. They have wiry, five-limbed bodies which are deep violet in hue and possess a surface network of bulging leaden veins. In flight, a goron resembles a bony monster-kite. Two branching side-limbs reach horizontally, stretching a flap of skin between long, slender processes and the animal's back. The flap terminates on a long third arm which rises from between the goron's shoulders, reaching forward. This arm contains a threadlike antenna and ends in a needle-sharp pick partially composed of titanium. The two hind limbs are free of any flap and are used solely in ground movement. All four paired limbs end in a single mobile claw for grasping, piercing, and slashing.

A long, narrow beak ranged with sharp ragged teeth is centered in the goron face. Gorons have three large emerald eyes, one on each side of the beak, and the third beneath it.

A nasty temperament and ravenous appetite makes the goron detested by most hominids. They thrive on bones, either from car-

ion or freshly killed prey, ignoring all softer tissue. To the alarm of most civilizations, they also eat an amazing variety of synthetic materials, including organic superconductors, plastics, artificial fibers, and even light metal.

Gorons are not common, but in those locations where they are known, they are found in great flocks. They seem incapable of surviving in small groups. Some ruined cities are permanently infested with these pests. Other flocks inhabit facilities designed for occasional visits or destroy abandoned vehicles. Derelict floating buildings occasionally serve as sanctuaries.

Gorons can sense magnetic beams and surface energy fields. An attracted flock will

GRELDIK

Char.	Range	Average	
STR	2D6	7	Average Hit Points: 23
CON	1D6+12	15-16	Speed: 8m/im
MAS	2D6	7	Action Ranking: 3
POW	2D6	7	
DEX	3D6+8	18-19	

ARMOR AND HIT LOCATIONS: 1 point fur

Location	D20	Armor/Average HP
Right Hind Leg	01-02	1/6 (.25)
Left Hind Leg	03-04	1/6 (.25)
Hindquarters	05-09	1/9 (.35)
Forequarters	10-14	1/9 (.35)
Right Fore Leg	15-16	1/6 (.25)
Left Fore Leg	17-18	1/6 (.25)
Head	19-20	1/7 (.30)

Weapon	Attack%	Damage
Butt	60%	1D8
Kick	40%	1D4

NOTES: only bucks can use the head butt. The kick is usually only employed when the greldik is fleeing.

SKILLS: Climb 70%, Jump 90%, Listen 50%

GORON

Char.	Range	Average	
STR	1D3	2	Average Hit Points: 12
CON	3D6	10-11	Speed: 1 (crawl)/8 (flight)
MAS	1D2	1-2	Action Ranking: 2
POW	2D6	7	
DEX	2D6+15	22	

ARMOR AND HIT LOCATIONS: no armor

Location	D20	Armor/Average HP
Right Wing	01-07	0/4 (.30)
Left Wing	08-14	0/4 (.30)
Body	15-20	0/6 (.50)

Weapon	Attack%	Damage
Bite	60%	1D3
Pick	80%	2D3

NOTES: will attack at the end of its action ranking with the pick attack, followed one impulse later with a bite. If the pick attack receives a special success, it does 4D3 damage instead of 2D3.

SKILLS: Fly 100%, Hide 75%, Observe 90%

tracted flock will often fly along such a beam for hundreds of kilometers. Migrating gorons are guided by police, transport, or power beams. They can sense buried superconductor grid circuits, and are drawn to any strong or persistent electromagnetic source. The clever and resourceful gorons are known to cling to giant flobs and flying vehicles for transport. Gorons do not sleep, but are most active at night.

Gorons spawn quantities of maggot-like larvae every falan. These thrive on the same wastes as their parents, and will tunnel through a hundred meters of plastic cable housing or superconductor material. Adults smear a conductive, sticky reproductive paste over sites occupied by their young, which serves both as a stimulant to more breeding by the adults and a vitamin source for the maggots.

Grelidik Description

Grelidiks live on high plateaus, hillcrest ridges, and mountain slopes from 1 500 meters up to the snow or bare scritch line. They are extremely cold-resistant.

Adults average slightly under a meter at the shoulder and are 1.5 meters long. They are four-limbed, with the hind legs much longer and more muscular than the forelimbs. Some species have long, coarse hair and are predominantly yellowish or white, while other, short-haired woolly types come in a

variety of solid colors. Greldiks have ludicrously long-muzzled heads (sometimes almost a meter long, though very narrow), and usually show pronounced cheek bulges. Rather than teeth, each side of the jaw, both upper and lower, relies upon a long sharp blade of bone. Mature bucks display colossal convoluted horns that are transparent and red in color. A female gives birth to a single young every 8-12 falans, after a 2-falan gestation period. The fawn can climb and jump within minutes after clawing through the birth sac.

Greldiks are herbivores, feeding mainly on cellulose obtained from tree saplings, tough alpine plants, and stumps. Minerals, protein, and vitamins are obtained from manure-browsing and even carrion-feeding.

Hill People value these hardy gregarious animals as sources of meat; hair; thick, soft hide; and skume — obtained from female greldiks which have just given birth. Skume is an opaque liquescent cheesy substance with a frightful odor produced in throat glands to feed the young fawn. Hill People refine and modify this substance, producing a type of gelatine and dozens of varieties of palatable, though extremely fatty, drinks.

Greldik paths can be seen traversing many mountain slopes in many ranges. They are astonishingly agile, and live in seemingly impassable terrain.

by some types of Herders and evidently originally came from a permanently overcast world.

Haemonts are hermaphroditic, and give live birth to a single calf-sized young every four falans. The young are not tended by the adults, and can graze and walk within minutes after birth.

Haemonts produce prodigious quantities of blood when well-fed. An adult haemont can be bled of nearly a gallon of blood daily without harm. It can be bled up to three gallons of blood daily, but haemonts thus-bled cannot breed. Haemonts are herded for their blood rather than their meat, though their meat is eaten as well.

Haemonts respond to danger primarily by fleeing slowly and clumsily, though a cornered wild haemont might try to turn and crush a man-sized threat. Domesticated specimens offer no resistance to being cut and drained. Haemonts are sluggish to react to any threat whatsoever, and "haemont" is a common Herder epithet applied to the dull witted.

light hours, a jibber will spend its time concealed by a shrub or a thin layer of sand. A jibber in action will leap upon its victim, landing with its ventre against the target. The

JIBBER

Char.	Range	Average	
STR	1D4	2-3	Average Hit Points: 5
CON	2D3	4	Speed: 2 (walk)/25 (leap)
MAS	1	1	Action Ranking: 1
POW	1D3	2	
DEX	2D6 + 20	27	

ARMOR AND HIT LOCATIONS: 1 point shell

Location	D20	Armor/Average HP
Body	01-20	1/5 (1.00)

Weapon	Attack%	Damage
Bite	80%	1 D3 + poison

NOTES: The jibber attacks by leaping onto its target and then digging with its beak. Each impulse, the bite will penetrate through 1 D3 points of the victim's armor (cumulative) until it contacts flesh, when the jibber will begin to inject a paralytic poison. On each impulse thereafter, roll 2D6 and keep a running total. When the total exceeds the victim's MAS, he has become incapacitated, though he can still think, speak, and move feebly. When the total exceeds twice the victim's MAS, he becomes completely paralyzed.

SKILLS: Hide 200%, Jump 500%

great leg will compress to store the energy of landing. The small hooked limbs grip the victim so tightly that it takes pliers to pull a dead jibber's claws out of its target, one by one. The pointed hollow beak will extend after landing and drive into the victim's flesh. If the victim wears armor, the probing jibber finds a crack or crease. Once the beak is driven into the prey's flesh, it injects a paralytic venom, and the victim will be helpless in seconds and thoroughly paralyzed in minutes.

If the victim is large and succulent enough, and the jibber is mature and mated, its reproductive cycle may commence. This is a process so revolting that it is taboo to describe it to outsiders among most desert hominids. The adult discards its carapace and burrows into the softer parts of its prey, swallowing vast quantities of the fattiest organs. Then the now-soft and baggy creature buries itself underground and is later eaten alive by its spawn, which hatch inside its body. Each jibber will "give birth" to up to 100 spawn, many of which survive to adulthood, continuing the cycle.

HAEMONT

Char.	Range	Average	
STR	2D6+18	25	Average Hit Points: 61
CON	3D6 + 18	28-29	Speed: 4m/im
MAS	4D6+18	32	Action Ranking: 6
POW	1D6	3-4	
DEX	2D6	7	

ARMOR AND HIT LOCATIONS: no armor

Location	D20	Armor/Average HP
Right Hind Leg	01-02	0/19 (.30)
Left Hind Leg	03-04	0/19 (.30)
Hindquarters	05-08	0/22 (.35)
Forequarters	09-12	0/22 (.35)
Turret	13-14	0/16 (.25)
Right Fore Leg	15-16	0/19 (.30)
Left Fore Leg	17-18	0/19 (.30)
Neckmouth	19-20	0/19 (.30)

Weapon	Attack%	Damage
Rear and Plunge	15%	2D6+3D6
Trample	25%	6D6 damage to prone foe only

NOTES: normally kicks once per action ranking. If it can reach a prone foe, it can trample him once per impulse.

Haemont Description

Haemonts are horse-sized quadrupeds also known as Bleeders. They are hairless, with a translucent pale hide — resembling a tough membrane more than true skin. Large veins and arteries are visible throbbing under their hide, as is their whitish musculature.

Haemonts are tailless. Each has a long thick neck ending in a circular blunt-toothed mouth reminiscent of a herbivorous lamprey's. Two pairs of eyes and a half-dozen sensory membranes peer from a hump (called a 'turret') just over their forelegs. Instead of hard hooves, they have rough pads protecting their feet. Their legs are quite thick and obvious not made for swift running.

Haemonts are slow-moving, and sicken in strong direct sunlight. They are domesticated

seamless and generally aerodynamic, sometimes even possessing gliding flanges on either side of the shell. Around the perimeter of the shell protrude 24 short, hooked, three-jointed-legs, and many short tentacular sensory organs. Jibberjex have no eyes, but can precisely target victims using motion, heat, sound, ground vibrations, and water-sensing biochemical receptors. Centered on the animals ventre is a single powerful jumping leg coiled around a sharp beak, normally withdrawn into the shell.

At night, Jibberjex scuttle restively, and may travel considerable distances. During the sun-

Jibber Description

The jibber (plural: jibberjex) is a small shelled carnivore which inhabits disturbed habitats and desert regions. Some species exceed centimeters in length. All can leap over a hundred times their own body length.

There is a wide variation in shape among different species of jibberjex, but the carapace is always

LOPER

Char.	Range	Average	
STR	4D6+12	26	Average Hit Points: 37
CON	3D6	10-11	Speed: 9m/im
MAS	4D6+12	26	Action Ranking: 3
POW	2D6 + 2	9	
DEX	2D6+12	19	

ARMOR AND HIT LOCATIONS: 3 point fur and hide

Location	D20	Armor/Average HP
Right Hind Leg	01-02	3/10 (.25)
Left Hind Leg	03-04	3/10 (.25)
Hindquarters	05-09	3/13 (.35)
Forequarters	10-14	3/13 (.35)
Right Fore Leg	15-16	3/10 (.25)
Left Fore Leg	17-18	3/10 (.25)
Head	19-20	3/12 (.30)

Weapon	Attack%	Damage
Bite	50%	1D8 + 3D6

SKILLS: Observe 75%, Run 150%, Scent 90%

Loper Description

Lopers are fast nocturnal quadrupeds commonly encountered in temperate and semi-tropical veldt and savanna, and somewhat less commonly encountered in rolling hills and woods.

These large creatures are covered with bright orange-red or crimson fur, occasionally mottled or banded with dull ochre. They are muscular and large, reaching 1 to 1.8 meters high at the shoulder. Their heads are narrow and deep, with large eyes and a flexible neck. They lack tails, and have a series of eyelid-like structures running down their back on either side of their spine. These lids can be voluntarily opened, revealing an opalescent patch of membrane upon which live colonies of luminiferous bacteria. By varying the lids opened, a loper can create a row of bright spots, a pattern of seemingly moving spots, or simply expose a single dot. At night, these glowspots are used for signaling on the hunt as well as for mating behavior.

Lopers are primarily carnivores, though they also dine with relish upon melons, eggs, and fresh carrion. They feed upon live prey of almost any size and type.

Lopers live in small family groups including five or six adults and a mob of young. Herders and other hominids sometimes keep semi-domesticated lopers for herd-protection, hunting animals, and even food. Lopers are easily trained and can guard encampments at night. Though lopers are nearly voiceless, their flashing lights work almost as well in signaling an intruder's presence.

Mountain and jungle lopers are far more ferocious than the plains species, which seldom attack adult hominids.

MUNIL

Char.	Range	Average	
STR	4D6 + 36	50	Average Hit Points: 88
CON	4D6 + 24	38	Speed: 3m/im
MAS	4D6 + 36	50	Action Ranking: 6
POW	3D6	10-11	
DEX	2D6	7	

ARMOR AND HIT LOCATIONS: 8 point skin, plus spikes. Any ranged fire has a 25% chance of hitting a spike instead of the creature itself. Spikes each have 30 hit points, and must be completely broken through before a shot hitting one will harm the munil itself. This protection does not apply to area-affect weapons such as explosives.

Location	D20	Armor/Average HP
Right Hind Leg	01-02	8/27 (.30)
Left Hind Leg	03-04	8/27 (.30)
Hindquarters	05-08	8/31 (.35)
Forequarters	09-13	8/44 (.50)
Right Fore Leg	14-15	8/27 (.30)
Left Fore Leg	16-17	8/27 (.30)
Head	18-20	8/31 (.35)

Weapon	Attack%	Damage
Bite	30%	1D6 + 7D6
Spike Ram	50%	2D8

NOTES: The munil itself will attack with a bite every action ranking. Anyone attacking the munil with melee weapons that are less than 2 meters long, or in hand-to-hand combat, will undergo an automatic Spike Ram attack. This is a side effect of the munil's natural armor, and costs the munil no action rankings or impulses to perform.

Munil Description

Munils are large herbivores native to moist plains and scrubby hills. They are occasionally domesticated by the Shell People as war animals or beasts of burden. They are tailless

tetrapods reaching 3 meters at the shoulder. The back slopes quite rapidly from the shoulders to the hips, which are about 2 meters high. The head is attached quite low on the front of the torso, giving munils a hunch-backed look. The head is reminiscent of the extinct shovel-tusked mastodons of Earth.

Most bizarre are the munil's spikes. All over the creature's back, flanks, proximal legs, and head sprout narrow, meter-long, spikes, triangular in cross-section. A typical munil has 50-60 such spikes, scattered more or less evenly over the body; 4 to 5 per leg, a half-dozen on the head, and 25 to 30 on the body itself. Individual munils can be identified by their spike-patterns. These spikes are defensive in nature — it is difficult for a predator to get close enough to a swaying, lurching munil to harm it without risking impalement on the spikes.

In breeding season (every 6 falans), the female munils lay quantities of basketball-sized jelly-like eggs in a lake or pond. The males then wade into the pond and fertilize the eggs. Half a falan later, the eggs hatch into muck-feeding, wormlike 'wigglers' which lash their way about the pond until they have reached the size of anacondas, at which time they thrash out of the pond and bury themselves in the earth in spherical dirt cocoons. From hatching to cocoon takes 10-12 falans, but can vary with food supply. A horse-sized adolescent munil, with spike buds and shaky legs, will dig its way from the cocoon in 2 falans, and reaches maturity in 10-15 more falans.

Munils feed on shrubs, brush, and soft leafed plants. They cannot eat grass. Sometimes a munil will overturn a tree and feed on the leafy crown.

The Chellon riders of domestic munils saw off certain dorsal spikes to make room for a saddle.

line. An onik's body is a flabby sack of waxy tissue. A large sucker on the underside is used to cling to rocks and creep slowly along. The sucker allows it to adhere to sheer cliffs and even hang upside-down. At one end of the ovoid body-sac is a short neck topped by a spherical head with a long tapering horn.

ONIK

Char.	Range	Average	
STR	2D6	7	Average Hit Points: 35
CON	4D6	14	Speed: 1 m/im
MAS	6D6	21	Action Ranking: 7
POW	3D6	10-11	
DEX	1D3	2	

ARMOR AND HIT LOCATIONS: no armor

Location	D20	Armor/Average HP
Body	01-15	0/35 (1.00)
Head	16-20	0/14 (.40)

Weapon	Attack%	Damage
Horn	40%	1D10 + 1D3

Oniks slowly creep over the mountain rocks, grazing on lichen, moss, tundra plants, and insects. They are completely inedible to most organisms, for their body solvents are based on alcohol rather than water. Any creature trying to eat an onik is poisoned almost immediately. Sometimes a Hill People or Spill Mountain Folk tribe will refine and purify the onik fluids, distilling the ethanol to derive an intoxicating, rather than murderous, drink. Oniks are even processed for lampwax and fuels.

Oniks start life as tiny frilled seeds, which drift almost aimlessly across the sky for a time ranging from a single hour to over a falan. If a seed comes to rest on a cold mountaintop, it sprouts a tiny head, horn bud, and sucker, and begins life.

Pilk Description

Pilks inhabit moist plains and marshes. They cannot abide arid climates. They are sometimes domesticated by Shell People or others. They are strictly grass feeders.

The pilk has a long neck and round head. Two unblinking beady black eyes peer outward, and a smooth, rounded beak uproots grass. The grass is swallowed in gulps, then ground and digested internally.

PILK

Char.	Range	Average	
STR	2D6 + 18	25	Average Hit Points: 48
CON	4D6 + 3	17	Speed: 7m/im
MAS	2D6 + 24	31	Action Ranking: 4
POW	2D6	7	
DEX	3D6 + 3	13-14	

ARMOR AND HIT LOCATIONS: 2 point hide

Location	D20	Armor/Average HP
Right Hind Leg	01-03	2/12 (.25)
Left Hind Leg	04-06	2/12 (.25)
Body	07-14	2/24 (.50)
Right Fore Leg	15-16	2/12 (.25)
Left Fore Leg	17-18	2/12 (.25)
Head	19-20	2/16 (.30)

Weapon	Attack%	Damage
Peck	30%	1D10
Kick	50%	3D6

NOTES: at the end of each action ranking, the pilk will kick, followed on the next impulse with the peck attack.

SKILLS: Jump 40%, Observe 50%

Onik Description

The onik is a peculiar animal found only in the high mountains, well above the tree

Weird lumps and swellings cover the pilk's body. The creature's four legs sprout from a single pelvis. The first segment of each leg extends parallel to the ground and at right angles to the other legs, creating a cross shape when viewed from above. From the first joint, the legs descend to the ground through three more knobby joints. A running pilk looks like it is frantically trying to brake a forward rush, and as if at any second it will collapse into a tangle of legs. But it never does, and runs fairly swiftly for all its antics.

Pilks have fine gray fur everywhere but the chest, where lank wool covers a broad porous plate. All a pilk's wastes are excreted through this plate. A bubbling gluey froth, composed of excess water, carbon dioxide, ammonia, and excrement, continually oozes down the chest. This exuviate emits a fearful stench, and only devoted pilk-lovers ever ride or tend the things.

Every 3-5 falans the hermaphroditic pilks bury clusters of eggs in the soil. These hatch in a half a falan and release miniature pilks which tunnel to the surface to begin life on their own. Infant pilks can jump over two meters in a bound, but this power is lost as they mature and grow in weight. Pilks reach adulthood in a dozen or so falans.

RIMSPINNER

Char.	Range	Average	
STR	4D6	14	Average Hit Points: 30
CON	3D6	10-11	Speed: 2m/im
MAS	2D6+12	19	Action Ranking: 4
POW	2D6	7	
DEX	2D6 + 6	13	

ARMOR AND HIT LOCATIONS: 3 point hide

Location	D20	Armor/Average HP
Leg 1	01	3/6 (.20)
Leg 2	02	3/6 (.20)
Leg 3	03	3/6 (.20)
Leg 4	04	3/6 (.20)
Leg 5	05	3/6 (.20)
Leg 6	06	3/6 (.20)
Leg 7	07	3/6 (.20)
Leg 8	08	3/6 (.20)
Body	09-14	3/12 (.40)
Right Eyestalk	15	3/3 (.10)
Left Eyestalk	16	3/3 (.10)
Neck	17-20	3/9 (.30)

Weapon	Attack%	Damage
Horn	40%	2D3 + 1D6

SKILLS: Climb 200%, Jump 80%

Rimspinner Description

Rimspinners are mountain animals semi-domesticated and often hunted by hill or mountain hominids. They are white, with a velvety texture to their thick skin. Their bodies are horizontal disks, swollen in the middle. Eight long thin legs, spaced evenly around the perimeter, are each tipped with a pair of thin barbed claws. At one end of the disk a stout neck ends in a pair of thick, gently curved horns. On either side of this neck, a long stiff stalk holds aloft a spheroidal compound eye. The underpart of the neck opens lengthwise to expose a long lipless mouth with sharp slicing ridges on either side.

Rimspinners feed on moss and small alpine plants. They are not quick, but are very agile, and can clamber readily over seemingly impassable piles of rock or up sheer cliffs.

Rimspinners, all of which are hermaphroditic, give birth to a single young every 4 falans. Whether domesticated or wild, they are slightly territorial, and a herd of rimspinners space themselves out so that each animal has approximately a hectare of land to itself.

Snorter Description

Snorters, powerful quadrupedal herbivores with caviling temperaments, are often herded for their meat and hides by plains and lowland hominids. Sometimes they are ridden or used as draft animals.

Snorters stand 1.75 to 2.5 meters at the shoulder and are massively muscular. Their reddish-gray, fuzzily-bristled skin is broken by a dorsal checkerboard pattern in bright orange. Each limb terminates in a wide, four-toed foot, each toe tipped with a small pointed hoof. A snorter's skull is massive, elongated and downcurved. Their heads show bulbous, heavily-lidded eyes and gigantic, wrinkled flaring nostrils.

Snorters' mobile features wear many expressions, all seeming variations of uneasy disgruntlement, grouching, or disgust. Their long, lash-like tails crack like whips.

Life seems to be a pandemonium of minor annoyances to snorters — even when placidly grazing they issue a nearly continuous series of grunts, bellows, squeals, coughs, and sneezes. The loudest noise is their favorite mode of flushing out tasty morsels by sudden blasts of air. This knocks loose clots of vegetation, mounds of debris, piles of stones, or carefully-stacked explorers' supplies with gusts of hot breath.

Snorters enjoy wallowing in water and idly submerging themselves, though even then they give the general impression of discomfort.

Snorters travel in herds of from 15-50 individuals, and stop for extended periods of time at each major body of water.

Stigfish Description

Many species of eyeless, slender, voracious stigfish inhabit Ringworld's freshwater bodies of water. They range in length from 0.5 to over 2 meters, and in weight from 2 to 25 kilograms. Narrow flattened snouts curve slightly upward at their

apex to form a bony spline. Five rows of horny plates protect their flanks and back. Stigfish are muddy brown to green above, but lighten on the sides to silver-blue.

Stigfish travel in small schools of 10-50 individuals, hunting with sonar and feeding socially. Though they are avid predators, they

SNORTER

Char.	Range	Average	
STR	6D6 + 20	41	Average Hit Points: 64
CON	3D6+12	22-23	Speed: 5m/im
MAS	6D6+20	41	Action Ranking: 5
POW	2D6	7	
DEX	3D6	10-11	

ARMOR AND HIT LOCATIONS: 4 point hide

Location	D20	Armor/Average HP
Right Hind Leg	01-02	4/16 (.25)
Left Hind Leg	03-04	4/16 (.25)
Hindquarters	05-09	4/23 (.35)
Forequarters	10-14	4/23 (.35)
Right Fore Leg	15-16	4/16 (.25)
Left Fore Leg	17-18	4/16 (.25)
Head	19-20	4/20 (.30)

Weapon	Attack%	Damage
Bite	30%	1 D6 + 6D6
Trample	50%	12D6 to prone foe only

NOTES: normally attacks with bite once per action ranking. Can trample prone enemies once per impulse.

panic when something unfamiliar and larger than themselves draws near. A stigfish school will then thrash about wildly — its individuals leaping, swimming erratically, or diving. This energetic display confuses many predators, and an aggressive attacker might even be seriously injured through being stabbed by a stigfish's beak.

Stigfish are edible, and taste like overripe oysters to Known Space humans. In seas with operational dredges, stigfish have geared their migratory and reproductive cycles to the local maintenance schedule. Many travel far upstream to mate and bear young, each defending their own stretch of woodland stream for several days. In some areas, stigfish have developed a symbiotic relationship with the Forest Fishers, whose psionic lure attracts them. The Fishers protect the stigfishes' highly edible eggs, while the fish seem to allow themselves to be caught in return. Boat People also relish the meat of the stigfish.

STIGFISH

Char.	Range	Average	
STR	2D3	4	Average Hit Points: 8
CON	1D6	3-4	Speed: 6m/im
MAS	2D3	4	Action Ranking: 3
POW	1D6	3-4	
DEX	2D6+12	19	

ARMOR AND HIT LOCATIONS: 2 point scales

Location	D20	Armor/Average HP
Tail	01-06	2/3 (.30)
Body	07-14	2/3 (.35)
Head	15-20	2/3 (.30)

Weapon	Attack%	Damage
Spear	30%	1D8

NOTE: a stigfish will charge and try to spear an intruder only when protecting home territory in breeding season or when cornered and severely frightened. A stigfish Spear attack which receives a special success impale, and does triple damage. However, if the Spear attack impales, the stigfish will break its jaw, soon leading to death.

Trembler Description

Tremblers are sessile animals found only in rain forests. Superficially, tremblers resemble puffy, barrel-shaped, hollow-spiked gourds. A ring of fleshy, pale-yellow, spiked leaves surround the body. A dozen ropy green tendrils grow from the base. The whole surmounts a pale, fuzzy, tapering stalk mottled in reddish purple. The stalk is flexible and muscled, and extends vertically when the organism is hungry and dangerous. When the bulb rests low amidst its protective leaf cluster, it is relatively harmless.

When a trembler is attacked it reacts with a violent burst of ultrasound, and attempts to enfold and immobilize the attacker within its leaves both to prevent it from harming the trembler and to keep it within range of the destructive sound.

Tremblers are not intelligent, but chemically alert other up to a kilometer distant of a prey's presence and direction of movement.

Trembler reproduction is little studied.

Some believe that the trembler has an active life-stage during which breeding takes place.

Varmot Description

Varmots are small furry animals which have created a secure niche for themselves over a fourth of the Ring.

They are found everywhere but deserts, high mountains and aquatic habitats.

Varmots range from the size of a large rat to almost half a meter long. Their flat heads have a tapering muzzle ending in moist olfactory pits. Fuzzy jowls hide the lower jaw. Soft thick lids cover large silver eyes, giving the creatures their characteristic squint. Thin sinewy forelimbs end in four short-clawed fingers. Two fingers are close-set centrally and two are splayed thumb-like to either side. Some species of varmot lack paws completely, with

many Ringworld food chains. Most types are edible to hominids, though they are usually remarkably bland in taste. Although there are literally hundreds of thousands of varmot species, usually a given area will harbor no more than a dozen species. Some hominids keep strains of domestic varmots as pets or food animals.

Vindwright Description

Vindwrights are large carnivores found in isolated spots scattered all over Ringworld. They stand a little under a meter and a half at the shoulder. A bony ridge runs down the spine from the crown of the head to the tip of the thick tail. A thick horny coat plates the entire body. They have wide padded feet and a lizard-like head.

A newly-hatched vindwright can be inoculated with blood or tissue from almost any animal. When mature, the vindwright will neither attack nor defend itself against the species of creature whose blood was used to inoculate it. It will viciously attack all other creatures (except other vindwrights), even when satiated. Since this inoculation is species-specific, vindwrights make excellent defenders in some primitive hominid societies, warding off enemies, hunting food, and serving as an emergency food supply. Of course, the tribe must take care to inoculate each hatchling with blood from that tribe's species as well as with blood from all that tribe's herd animals and with blood from any hominids the tribe wishes to deal with.

TREMBLER

Char. Range	Average	
STR 2D6	7	Average Hit Points: 39
CON 4D6	14	Speed: 0
MAS 7D6	24-25	Action Ranking: 6
POW 3D6	10-11	
DEX 1D4 + 4	6-7	

ARMOR AND HIT LOCATIONS: 6 point touch cuticle, plus resistance to sonics — double effective MAS of a trembler for defense vs. sonic attacks. If a tendril location is rolled on a hit, roll 1 D3 to determine which tendril actually was struck

Location	D20	Armor/Average HP
Stalk	01-03	6/12 (.30)
Tendrils 1 to 3	04	6/4 (.10)
Tendrils 4 to 6	05	6/4 (.10)
Tendrils 7 to 9	06	6/4 (.10)
Tendrils 10 to 12	07	6/4 (.10)
Leaf 1	08	6/8 (.20)
Leaf 2	09	6/8 (.20)
Leaf 3	10	6/8 (.20)
Leaf 4	11	6/8 (.20)
Leaf 5	12	6/8 (.20)
Body	13-20	6/24 (.60)

Weapon	Attack%	Damage
Sonic	Auto.	special
Grapple	30%	immobilizes

NOTE: The trembler can use its sonic attack each impulse, in addition to normal attacks and actions. In this attack, the trembler matches its CON vs. the MAS of each being within the beam's 10 degree arc of play, and within 6 meters. Those between 6 and 20 meters have their MAS matched vs. half the trembler's CON, and those between 20-50 meters match their MAS vs. a fourth the trembler's CON. All those whose MAS is overcome by the trembler's CON take 2D6 general hit point damage.

The trembler can attempt to grapple all targets adjacent to it, as well as emit its sonic pulse. This does no damage, but those gripped by it can escape only by overcoming the trembler's STR with their own, and may try once per action ranking. Characters gripped by the trembler are always included in the sonic beam's path on each impulse.

Tremblers derive nourishment in two ways: from nutrients in the soil and air, and from the decaying flesh of organisms it kills. Enticing chemical attractants draw prey which is then killed by short bursts of ultrasound. The odor is pleasant to humans, and irresistible to many Ringworld hominids and native animals. Sonar is its primary preceptor. It senses a target's direction via reflected pulses of sound and aims its destructive ultrasound via sonar as well. Organs in the central bulb channel the ultrasound through hollow spikes. Its weakly prehensile tendrils drag small corpses close enough to be enveloped and digested by the leaves. Larger bodies enrich the creature's environs less directly by fertilizing the soil. Communities of sonic-resistant organisms may surround a long-established trembler, sharing the fertile environment donated by the victims.

hoof-like stumps at the end of their forelimbs. The hindlegs are powerful and rabbit-like. A manelike ridge of fur runs the length of the body in many species. Tails range from long, flat-ended structures to nonexistent.

Varmots are mainly herbivores, but some types are nearly omnivorous, feeding on worms, fungi, insects and eggs. Varmots are prolific breeders and are near the bottom of

VARMOT

Char. Range	Average	
STR 1D3	2	Average Hit Points: 4
CON 1D3	2	Speed: 3m/im
MAS 1D2	1-2	Action Ranking: 4
POW 1D6	3-4	
DEX 4D6	14	

ARMOR AND HIT LOCATIONS: no armor

Location	D20	Armor/Average HP
Body	01-20	0/4 (1.00)

Weapon	Attack%	Damage
Bite	25%	1D3

SKILLS: Burrow 60%, Hide 25%, Observation 40%

VINDWRIGHT

Char. Range	Average	
STR 5D6+18	35-36	Average Hit Points: 50
CON 6D6	21	Speed: 4m/im
MAS 3D6 + 18	28-29	Action Ranking: 5
POW 3D6	10-11	
DEX 3D6	10-11	

ARMOR AND HIT LOCATIONS: 6 point hide

Location	D20	Armor/Average HP
Tail	01-02	6/13 (.25)
Right Hind Leg	03-04	6/15 (.30)
Left Hind Leg	05-06	6/15 (.30)
Hindquarters	07-09	6/18 (.35)
Forequarters	10-13	6/18 (.35)
Right Fore Leg	14-15	6/15 (.30)
Left Fore Leg	16-17	6/15 (.30)
Head	18-20	6/15 (.30)

Weapon	Attack%	Damage
Bite	80%	2D6 + 4D6
Claw	50%	1D6 + 4D6

NOTE: at the end of each action ranking, the vindwright will bite, followed by a claw attack one impulse later.

The Pak created vindwights. They are found in the wild only in areas which were or are inhabited by intelligent hominids. Vindwights do not compete well against natural, more efficiently-evolved predators.

Vindwights lay up to six eggs every six to seven falans, and the eggs hatch within a few weeks. Hatchlings can be successfully inoculated up to four days after emerging. If well-fed, they reach adulthood in nine falans.

Ringworld Plants

Achiya

This hardy seed plant grows well in moderately dry mountains at altitudes above 2700 meters. It does not do well in humid climates or low altitudes. Its seeds are a nutritious and high-energy-producing food. Achiya plants seldom exceed a meter in height. The thin, tough stalks produce compound clusters of small, blue-white flowers, which give way to dense clumps of tiny seeds. The upper part of the plant then dries up, but persists long after most of the seeds have scattered. Achiya is cultivated by the Hill People and used almost exclusively as a bulk food substitute on their long marches.

Fishbane

This odd-looking, broad-leaved plant has thick, orange-brown leaf-stalks growing from large, fleshy rhizomes. The big, elongated leaves are crinkled and greenish-pink. Fishbane is sometimes carefully leached and eaten as a vegetable, but unleached it is sometimes thrown into ponds to stun fish: a volatile organic poison induces convulsive nerve-shock in most fish, but the poison breaks down harmlessly in about half an hour. Fishbane will not grow in arid or elevated lands.

Frostberry

A colorful perennial herb, it has reverse heart-shaped, silver-haired leaves and purple-throated, pale-orange flowers. Frostberry grows to about human shoulder height, and is found in many temperate and subtropical regions. Most hominids find its round, silvery-purple berries edible and delicious. The plant is cultivated by Shell People, Valley People, Hairy Ones, and others.

Grulba

A favorite food of Runners and other non-agricultural hominids, grulba fruit grows wild in many regions. Grulba plants become quite large in tropical climates, their normally chaotic tangle of massive, big-leaved running vines forming a tall, thick cylinder of bronze-green foliage capped by huge, orchid-like flower clusters. The spectacular grulba fruit average over 30 centimeters in diameter, with a purple or magenta-green skin, a coppery-red, moist flesh, and a large yellow-and-brown striped edible seed.

Ibana

The ibana is a massive, startling tree of often tremendous proportions. It thrives along sluggish rivers and in Ringworld's swamplands. Ibans have complex, intertwining trunks, and vine-like foliage which cascades down from a thick upper layer of large, bright-green, multi-lobed leaves. The trees may reach heights of 30 meters, marching readily across even permanently-flooded terrain by means of aerial roots sent down from their spreading branches. The roots, stems, and trunks of a single ibana may resemble a densely-overgrown, tangled thicket.

Ikrel

This stringy aquatic weed-plant flourishes in streams, swamps, and marshes. It has pungent leaves. The blue-green variety is cultivated for its pharmacological properties by the Grazers in their bog-farms. Its dried tendrils produce a calming effect on the hyperactive Grazers, but many other hominids use it as a stimulant.

Ivory Tree

A tall, graceful tree with a leafy crown, it resembles certain Known Space gemwoods. When cared for, ivory trees grow almost unnaturally straight. Immature trees have smooth slender trunks covered by thin orange-red bark, which later peels off to reveal a striking, shiny-white adult bark. Mature trees often reach 35 meters in height. Atop the trunk is a burst of clean, green foliage, the glossy, leathery leaves of which are splashed with creamy yellow-white. Ivory trees enhance almost any architectural style, and withstand widely-different climates. Their extremely hard, gleaming wood is prized for sculpting, fine furniture, luxurious construction, and primitive weaponry.

Jupins Grass

Terrain too steep for cultivation or too hilly for most hominid habitation may abundantly grow this hardy, vigorous, medium-to-high-altitude grass. Its low, resinous leaves provide mountain animals nutritious forage; its thick tangle of rootlets counteract erosion and enrich the topsoil by fixing nitrogen. Jupins grass has miniature flowers with a clean, mildly-spicy scent. Fields of it produce a continuous stream of tiny airborne seedlets.

Lizard Bush

A distinctive, prickly, water-bearing succulent often found in chaparral regions and desert borderlands, lizard bush grows 0.5-2 meters high in small towers of neatly-stacked, fleshy leaves. Its color is a dark, ashen-green with a tracery of brownish-purple veins. The plant is named for the colonies of edible, lizard-like animals frequently symbiotic with it. Non-spiky varieties of lizard bush sometimes harbor colonies of poisonous, aggressive lizards.

Katjang

A flashy subtropical vine which usually grows in three or more interwoven strands, its three-lobed leaves are bright red with yellowish-green leathery pods. 7-12 centimeters long. Each pod contains as many as a dozen katjang beans, rich in vegetable protein.

Needle-Grass

A tough, resilient, drought-resistant grass, it is found in many transitional scrublands and semi-arid regions. It ranges from 0.3-1.5 meters tall. Needle-grass has stiff, round, semi-solid stems, which gradually taper to sharp, spike-like points. The dried grass is used for arrow tips, blow-darts, needles, and other tools, and even sewn together as armor.

Rim Pine

Reaching heights of 50 meters, these hardy, often timberline trees are found throughout the rimland foothills. Their roots occasionally penetrate the bonded bedrock. Their leaves are flat, pointed, and narrow. In dense ever-green forests, rim pines grow tall and slim-trunked, with tiers of nearly-horizontal branches. Elsewhere, they vary in form. Solitary trees in rugged, mountainous terrain may grow heavy-trunked and spreading. Though adaptable, rim pines do poorly in warm lowlands.

Sausage-Plant (Weenie Plant)

These may be any of numerous Ringworld plants bearing heavy, edible fruit resembling melons or large cucumbers which grow sprawling along the ground like so many links of sausage. Clusters of rootlets and wide, crescent-shaped leaves spring from the nodes between the links. The meaty fruit usually has a ribbed, rough-textured, green-and-yellow striped skin. Fully-ripened 'sausages,' if not harvested, split open to give birth to golden blossoms. Wild sausage-plant grows in moist, warm areas, and is not very tasty; many delicious varieties are cultivated by Ringworld hominids.

Spice-Nut Bush

It is a fragrant, coarse-twigged woody shrub with twisted, wide-spreading branches. Its spatulate leaves arranged near the ends of the twigs are a dark, glossy green or creamy-white with variegated light green patterns. The many small flowers are white, yellow, blue, or magenta-cream. Spice nuts have numerous flavors, and are prized for use in cookery. In shape most are ovoid, resembling miniature acorns. Spice-nut bushes grow best in hilly terrain that is not too damp.

Sweetroots

Many species of these low, colorful plants flourish in Ringworld's temperate regions, usually in habitats shielded from the harsher weathers. Sweetroots sometime completely carpet a forest floor, in single hues or riots of colors. Several separate flower-stems grow from the base of each plant, with a whorl of bright green leaves (heart-shaped in most varieties) beneath a small, lily-like flower at the summit of each stem. Though sweetroot berries are indigestible, the thicker roots are often nutritious and tasty. Some sweetroots are sought for medicinal properties, not for flavor. The roots usually are fleshy, tapering, white, and semi-transparent.

Velvet Grass (Vale Grass)

A silky, hollow-stemmed grass with a distinctive covering of fine, soft, velvety-purple hairs, it grows thickly in fields up to a meter high. It is common in clearings, woodland hills, and river valleys of Ringworld's moist, temperate climates. Velvet grass forms an extremely comfortable, cushion-like mat for overnight rest or non-regulation hijinks.

Yana

An aquatic herb with small, balloon-shaped, translucent brown bulbs, Grazers grow it in their bog-farms for its aphrodisiac properties. It is found elsewhere in ponds, marshes, and rivers, adhering by means of sucking-disks to rocks, logs, crustaceans, and boats. Many native hominids find it useful as a painkiller and as a euphoric.

RINGWORLD EXPLORER SHEET

Front

Player Name
 Explorer Name
 Species Homeworld Gravity
 Gender Chronological Age / Physiological Age

STR
 MAS
 CON Health Roll
 INT Reasoning Roll
 POW Luck Roll
 DEX Dodge Roll
 APP Damage Modifier
 EDU Speed ... meters/im.

General Hit Points

Occupation Points
 Workspace

Agility Skills

Root Max. %

Archaic Melee Weap. (___)R % ☐
 % ☐
 % ☐
 Archaic Ranged Weap. (___)R % ☐
 % ☐
 % ☐
 Athletics (___)R % ☐
 % ☐
 % ☐
 Hide (___) % ☐
 Sneak (___) % ☐
 Unarmed Combat (___) % ☐
 V. Sword, F. Laser (___)R % ☐

Communication Skills

Root Max. %

Bargain (___) % ☐
 Debate (___) % ☐
 Fast Talk (___) % ☐
 Fine Arts (___)R % ☐
 % ☐
 Musicianship (05%)R % ☐
 % ☐
 Orate (___) % ☐
 Own Language (INTx5) % ☐
 Perform (___)R % ☐
 % ☐
 Psychology (___)R % ☐
 % ☐

Perception Skills

Root Max. %

Handgun, energy (05%)R % ☐
 % ☐
 % ☐
 Handgun, projectile (___)R % ☐
 % ☐
 % ☐
 Heavy Weapon, energy (___)R % ☐
 % ☐
 % ☐
 Heavy Weapon, projec. (___)R % ☐
 % ☐
 % ☐
 Listen (___) % ☐
 Observe (___) % ☐
 Scent (___) % ☐
 Search (___) % ☐
 Track (___) % ☐

Knowledge Skills

Root Max. %

Anthropology (___)R %	History (___)R %
..... %	 %
..... %	 %
Astronomy (___)R %	Law (___)R %
..... %	 %
..... %	 %
Biology (___)R %	Mathematics (___)R %
..... %	 %
..... %	 %
Botany (___)R %	Physics (___)R %
..... %	 %
..... %	 %
Chemistry (___)R %	Planetology (___)R %
..... %	 %
..... %	 %
Computers (___)R % ☐	Second Languages (___)R % ☐
..... % ☐	 % ☐
..... % ☐	 % ☐
..... % ☐	Strategy (___) % ☐
Emergency Treatment (___)R % ☐	Theology (___)R %
..... % ☐	 %
Engineering (___) %	 %
Farming (___)R % ☐	Zoology (___)R %
..... % ☐	 %

Technical Skills

Root Max. %

Aquatic Vehicle (___)R % ☐
 % ☐
 % ☐
 Atmospheric Craft (___)R % ☐
 % ☐
 % ☐
 Ground Vehicle (___)R % ☐
 % ☐
 % ☐
 Hyperdrive (___)R % ☐
 % ☐
 % ☐
 Personal Flyer (___)R % ☐
 % ☐
 % ☐
 Reaction Drive (___)R % ☐
 % ☐
 % ☐
 Reactionless Drive (___)R % ☐
 % ☐
 % ☐
 Repair (___) % ☐
 Ringworld (___) %
 Weapons System (___)R % ☐
 % ☐
 % ☐

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Ringworld Errata

June 26, 1984

EXPLORER SHEET:

The number 30 is missing in the Hit Point Tally on the back of all the explorer sheets; write in "30" on the margin of the explorer sheet. A corrected and photocopyable back sheet is included in the *Ringworld Companion*.

EXPLORER BOOK:

- (1) Page 5, column 2; page 10, column 2; other locations — include only the first 24 points of EDUs when calculating knowledge-skill root maximums.
- (2) Page 16, column 1, Archaic Melee Weapons — the human fist has a 1 D3 attack; the human kick has a 1 D6 attack; remember any damage modifier.
- (3) Page 26, column 3, Zero Atmospheric Pressure - the explorers should exhale in vacuum to minimize pressure damage; adequate air is left in the lungs after exhalation: not exhaling does 1 D6+2 points of damage as per the first paragraph.
- (4) Page 38, column 2 — the picture is of a wrillabee; see *wrillabee* in the creatures book, page 42.
- (5) Page 58, columns 2 and 3 — the picture is of a dak-dak; see *dak-dak* in the creatures book, page 37.

TECHNOLOGY BOOK:

- (1) Page 24, columns 3 — the repetition of the marinex maximum acceleration entry is a paste-up error; disregard.

CREATURES BOOK:

- (1) Kzin and Puppeteer characteristics in the creatures book are superseded by the slightly different values found on pages 47 and 51, respectively, of the explorer book.
- (2) Page 9 — the INT characteristic for Outsiders should read "2D6+12," not 2D6+6.
- (3) Animal hit locations given are used for both ranged and melee weapons.
- (4) The reference "Standard Hominid Hit Location Table" refers to the Human Hit Location Tables in the explorer book.
- (5) Page 46, column 1, Slaver Sunflowers — an individual sunflower has 1 hit point.

GAMEMASTER BOOK:

- (1) Page 46, column 2 — the "prism" in the tower laser is actually a mirror (which may be quite dirty, not having been fired in several Ring years).
- (2) Inside Back Cover — the material there is continued from page 2 of the gamemaster book.

AUTOPILOT PRINTOUT:

Surface gravity induced by spin should read 0.992 — not 9.92. The gamemaster's Ringworld printout is correct.

Human Space Technical Items

CHEMKIT

WEIGHT: 1 kg
 VOLUME: 15cm x 5cm x 10cm
 ENERGY USED: .1/im, (6/minute)
 POWER SUPPLY: battery 60/1/20g/N
 SPEED OF OPERATION: heater brings 1 liter of water from 0 to 100 degrees Centigrade in under 30 impulses.
 COST: 45 Stars

This kit contains equipment and devices for quick field determination of chemical properties; it includes a scanner (explained later), an electric heater, litmus compounds, a test procedures booklet, and an automatic chemical analyzer all fitted into a soft-plastic case.

By dropping a small chemical sample into the analyzer, an account of the molecular structure of the sample can be obtained within a minute. The account will be both printed on a screen and verbally reported by the machine. The information will be held for recall until destroyed.

Some compounds cannot be analyzed — General Products hull material, for instance.

The heater is a folding 1-liter beaker. Scientists often use it for making soup or coffee.

COPTER (Wunderland Rotorcraft)

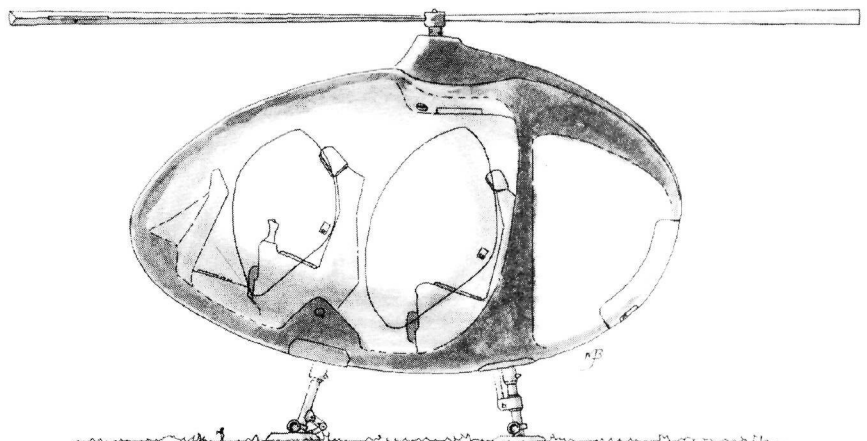
MAS: 34 (500 kg)
 VOLUME: 4m x 6m x 2m
 SPEED: maximum 500kph, cruising 300 kph
 MAXIMUM ACCELERATION: 10 kph/im
 ENERGY USED: 120/im
 POWER SUPPLY: fusion 3 generator
 APPLICABLE SKILL: Atmospheric Craft
 COST: 8000 Stars
 ARMOR: 10-point (rotor is unarmored)
 HIT POINTS: 75

Location	1D20	Armor/HP
rotor blade	01	0/8 (.10)
generator	02	10/8 (.10)
luggage/storage	03-07	10/38 (.50)
gyroscopes	08-10	10/4 (.05)
passenger compartment *	11-20	10/57 (.75)

* pilot and passengers must attempt luck roll to avoid being hit.

Racing archaic machines such as propeller-driven aircraft occasionally becomes popular. The two-seater copter illustrated has only a single rotor, and is gyroscopically-stabilized. On long races, supplies are packed in the cubic-meter storage area. The copter is difficult to control in unsteady air; it carries short-range sensors and navigation/communication gear. This copter's nominal ceiling is 6000m.

On Wunderland, a dangerous copter competition is the central component of the



triathlon; contestants run a 42km marathon to the copters, fly their copters directly over the always-stormy 61 00m crest of Mt. Steep, then land on the other side and swim the 8km straits of the Neversea.

HEROCYCLE (Hero of Calcutta, Earth)

MAS 31 (375 kg)
VOLUME: 1m x 1.5m x 2m
SPEED: maximum 7000 kph;
cruising 6000 kph
MAXIMUM ACCELERATION: 150 kph/im
ENERGY USED: 115/im
POWER SUPPLY: fusion 2 generator
APPLICABLE SKILL: Atmospheric Pilot
COST: 3000 Stars
ARMOR: 5 points
HIT POINTS: 80

<i>location</i>	<i>1D20</i>	<i>Armor/HP</i>
main body	01-10	5/80 (1.0)
controls	11	5/8 (.10)
sensors and communicator	12-13	5/16 (.20)
pilot	14-20	varies

A herocycle is meant for speed, maneuverability, and excitement. This racing model, a gleaming streamlined ovoid with black saddle, hand controls, and safety belt, carries one passenger, though a second can sit on the lap of the cyclist without greatly affecting the flight characteristics.

The herocycle comes only with manual controls, though a plug-in autopilot is available. Standard aboard it is a sonic fold (which may be tuned to provide sound from outside, at the cost of gusts of wind), a sturdy 2000 kilometer radar, and a traffic-alert communicator. Most governments also require a powerful EM-radiator to warn of the approach of this unpredictable craft.

This craft originally was meant to provide cheap transportation, but many planets ban the herocycle or restrict its use because of its dangerous speed and limited instrumentation — several notorious herocycle accidents have obliterated whole buildings on Wunderland.

MAPPER BOX (Diamond Sutra Commune, We Made It)

MAS: 1 (2.3 kg)
DIMENSIONS: 8cm x 19cm x 40cm
ENERGY USED: .01/im passive; 1/im active
POWER SUPPLY: fusion 1 generator
SPEED OF OPERATION: passive, by triangulation from second angle, average of 40 seconds each location; active, by sensors from initial position, 50 seconds
GENERAL HIT POINTS: 20
COST: 225 Stars

The mapper box is a handy specialized survey device used to create quick topographical maps and other sorts of dimensional schematics. It has a passive analysis mode which requires two displaced sightings on a single point, or it can actively send out what amount to radar impulses from a single point, and create a line-of-sight study image from the data received. Either mode can be modeled in the device's holographic tank, or a 0.5 kg, 60-Star optional printer can reproduce the image in tri-dee presentation. A 200-Star

attachment can buffer most sensordisks to produce a real-time terrain image of the neighborhood; the modification can highlight portions of the spectrum, such as infrared body heat.

When exploring caves, spelunkers often put 3-4 vibro sticks (10 Stars each, with linking cable) into the ground, thereby both mapping the path that they actually take and exploring into the surrounding stone for varying distances (limestone, for example, is registerable with a standard assembly to about 15 meters).

If a mapper box is required to remember complex images for very long, or required to remember more than one final image, the owner should link the device to a MicroMind-equivalent computer with a dedicated memory bubble.

Mapper boxes can be linked to deep-radar sets, providing printed topographical maps from the deep-radar data.

McGRAW BEAMER CADDY (Roulette Corp., Belt)

WEIGHT: 285 g
DIMENSIONS: adjustable to fit the beamer
ENERGY USED: spring-operated
POWER SUPPLY: various memory plastics
SPEED: 1/10th second
COST: 15 Stars

This quick-draw device can be fitted to either arm, presumably hidden by the loose shirt or jacket sleeve of the wearer. When the firing hand is bent to receive the beamer, relays interpreting the forearm muscles automatically trip the beamer release, and the weapon is launched into the waiting hand. Normally a line is attached to the beamer: in case the wearer does not catch it, it remains at hand and does not bounce impotently across the floor.

MICROCUBE SUIT

WEIGHT: 200 g per MAS-point of wearer
VOLUME: human form; versions exist for Kdalyno, Kzinti, and Puppeteers as well
ENERGY USED: none
ARMOR VALUE: reflects visible light back in the general direction from which it came
COST: 225 Stars + 25 Stars per MAS point of wearer above MAS 15

The light-reflective microcube suit is a thin, form-fitting garment whose outer surface is composed of mirror-perfect microcubes, each only a few microns across. The suit covers the entire body except for the palms of the hands, the soles of the feet and the face. The microcube suit is nearly 100%-reflective to visible light. The mirrored microcubes are designed so that incident light rays striking the suit are reflected back in the direction of origin. Observers of microcube fabric will often see in the fabric a huge, bleary reflection of their own eyes.

If an explorer wearing a microcube suit is struck with a visible-light attack, the explorer's player should make a luck roll. If the roll is successful, the attack has bounced back to hit the attacker in a random location. If the luck roll fails, the beam has bounced back but will miss the attacker. If the attacker is a considerable distance from the defender

the gamemaster should reduce the chance of success for the luck roll. An infrared or ultraviolet beam, or a visible light beam of 100 hit points or higher will not be reflected by the microcubes. If an infrared or ultraviolet beam, or any sort of kinetic attack does 5 or more hit points of damage to a microcube suit location, the microcube surface for that location has been burned or ripped away.

RESTRAINT FIELD PROJECTOR (Maitresse Anna, Wunderland)

MAS: 2 (6.1 kg)
DIMENSIONS: 9cm cube; slightly protruding barrel
ENERGY USED: varies with setting; 0.04/im per point of MAS setting
POWER SUPPLY: any standard external source; not self-powered
GENERAL HIT POINTS: 15
COST: 20 Stars, plus 5 Stars per MAS point settable on the unit (a 20-MAS-point field generator costs 120 Stars)

The restraint field generator sends out a low-power directional beam which interferes with conscious mental control of the voluntary muscles; the target suddenly can no longer move or speak and must collapse, though he or she remains conscious and has full feeling everywhere. Restraint fields are known to be similarly effective against all Known Space species, except for Bandersnatchi.

Many restraint field generators are in production; they are used as guard devices, in police work, in animal control, as invisible fences, and in many other applications. All generators project a steady trip-beam. The restraint field takes effect instantly and the effects last as long as the individual is in the field. Once removed, the former target tingles everywhere and recovers full physical functions in MAS x1 impulses. Some mystics use the restraint field as a meditation aid, but doctors have been quick to advise against prolonged voluntary exposure, though captives have been subject to the field for several weeks without subsequent effect.

Just like a stunner, a restraint field generator is set to affect a certain maximum MAS of target; targets more than 4 MAS points above the selling feel nothing and treat the field as if it is not there. There are no legal or physical limits upon purchasable MAS sellings. The cone of the field also expands at the same rate as that of a stunner: 5cm AL 5m, 50cm at 50m, 100cm at 100m and so on. After 100m the Mas-effectiveness of the beam diminishes from the selling at the rate of 1 point per 10m.

Normally restraint field generators are set in multiple, crisscrossing lanes of fire. Explorers must determine for themselves the optimal position of the devices.

ROCKET (Oaxaca de Terra)

WEIGHT: 7.5 kg
VOLUME: 1 5cm x 30cm x 60cm
SPEED: maximum subsonic, 500-600 kph; cruising 200-300 kph
MAXIMUM ACCELERATION: 20kph/im; varies with modifications and chemical mix
ENERGY USED: chemical fuel cells -drained in 5 minutes at maximum acceleration, lass approximately 1 5 minutes at cruising speed

POWER SUPPLY: dual fuel cells
APPLICABLE SKILL: Personal Flyer
COST: 500 Stars; plus 1.5 Stars per fuel cell
ARMOR: none
HIT POINTS: 20

This tricky device is used primarily in personal competitions, often for prize money. Considerable training and skill (in Athletics as well as Personal Flyer) is necessary to strap on a rocket and not immediately wind up splattered on a mountainside; not only must the user be able to delicately judge the use of his rockets, but he must use his body as a rudder for steering.

Competitors normally wear a full helmet and a body-covering suit of frictionless armor.

SCANNER (Pocket)

WEIGHT: 13.5 g
VOLUME: 0.5 x 7 cm cylinder
ENERGY USED: 1/day of constant operation
POWER SUPPLY: battery 6/1/1.75g/R
SPEED OF OPERATION: constant information update
COST: 1 Star; a unit which writes is 1.2 Stars

A pen-sized device whose read-out can be adjusted to give a color-intensity indication of any particular portion of the EM spectrum. It can warn of dangerous radioactivity if so adjusted, and if it is held with its cap toward the horizon, it can be a directional device. This version is not intended for serious scientific work, though vastly more sophisticated versions exist.

SEARCHBEAM (Portable)

WEIGHT: 400 g
VOLUME: 1.5 x 50 cm cylinder
ENERGY USED: 2/im
POWER SUPPLY: 3600/2/0.9kg/R
LENGTH OF OPERATION: 30 minutes
COST: 2 Stars

Searchbeams are powerful flashlights which can illuminate a 6m-diameter circle at 1000 m. Vehicular and larger, mounted searchbeams have settings allowing for wider diameters of illumination.

SLEEPSET

WEIGHT: 2 kg main unit; 50 g sleepset
VOLUME: 30 x 40 x 70 cm main unit
ENERGY USED: 1/im, mostly used to run timer, failsafe, and convenience circuits rather than the actual sleep moderation itself.
POWER SUPPLY: ship, building or city generator
COST: 20 Stars

A form of sleepset existed as early as the mid-20th century in the Soviet Union. It was in widespread use by the end of that century. The sleepset induces an alpha rhythm simulating that of the deepest of sleeps, thus eliminating the need for the other lighter levels of sleep. Originally it was thought that this device was dangerous because it eliminated the level of sleep in which the most dream activity occurs. Later, it was

discovered that the dream state acts independently of the sleep cycle, and the machine was widely distributed.

In the Ringworld era, sleepsets have advanced to technological levels greatly exceeding those of the 20th century. Every hour spent under the sleepset acts as four hours of normal sleep, but emotional and physiological agitation results if the device is used for more than a few nights in a row. The state of consciousness induced by a sleepset is colloquially termed 'Russian sleep,' after the original manufacturer, Moscow Motors.

Sleepsets come as sleepset earmuffs, sleepset sunglasses, sleepset headbands, archaic looking sleepset helmets, sleepset nightcaps, sleepsets with built-in radios which will turn on the moment the sleepset turns off, and in many other modes. Some sleepsets come equipped with dream suggesters.

All sleepsets require a massive, somewhat energy-expensive unit regulating the sleep state. This unit attaches to the sleepset by inter cable. Sleepset timers can be set for periods from 10 minutes to 3 hours. Some people rig their sleepsets to allow them to sleep for longer, but none are designed to be used that way.

Dream suggesters are microcomputers inserting a predetermined emotional tone into the sleeper's dreams. Dream suggesters cannot suggest specific scenarios. A person buying a sleepset equipped with a dream suggester must sign a no-fault contract preventing lawsuits for bad dream experiences.

SPY BEAM

WEIGHT: 750 g
VOLUME: 15 x 25 cm ovoid
RADIUS OF EFFECT: 30 cm at 100 m
ENERGY USED: 0.1/im
POWER SUPPLY: battery 2500/1/.625kg/R
RANGE: 300 m uninterrupted; up to 1 m of steel
COST: 55 Stars

The term spy beam is now a misnomer. At one time the device emitted a beam which bathed the target in ultrasonic vibrations. Using the interference produced between the spy beam's emission and the sounds in the affected area the device accurately reproduced voices and other noises in the area. This active type of spy beam was so easily detected, even by dogs and cats, that it has been completely replaced by the effective passive receiver which uses no beam at all.

There are many physical designs for spy beam projectors. All feature a projecting conical antenna.

The spy beam can pick up and enhance up to three sounds within the target area; additional sounds are unintelligibly melded together. If a particular sound is entered in advance, Louis Wu's voice for example, the spy beam can be put on a search mode, and will search for that sound. When the spy beam has found the sound it will zero in on it and dull the background noise.

The spy beam will also accentuate two distinct sounds which are directly interactive with the subject sound, like voices conversing with a subject or a machine operated by the subject. If there are more than

two interactive sounds the gamemaster will choose those which are broadcast.

The spy beam has a manual search mode also, allowing the user to selectively zero in on sounds within the area, and the sounds interacting with them. The spy beam can be set to pick up sounds within any particular frequency range, blocking out other noise — human voice, ground vibration, high-frequency emissions, etc.

The spy beam recorder can save 100 hours of sound for later analysis by computer search: such computer analysis takes about 15 minutes.

Spy beam emissions cannot penetrate General products hulls, GP hull material, or scrith.

STASIS SHIELD Galactic Survival Ltd., Wunderland

WEIGHT: 650 g
VOLUME: inactive 500 cc, small egg with handle; active glistening 2 m x 1 m x 5 cm plus handle
ENERGY USED: 20 energy units to erect field
POWER SUPPLY: battery 200/20/55g/R
ARMOR VALUE: impenetrable
SPEED OF OPERATION: framework unfolds in 10/im; stasis shield in place 6/im later
COST: 100 Stars

Though stasis fields are nearly impenetrable, they cannot be maneuvered or fought from. There is a minimum MAS for objects placed into stasis, a MAS too large to allow articulated stasis armor. Stasis shields, therefore, are quite useful.

When inactive, a stasis shield consists only of a small egg of memory plastic, its handle, and a sliding red button and a sliding blue button.

When the blue button is pushed to first position, the memory plastic is activated, and the shield's spidery framework folds out to a concave ellipse, 2 x 1 m, with the handle and generator remaining in the center. When the blue button is pushed to second position, the stasis field activates in the shape of the framework after the framework has been erected.

When the red button is pushed to first position, the stasis field collapses; if pushed to second position, field and framework both collapse. If only the framework was expanded, then either push of the red button collapses the framework.

Any other button command or combination of commands has no effect. When both framework and field are collapsed, both buttons return to initial position.

The stasis shield can protect all hit locations from a particular direction. Any location being used to direct fire in the direction covered by the shield (and the head of the user of the shield if he or she wishes to see in that direction) will be vulnerable to attack. The gamemaster must decide whether the shield covers a location.

The stasis shield reflects in a random direction all incoming energy attacks which hit protected locations. The cone of fire of a wide beam weapon, such as a sonic stunner, may overlap the shield and hit an unprotected hit location.

The stasis shield will deflect primitive weapons and projectiles, but the impact is transferred through to the arm of the explorer holding the shield. For example, an explorer holding a stasis shield is hit by a cannonball, the stasis shield is blocking the path of the cannonball, but its energy is transferred to the explorer, knocking him down and probably doing some damage to him. The gamemaster must resolve the results of each situation. Projectiles probably do some percentage of their normal damage at least to the explorer's arm holding the shield.

As a failsafe, if the stasis shield is damaged in any way while it is not in stasis form, the stasis field cannot be turned on.

TRI-DEE RECEIVER

WEIGHT: 2.5 kg

VOLUME: 0.25 cubic meter

ENERGY USED: 1/im

POWER SUPPLY: generator

COST: 30 Stars

The tri-dee receiver collects and projects incoming tri-dee signals. On Known Space planets almost every house or apartment has a tri-dee receiver. The holographic projection by a tri-dee receiver is much better than that of a trac, and of course much larger and life-like.

TRI-DEE TRANSMITTER

WEIGHT: 3.2 kg

VOLUME: 0.3 x 0.5 x 25 cm, plus memory-plastic antenna

ENERGY USED: 0.5/im

POWER SUPPLY: generator, battery (3600/1/.9kg/R), or memory-plastic solar collector

RANGE: 2000 km microwave, 120 km general broadcast

This portable device broadcasts from pre-recorded memory bubbles or live events from the tri-dee recorder. The transmitter consists of a small backpack containing circuitry, AV inputs, a memory bubble reader, and memory-plastic microwave and broadcast antennas.

5040 VAN (Volvo Motors, Earth)

MAS: 54 (2700 kg)

DIMENSIONS: 4m x 5m high x 8m long

STANDARD CREW: 1 pilot

PASSENGER CAPACITY: pilot and 6 passengers

CARGO SPACE: 80 cubic meters

SPEED: maximum — lightspeed (hypothetical), cruising — 500 kph at 1 atmosphere, no hyperspace capability

MAXIMUM ACCELERATION: 3 gees

ENERGY USED: 450/im at cruising speed

POWER SUPPLY: fusion 3 generator

APPLICABLE SKILL: Reactionless Drive

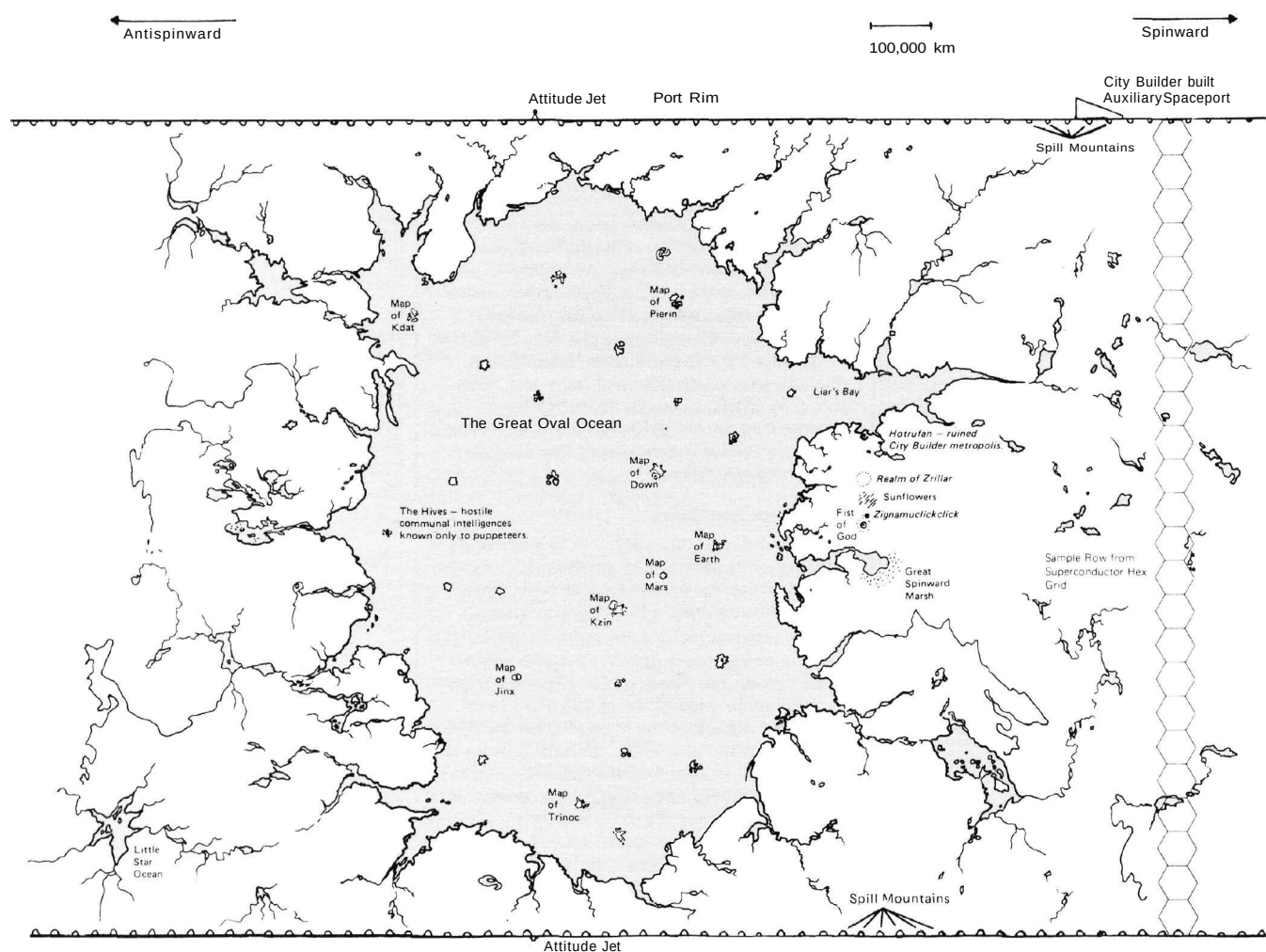
COST: 17,000 Stars for standard model;

22,540 Stars for the 5040-EL, which has grapples, an entertainment center, and leather seats

These all-purpose utility vehicles perform general maintenance work in space, ship-to-ship transport of personnel and materials, and as emergency vehicles. They are lightweight, however, and can resist only about 6 atmospheres of pressure.

GREAT OVAL OCEAN

And Island Maps
Of Worlds



Some features have been exaggerated in scale to allow illustration.
This map is non-topographic; many features may be missing.

Starboard Rim

Note: The map in *Ringworld Engineers* is inaccurate. Also, casual distance and directional references from *Ringworld Engineers* should be discounted.

UNSS Calatorie de Soare

The Calatorie de Soare (ker-ler-to-REE-ye de swar-re, or Sun-Chaser) originally was a military cargo ship; it supported sweeps against Kzin minor-house raiders three centuries ago. Blessed with the nearly-immortal General

Products hull, the vessel was refitted several times, the last time being in 2845 as a UN research and deep-space exploration vessel. The work was done by the venerable Timisoara Upholstery Co.

Selected Internal Assets

Stasis Shields

Alone of the four ROMANIA-class survey ships, the *Calatorie de Soare* contains an experimental stasis shield net. Stasis shields were derived from stasis blimp technology, and at first were simple hand-held, collaps-

ible, impenetrable body shields. Under a UN Sciences contract, the labs of Timisoara Upholstery developed a system of selective stasis shields useful for protection of starships.

The stasis shield mechanism generates an interlocking grid of stasis-field 'shields' just beneath the skin of the GP-3 hull. Full use of the system completely costs the *Calatorie de Soare* with shields, except for the hyperdrive engine along the spine of the ship, the fore and aft thrusters mounted across the ship's belly, and a scattering of armored conduits and equipment mounts. Full use of the system is energy-expensive, costing nearly 200,000/im.

But the shield grid also can be applied selectively. For instance, transparent portions of the hull can be protected by such stasis shield grids. This mode costs much less energy.

Even full use of the stasis shield grid cannot protect exterior-mounted equipment: the probe launcher, various sensor and communications arrays, and the two vans.

Legs

Confronted by hostile warships, a survey ship is under orders to flee. Though it lacks weapons and depth of defense, the ROMANIA class carries very powerful engines; its excellent acceleration allows it to outrun most possible foes. To use the maximum 35-gee acceleration for more than a few impulses requires that passengers and crew put themselves in stasis cells. Hypothetically, the *Calatorie de Soare* could start from the center of Sol and reach hyperdrive distances in less than three UNS days.

Intraship Transport

This starship was designed with few corridors. Because of its length, almost all interior movement is axial, by pneumagnetic tube. Transport booths connect a few key locations.

The pneumagnetic tube supports spherical pods in a magnetic cushion. Focused magnetic fields propel these pods at 20m/im. Adhering to the Benign Environment Control law of 2777, and accepting the Human Rights Office codicils of 2801 and 2804, the tube system is programmed to take exactly the same amount of time to travel to any destination from any location, no matter the distance. On the *Calatorie de Soare* this travel interval is 15 impulses. This standard lapse time allows free impulses in which to reroute obstructing pods.

Access to several locations is restricted. Survey scientists may never visit or even know the location of the main or auxiliary bridges. And certain crew members and scientists may never meet one another, though this is rare.

Each of the pods is a 4m-diameter sphere. A conventional pod has one 1.5m-wide door. It is equipped with its own gravity generator, limited-duration life system, and magnetic field focusing machinery. During travel the pod will align its attitude and adjust the strength of its gravity to be consistent with the orientation and strength of the gravity of the destination: passengers always arrive right side up. The *Calatorie de Soare's* pneumagnetic system uses six conventional pods. The system has one medipod on standby which includes a lift-belt stretcher, minidoc, various medicines and drugs, plastiskin, etc. It also has one alien environments pod which, with an hour's preparation, can be furnished with any combination of atmospheres and gravities up to 20 gees.

Transport booths are located in the main and auxiliary bridges, the sick bay, the amphitheater, the captain's cabin, the main airlock, and the mess. The transport booth is the fastest way to travel, but these booths are intended for use by crew only during emergencies;

Ship's Computer: Model UN: 1590 Sirius Thinkers (Jinx)

SUBSYSTEMS: 30 (15 fixed/15 optional)

FUNCTIONS PER SUBSYSTEM: 20

SPEED:10

FIXED SUBSYSTEMS (optional functions available): autodoc (3), administration (6), autopilot (5), communications (2), emergency (11), engineering (8), life system (1), probe control (11), security (0), ship's log (2), sensor (5), ship's defense (11), stasis shield operator (13), tri-dee imager (4).

OPTIONAL SYSTEMS (optional functions available): auto chef (0), 10x library (5), recreation (5), simweb (6), translations (7), weapons (6).

This model was custom-designed and -built for the refitted ROMANIA-class ships. It is not commercially available, but Sirius Thinkers designs and builds computers to any specifications for a reasonable cost.

The fixed and optional subsystem sections refer to 'optional functions available' — the number of freely-assignable functions for each subsystem. Most of the free subsystem functions never need to be assigned. The other functions have default assignments. Any ship's officer can reassign default functions. The UN: 1590 computer has capacity for 10 library subsystems.

the custom aboard the *Calatorie de Soare* is that only the Captain uses transport booths at other times. Access to the main and auxiliary bridges and to the captain's cabin is code-restricted.

Ship Layout

The *Calatorie de Soare* employs standard human orientation: the flattened part of the cylindrical hull is the 'bottom' of the ship. The hyperdrive engines, main generators, life system tanks, emergency batteries, and other machinery runs almost the length of the spine of this spaceship, surrounded by the deuterium fuel-water supply tanks. Below this assembly is the living quarters deck, three huge cargo bays, the bridge, sickbay, the gym and simweb deck, the amphitheater, the stasis deck, and the garden. Toward the aft of the ship are the science tiers, auxiliary bridge, and the observation deck.

UNSS CALATORIE DE SOARE

(General Products; Timisoare

Upholstery, Earth)

TYPE: ROMANIA-class attack transport (modified)

HULL: GP-3; hullmetal hatches

DIMENSIONS: 150m cylinder with hemispherical ends; 35m diameter with flattened belly

PROPULSION: reactionless thrusters; quantum I hyperdrive

SPEED: lightspeed (hypothetical); 150,000 kph nominal cruising speed

MAXIMUM ACCELERATION: 35 gees; ship-interior gravity nets counteract accelerations of up to 30 gees (with considerable strain)

ENERGY USED: 600,000/im full acceleration; total ship consumption about 720,000/im

POWER SUPPLY: one 2M-4 generator; three fusion 6 generators; many off-net dedicated fusion 2 and 3 generators

CREW: navy crew of 10 (three senior officers); nominal civilian science cadre of 20 (two senior scientists)

APPLICABLE SKILL: Reactionless Drive, Hyperspace Drive

TOTAL COST: 1.74 million Stars

ARMAMENT: none

ARMOR: General Products hull; supplementary experimental stasis shield net for hatches and locks; hatches are 30-point hullmetal.

HIT LOCATIONS: if stasis shields are up, vessel is invulnerable to Known Space ship-transportable weapons. If stasis shields are down and the attack is with a visible-light laser or nuclear device, a D20 roll result of 01 strikes a random transparent section of the hull. If the stasis shields are down and the attack is with nuclear devices or with any weapon other than a visible light laser, a D20 roll result of 20 strikes a random hullmetal hatch. It is possible for nuclear attacks to differentially damage different portions of the ship.

Possible Transparent Section: Personal State-rooms (1-20), VU Room, Science Decks (1-6), Mess, Garden, Gym, Amphitheater, Observation Deck, Cargo Station.

Hullmetal Hatches Possibly Unguarded By Stasis Fields: Van Dock 1, Van Dock 2, Main Airlock Hatch, Auxiliary Airlock Hatch, Sensors, Communications Array.

The average ceiling height on all decks is 3m (about 10 feet). Between each deck runs a 1m-high crawlway containing hundreds of conduits, ship plumbing and wiring, auxiliary generators, and other machinery.

Ship-normal gravity is 1 gee; 'down' is toward the flattened part of the cylinder. If possible, the captain matches the ship-normal gravity to that of whatever planet the crew will explore, to better prepare them.

The Bridge Deck

ROMANIA-class survey ship designers sandwiched the main bridge between the forward and the central cargo bays, oriented perpendicularly to the long axis of the hyperdrive shunt. Gravity on the Bridge deck varies from ship-normal: 'down' on the main bridge is toward the observation deck.

In addition to the main bridge room, the Bridge deck also contains the captain's and the executive officers' quarters, and the control center for cargo bay operations.

BRIDGE: The main bridge has stations for six crew members, though only two are routinely on-duty here. To the front of the crew stations is a sophisticated tri-dee imager. The large space allows large, detailed projections of planet surfaces, strange spaceships, etc. Other equipment on the main bridge includes a transport booth, minidoc, survival packets of food and water, and auxiliary life system, and a fusion 4 generator.

The auxiliary bridge is found on the Living Quartersdeck.

Living Quarters Deck

The LQ deck lies just below the hyperdrive/fuel tank assembly. Ship-normal gravity is always found here. The deck contains 28 individual rooms, a mess hall, the main airlock, docking facilities for the two vans, a sickbay, the huge variable-use room, the auxiliary bridge, and personal storage lockers.

CREW ROOMS: the average individual state-room is about 16 square meters. Each room comes equipped with environmental controls (including variable gravity), sleeping plate, bath facilities, limited computer access (ship-board communications, recreation, library), and a clothing outlet and disposal chute.

SICKBAY: contains a megadoc which can simultaneously treat four patients; such megadocs have six complete sets of body parts for transplants. Everyone on board assigns his or her organs to the bank in the event of death.

VARIABLE-USE ROOM: a place for large gatherings of the ship's crew, the VU room can be filled with water and used as a pool; it can be used for many types of games by alternating gravity strength, orientation and/or environment. General health regulations prohibit so-called 'revolving gravities' duels.

MESS: a common mess serves the crew and scientists; senior staff have autochefs in their staterooms. The mess seats 20 at one time.

MAIN AIRLOCK: the main airlock is rarely opened; usually scientists and crew take the pneumagnetic tube directly to one of the vans. The main airlock contains an emergency locker with food, water, assorted batteries, three stun pistols and three hand beamers, a minidoc, and a dozen vac suits.

VAN DOCKS: two exist, handling one model-5040 van each. One dock is only accessible through the main airlock. The other can be

reached directly by pneumagnetic tube address.

AUXILIARY BRIDGE: hard against the Observation deck is the auxiliary bridge, nestled defensively in the center of the ship. Auxiliary capacity is identical to that of the main bridge, except that the tri-dee imager is inferior in projection size. Its controls are normally slaved to those of the main bridge. STORAGE LOCKERS: a corner of this deck is devoted to personal storage lockers. The tube provides access only to the cramped locker corridors. Small hoverdollies aid in the transport of materials to and from the lockers. Each member of the crew receives the use of one locker with six cubic meters of storage capacity. In addition, there are ten double-sized lockers which the captain can employ for special storage. Each locker contains a temperature control; individual locker gravities are not variable.

Amphitheater Deck

The amphitheater is located toward the nominal 'front' of the ship, beneath the Living Quarters deck, and uses ship-normal gravity orientation. Built for good acoustics and audience comfort, it is used for general assemblies, video entertainment, theater productions, etc. The amphitheater is accessible by pneumagnetic tube or transport booth.

Exercise and Simweb Deck

Immediately below the amphitheater, this deck provides for the physical conditioning and rationed simweb training of the crew. Gravity conditions are ship-normal. The exercise room contains much physical training paraphernalia, and several kinds of showers. The simweb room contains ten simweb cocoons, a minidoc, and an auxiliary computer.

Stasis Deck

Located below the Exercise and Simweb deck, this level contains six 42-cubic-meter stasis cells; four large stasis cells (avg. 144 cubic meters); and one 42 cubic-meter restricted-access stasis cell. The gravity on this deck is set to 0 gee; it automatically reverts to ship-normal when someone visits the deck.

Each stasis cell has an individual stasis field generator. Each stasis field is outside-time-programable, from 20 minutes to two years. Only the 6-hour setting is stable and will not require additional expenditure of energy to maintain the field.

Garden Deck

This deck grows fresh garden items to supplement autochef fare, but it is mostly a place for quiet relaxation. The garden was designed with many alcoves and sonic dampeners, so that strollers here have as much privacy as possible. Gravity in the garden is set at one gee, but is oriented so that 'down' is toward the hyperdrive shunt.

Science Decks

There are seven science decks — the Observation deck and two tiers of three decks each. The upper tier lies above the Living Quarters deck, just aft of the hyperdrive shunt/fuel tank assembly. The lower tier lies below the Living Quarters deck, just behind the aft cargo bay. The Observation deck lies perpendicular to the science tiers, domed by the aft end of the GP hull.

UPPER TIER: the uppermost deck is commonly used as a lounge. Each of the other

two decks contains two labs. Normally during hyperdrive not much research is done. During explorations, however, the labs bustle with activity.

LOWER TIER: this tier operates much like the upper, but its four labs are brought into use only after the upper tier is working to capacity. The lowest deck, the zoology deck, has hundreds of animal cages, environment chambers, creature handling facilities, etc.

Observation Deck

This deck is used for visual observations. The clarity of the GP hull material is outstanding. It is useful for astronomy, even though the hull material blocks most forms of energy. During hyperspace transfer the hyperspace blind spot it continuously monitored.

Mounted externally, and also operated from this deck, are extensive sensor arrays, and the probe launch rack.

Cargo Bays

There are three huge cargo bays, nominally termed the forward, central, and aft bays. Each bay is compatible with the cargo bay of the JinxHaul shuttle. Three JinxHauls can simultaneously dock with and load or unload these bays. In addition, for especially lengthy voyages, three full shuttles can dock to the outside and remain attached during hyperflight.

In the *Calatorie de Soare*, the forward bay contains parts, ship stores, and enough metal and hydrocarbon ingots to independently sustain a complement of 30 adults for seven years. The normal tour of duty for a survey ship is an outward voyage of not more than six UNS months, approximately one UNS year spent studying a system, and then a return voyage. (No one has ever field-tested how long this starship class could sustain real-time life, but models indicate a median probability of 3.6 UNS centuries. The stasis fields, of course, allow a theoretical survivability of many millennia.)

Two Explorer Survey Ships are stowed in the central cargo bay. These small ships actually transport survey teams to the surface while the *Calatorie de Soare* remains in orbit, continuing to conduct planet-wide and star system scans. The central bay is also a manufacturing center — various parts-processing machines dot the bay floor. The gravity of the bay is zero gee, except when actively used. The gravity is oriented so that 'down' is toward the hyperdrive shunt.

The aft bay contains six Systems Inc. base-station tins. A 'tin' is a huge, semi-circular container that holds everything needed to erect a planet-side manned station. Once emptied, the container itself is used as the main building. It holds construction foam, two minilabs, two flycycles, two versatraks, communications, food processors, and other equipment.

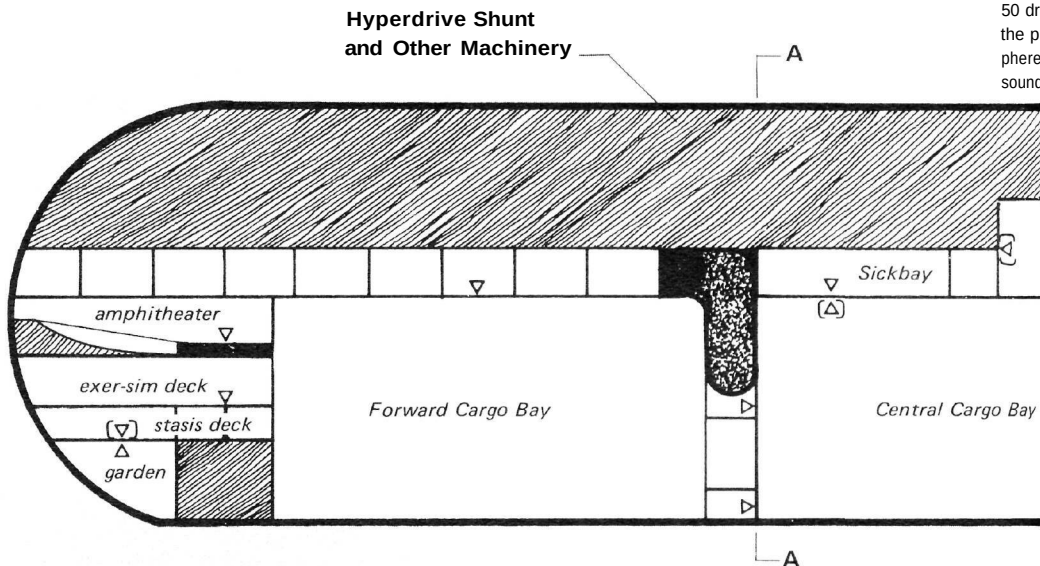
The stasis-protected base-station tin is simply dropped onto the surface of a planet; a manned Explorer Survey Ship with the station crew follows it down. One crewman then uses the base-station tin's feeble gravity polarizer to reposition the tin. When the survey leaves the planet, the base-station may continue to record data for future expeditions or forward it to a hyperspace relay station, or the whole station simply may be abandoned. Base-stations are almost never recovered and reused on another planet.

UNSS

Calatorie de Soare

Use this schematic for reference only.

SIDE VIEW



0 — indicates the locations of the ship transfer booths.

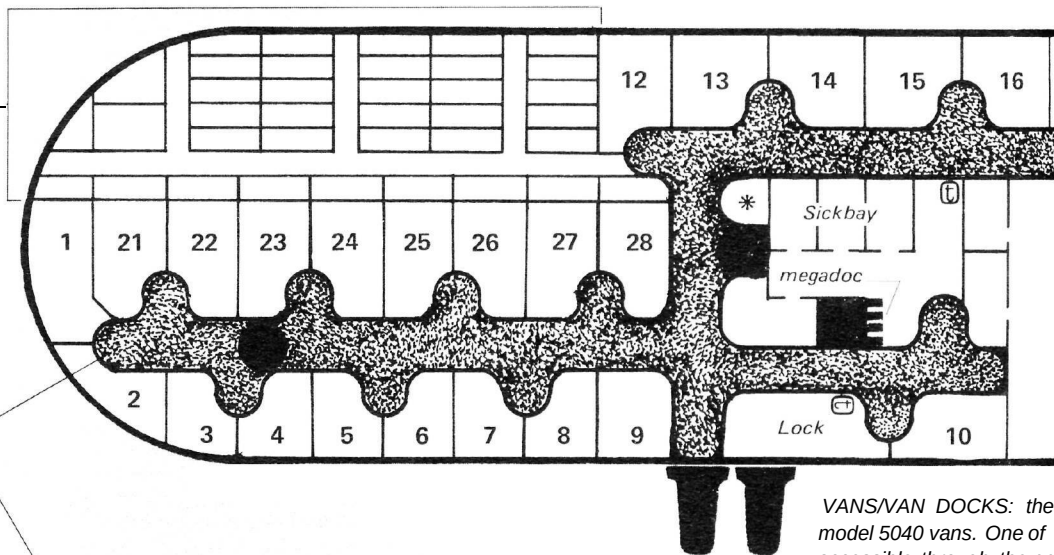
Crew Storage Lockers

TOP VIEW

LIVING QUARTERS DECK

CREW ROOMS: each of the numbered rooms on this diagram is used as living quarters by one of the crew members.

Pneumagnetic Tube



VANS/VAN DOCKS: the model 5040 vans. One of accessible through the pm

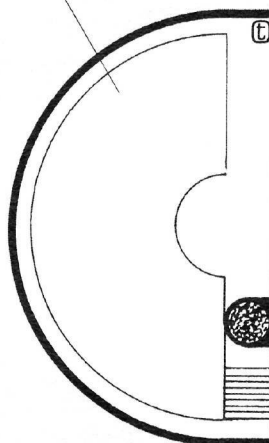
AMPHITHEATER: this deck is used for general assemblies of ship personnel. The dotted portion is formed of an inclined sheet of memory plastic which forms to body contours.

V — indicates the normal orientation of the gravity field in that area.

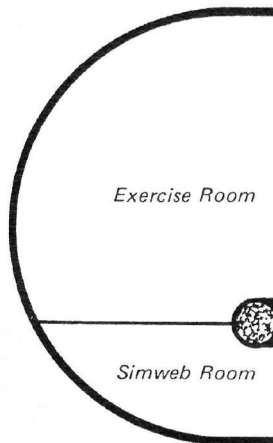
indicates that a gravity field oriented in this direction can be used in this area but is not normally in operation.

this is the location of the ship's main computer. Access is strictly limited to the Captain or the Executive Officer.

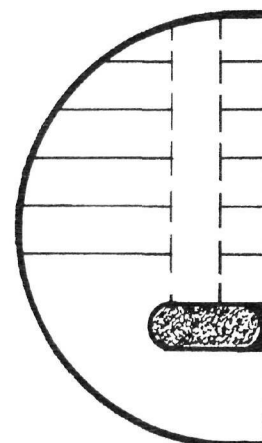
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AMPHITHEATRE

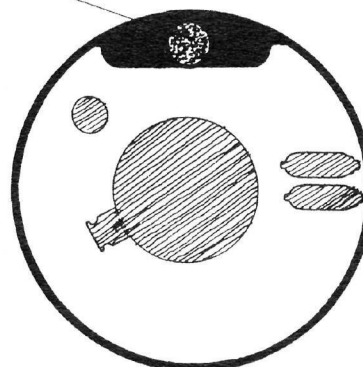
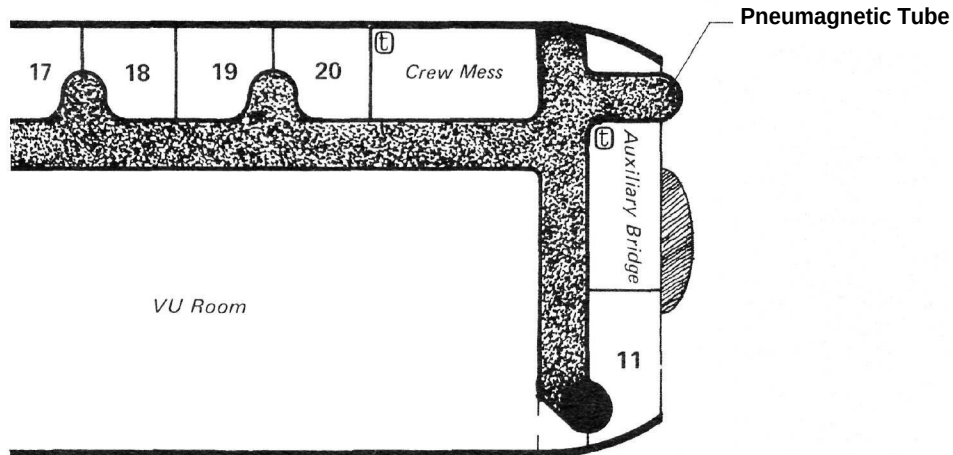
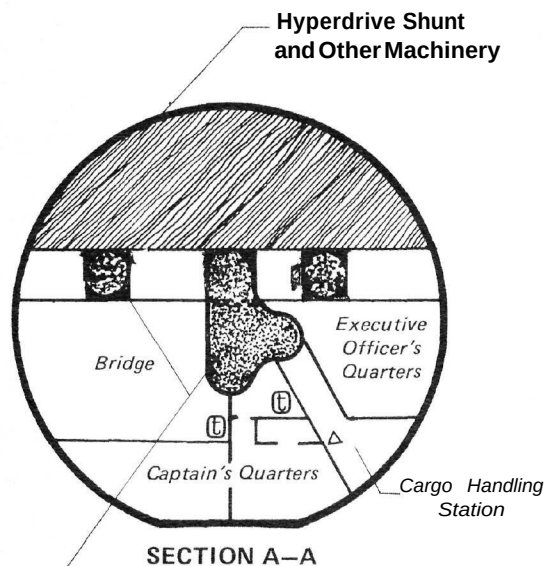
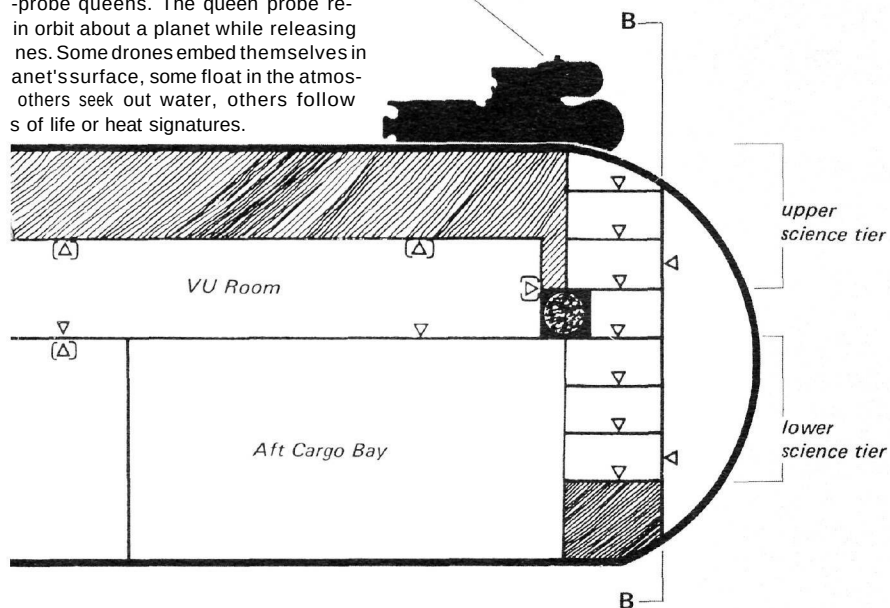


EXERCISE AND SIMWEB DECK



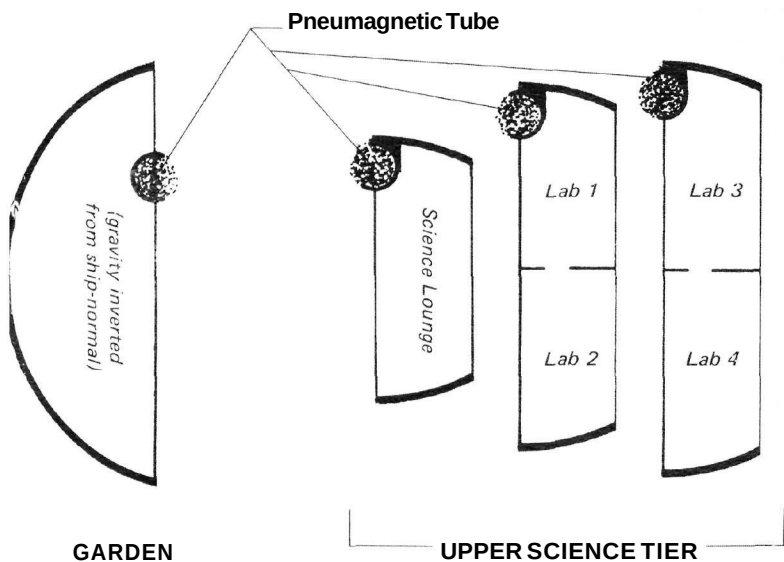
STASIS DECK

E LAUNCH RACK: this assembly is ally-mounted. It carries three system ;, three hyperspace relays, and nine -probe queens. The queen probe re-in orbit about a planet while releasing nes. Some drones embed themselves in anet's surface, some float in the atmos- others seek out water, others follow s of life or heat signatures.



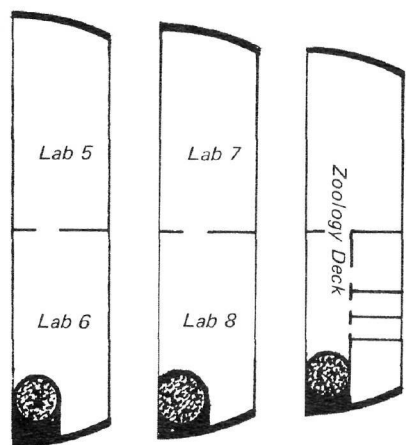
**SECTION B-B
OBSERVATION DECK**

There are two Volvo vans directly connected to the pneumagnetic tube.



GARDEN

UPPER SCIENCE TIER



LOWER SCIENCE TIER

TOP VIEWS

Hyperspace, Singularities, and Hyperspace Travel

In the field dynamics of the generalized hyperspace-time continuum, or *C-field*, there are mathematical singularities. These represent regions in hyperspace which hyperdrive pilots must not attempt to traverse. One such "gravity well" singularity surrounds each sufficiently large, concentrated mass in the Einsteinian (normal space) universe. The dominant singularity of a typical solar system is that produced by the central star. Only outside of hyperspace singularities can ships travel safely at well-defined, faster-than-light rates: quantum I, 3 days to the light-year, and quantum II, 1.25 minutes to the light-year. Quantum I is the first stable excited state of the C-field, and QI ships can be visualized as wave/particle packets moving at constant speed through it. The ground (or rest) state of the hyperspace continuum, quantum zero (Q-zero or Q_0) is the speed of light, "c" — unattainable using either normal drives or hyperdrive. General relativity (G-field) theory is used to describe the Q-zero spacetime continuum; even in the Ringworld era, the complex theoretical mathematics of hyperwave/hyperspace are not adequately understood.

Within the boundary of a local hyperspace singularity, spacecraft are limited to sublight velocities. Ships in hyperdrive that come too far inside the gravity well of any massive object (0.01 Earth masses and up) permanently disappear into hyperspace, and any ship attempting to pass into hyperspace while still too deep in a gravity well will vanish. (Most Known Space hyperdrive-equipped craft have failsafe systems to help prevent disappearance, but these systems occasionally malfunction, or are sometimes defeated by the obstinance of frustrated pilots.) Within a singularity the position-matrices of the C-field take on imaginary values. The physical meaning of this result has been interpreted in various ways (some quite bizarre) over the centuries. A common view holds that when a ship in hyperspace hits a normal gravity-gradient singularity, the hyperdrive jumps into some as-yet-unreachable level of hyperspace, taking the whole ship with it. The atoms of the ship are then strewn along its path until nothing is left but the hyperdrive field itself.

In any case, no ship that has vanished into the "blind spot" has ever returned to Known Space.

Practicalities of Hyperspace

To navigate a safe course in hyperspace, the pilot uses a psionically-operated device called the mass indicator (mass sensor, mass pointer) — a transparent sphere with a number of luminous colored lines radiating from its center. These lines, each representing the hyperspace manifestation of a normal-space gravity well, usually appear blue, green, or red to human pilots. Travelling through hyperspace, the luminous lines sweep slowly outward and across the curvature of the transparent sphere, lengthening and brightening as the ship nears each singularity. (In a quantum I ship, the lines take hours to move perceptibly, but in a quantum II ship the pilot can actually watch the lines slowly change in length.) Experienced pilots derive much information about the nature of individual masses causing the singularities from the subtle nuances of thickness, shape and color of mass-indicator lines. It is easy to distinguish a white dwarf, for example, from a normal star.

Due to the psionic nature of the mass indicator's operation, a living pilot is always required for hyperspace travel.

The size of a particular solar system's hyperspace singularity determines the minimum distance (from any star or planet in the system) for safe hyperspace exit or entry. The mass, radius, and density-gradient of the object creating the main gravity well (usually a star) are the primary factors which fix the distance to the hyperspace boundary zone — the "edge" of the local singularity. The formulas to exactly compute the safe distances are complex, marginally comprehensible only to specialists in advanced theory of hyperwave statistical field dynamics. They include a myriad of minor factors (composition, temperature, spin, charge, magnetic fields, etc.), indeterminacies, and higher order terms. Even a precise formulation of the hyperspace laws yields an inexact result — in the form of a probability distribution. For each gravity well there is a statistical shell in which hyperspace

entry/exit becomes increasingly dangerous. In explored sections of Known Space, safe distances are established empirically rather than theoretically — mainly by extensive measurement of the hyperwave link cutoff radius from each particular inhabited star. Double and multiple star systems have more complicated hyperspace boundary surfaces. Such values are tabulated.

Hyperwave penetrates somewhat farther into a star's gravity-well singularity than is considered safe to travel using hyperdrive. For normal stars the difference is ten to twenty percent. This region of marginal safety is known as the "forbidden zone" of each solar system.

For unknown systems, most pilots rely on the mass indicator and hyperwave probes. However, many "rule-of-thumb" formulas give valid order-of-magnitude estimates, like astronomy's mass-luminosity law, applicable in most situations (above certain minimum densities, etc. for normal stars as well as for dense white dwarf stars and superdense neutron stars).

Known as the Hyperspace Approximations, all hyperspace pilots must learn them and their implications before ever piloting a ship. Pilots of experimental quantum II craft should allow a 30% greater distance than these formulas allow for hyperdrive entry or breakout.

Low-mass, extremely high-density objects can also cause disappearances. A dense-enough object can be less massive and still flip a ship out of the universe. Such objects, though rare, are most dangerous, because they show up on the mass indicator only for an instant. The most likely outcome of an encounter with such an object is the sudden disappearance of the ship's hyperdrive motor.

If a ship in hyperspace hits an extremely-high-gravity gradient (such as that of a mini-blackhole or a superpowerful gravity generator), the motor wraps space around itself and takes off at some higher level of hyperdrive, shearing off superconducting cables, motor mounts, etc., so cleanly that the sheared ends have mirrored surfaces. The motor disappears entirely from the housing, leaving no exit hole. The ship which once contained the motor is precipitated abruptly into normal space, otherwise intact. Since it is impossible to track ships through hyperspace, intercepting a ship or precipitating it out of hyperspace is impossible unless its course is known in advance, can be guessed, or can be computed accurately by independent means. It is a relatively easy task, however, to track ships before they enter hyperspace: the well-known cases of pirates precipitating ships out of hyperspace have usually involved spacecraft departing inhabited systems, rather than approaching. It should be noted that Puppeteer-scale technology and resources would be needed to build a large asteroid- or Mars-scale gravity generator; however, mini-blackholes, though rare, do exist in the Known Space universe and have been used for piracy.

Entering Hyperspace

Entry into hyperspace under normal conditions can occur with any real-space velocity vector, even zero. Usually this vector is chosen to give optimum deceleration with respect to the destination gravity well, consistent with the ship's capabilities, payload, length of voyage, etc.

The field of a quantum I or II hyperdrive shunt motor wraps around the surface of the ship — the effect depends on physical contiguity and does not project out to some uniform radius beyond the ship in vacuum; thus it is not possible, for example, to drag a nearby ship into hyperspace with yours unless there is a substantial physical contact/connection between them, and unless, the total mass, looking upon the ship as payload, does not exceed the permissible payload-mass limit of the hyperdrive motor being used — think of it as like trying to pull a trailer with a Volkswagen. Fuel consumption increases, as does strain on the hyperdrive, and beyond a certain limit the motor cannot pull the mass at all. Each ship has a maximum payload. If a ship tries to haul a too-massive object (for example a 300-foot-diameter section of scritch

pipe), it risks burning out or turning to slag the hyperdrive unit, or disappearing into the blind spot (if the object is sufficiently massive and the ship is sufficiently close), or losing the hyperdrive if the density of the object is too high.

Objects not directly touching the surface of the ship when it goes into hyperspace stand a good chance of being left behind, especially if the velocity vector of the object differs slightly from that of the ship. This includes explorers in spacesuits floating outside the ship, or even explorers in an open airlock who are not directly touching the sides of the ship — long thin tow-lines are typically sheared off.

The Tnuctip Hyperdrive

This hyperdrive (used by the ancient Slavers) requires a normal-space velocity of 0.93 lightspeed to permit entry into hyperspace. It is distinct from the Outsider hyperdrive, and in fact its operating principle is not known to Ringworld-era Known Space civilizations. Its jumps through hyperspace are governed by the hyperwave uncertainty principle, and do not obey the fixed 3-days-to-the-light-year quantum I rate. Slaver ships equipped with the tnuclupun drive could only estimate their journeys' durations, jump-to-jump. "Luck more than skill, decided when a hyperspace ship would make port." The psychological effect of compressed exposure to the blind spot during a jump is equally severe, perhaps more so, when using the Tnuctip hyperdrive as compared to the Outsider drive.

If a ship is resting on the surface of a planet or other massive object, and if — despite all common sense and fail-safe systems — someone decides to switch on a hyperdrive shunt, there may be an explosion as the ship and/or motor vanish. Because of the physical contiguity, a modest radius surrounding the ship may be

wrenched into hyperspace along with the ship (the radius depending on the maximum capability of the quantum shunt); and in any case the normal matter at the outer zone reached by the field may be vaporized — heated to plasma temperatures by the shock effect. Nearby objects protected in stasis might be safe unless they are wrenched along into the blind spot by the departing ship — under normal conditions objects in stasis fields can be taken into hyperspace as if they were normal cargo.

Exit from Hyperspace

A ship's entry velocity vector is preserved upon exit from hyperspace, relative to the star of departure.

During hyperspace flight small masses are of essentially no concern. However there is a possibility (nearly negligible) that, for an instant as a ship drops out of hyperspace, it may be too close to a small mass, even another ship. The emerging ship, or even both objects if the other is not much larger and moving with a similar velocity may then vanish. Although this may have happened once in Known Space history, the odds against such an occurrence are enormous. Since no vanished ship ever has returned, the question of just what happens to such vessels must remain open.

Encounters in Hyperspace

Encounters in hyperspace do not occur in Ringworld-era Known Space since it is impossible to see or detect another ship during hyperspace flight if both are in hyperspace; in the event of a collision or near miss, both ships would be destroyed, be lost in the blind spot, or be precipitated into normal space without their hyperdrives. So far such an improbable event has not happened.

The wild tales of hyperspatial beasts and monsters which circulate throughout Known Space are necessarily suspect. Any ship destroyed by such a beast could leave no survivors to tell such tales.

The Hyperspace Approximations

H_R is the approximate radius of safe entry into hyperspace.

M is the Mass of the object creating the gravity well.

R is the effective Radius of the object creating the gravity well. (R in km gives result in km; R in units of sun's radius gives result in solar radii.)

Mass of Sun = 1.99×10^{30} kg

Radius of Sun = 6.96×10^5 km

7. For normal stars to 1.2 solar masses:

$$H_R = 10^4 R$$

NOTE: The factor 10^4 is roughly the same as the ratio of the size of an atom to the size of an nucleus.

2. For white dwarf stars:

$$H_R = 10^4 MR$$

Typical mass range for white dwarf stars:
 $0.2\text{--}1.4 M_{\text{Sun}}$

Typical radius range: 5,000-20,000 km

NOTE: For white dwarfs, the radius decreases with increasing mass.

3. For Neutron Stars:

$$H_R = 10^4 M^2 R$$

The neutron star mass limit is about two solar masses, but the radii are only about 10 km! Like white dwarf stars, the radius decreases with increasing mass.

NOTE: For black holes, the Schwarzschild radius (the event horizon) may be substituted for R , although no sane hyperdrive pilot

would approach a black hole within hundreds (or thousands) of times the H_R !

4. For normal stars more massive than $1.2 M_{\text{Sun}}$:

$$H_R = 10^4 R \sqrt{M}$$

NOTE 1: for normal supergiants above 5-10 M_{Sun} the relation becomes:

$$H_R = 10^4 \frac{R}{M}$$

NOTE 2: Red giant stars are not "normal" and obey a more complex relation.

Examples

CASE 1: Normal Stars up to 1.2 solar masses

THE SUN

$$\begin{aligned} H_R &= 10^4 R \\ &= 10^4 (6.96 \times 10^5) \text{ km} \\ &= 6.96 \times 10^9 \text{ km} \end{aligned}$$

The Approximation gives a comfortable safety margin for Sol, whose actual boundary zone is about 512 light-hours (6×10^9 km) in radius. Sol's hyperwave relay stations are just over 5 light-hours from Earth, in the so-called "forbidden zone."

A RED DWARF

Mass = $0.1 M_{\text{Sun}}$; Radius = $0.25 R_{\text{Sun}}$

$$\begin{aligned} H_R &= 10^4 R \\ &= 10^4 (0.25)(6.96 \times 10^5) \text{ km} \\ &= 1.74 \times 10^9 \text{ km} \end{aligned}$$

This is a little more than the average distance from Sol to Saturn.

CASE 2: White Dwarf Stars

If Sirius B were an isolated star, what would be its H_R ?

Mass = $0.09 M_{\text{Sun}}$

Radius = $0.022 R_{\text{Sun}} = 15,300$ km

$$\begin{aligned} H_R &= 10^4 MR \\ &= 10^4 (0.09 \times 15.3 \times 10^4) \text{ km} \\ &= 1.5 \times 10^8 \text{ km} \end{aligned}$$

Puppeters and other cautious hyperdrive pilots will generally breakout no closer to a white dwarf than twice the computed H_R value.

CASE 3: Neutron Stars

BVS-1 has a mass of $1.3 M_{\text{Sun}}$ and an effective radius of 10 km. Compute its H_R .

$$\begin{aligned} H_R &= 10^4 M^2 R \\ &= 10^4 (1.3)^2 (10) \\ &= 1.7 \times 10^5 \text{ km} \end{aligned}$$

Although the theoretical maximum limiting H_R for neutron stars is less than the distance from the Earth to the Moon, hyperdrive pilots are rarely willing to approach closer than 1,600,000 km (a million UNS miles), due to C -field fluctuations and other hazards usually associated with these objects!

CASE 4: Normal Stars more massive than 1.2 M_{sun}

SIRIUS

Mass = 2.35 M_{sun}
Radius = 1.8 R_{sun} = 1.25 x 10⁶ km

$$H_R = 10^4 R$$
$$= 10^4 \frac{\sqrt{M}}{\sqrt{2.35}}$$
$$= 10^4 (1.25 \times 10^6)$$
$$1.53$$
$$= 10^4 (8.17 \times 10^5)$$
$$= 8.17 \times 10^9 \text{ km}$$

It is often possible to 'breakout' of hyperspace even closer to Sirius because of C-field constriction caused by the white dwarf Sirius B.

VEGA

Spectral type AO; 58 times more luminous than Sol.
Mass = 3 M_{sun}; Diameter = 2.7 UNS miles

First, convert the units:

$$2.7 \times 10^6 \times (1.609 \text{ km/mile})$$
$$= 4.3443 \times 10^6 \text{ km}$$

To get the Radius, divide by 2:

$$2.17215 \times 10^6 \text{ km}$$

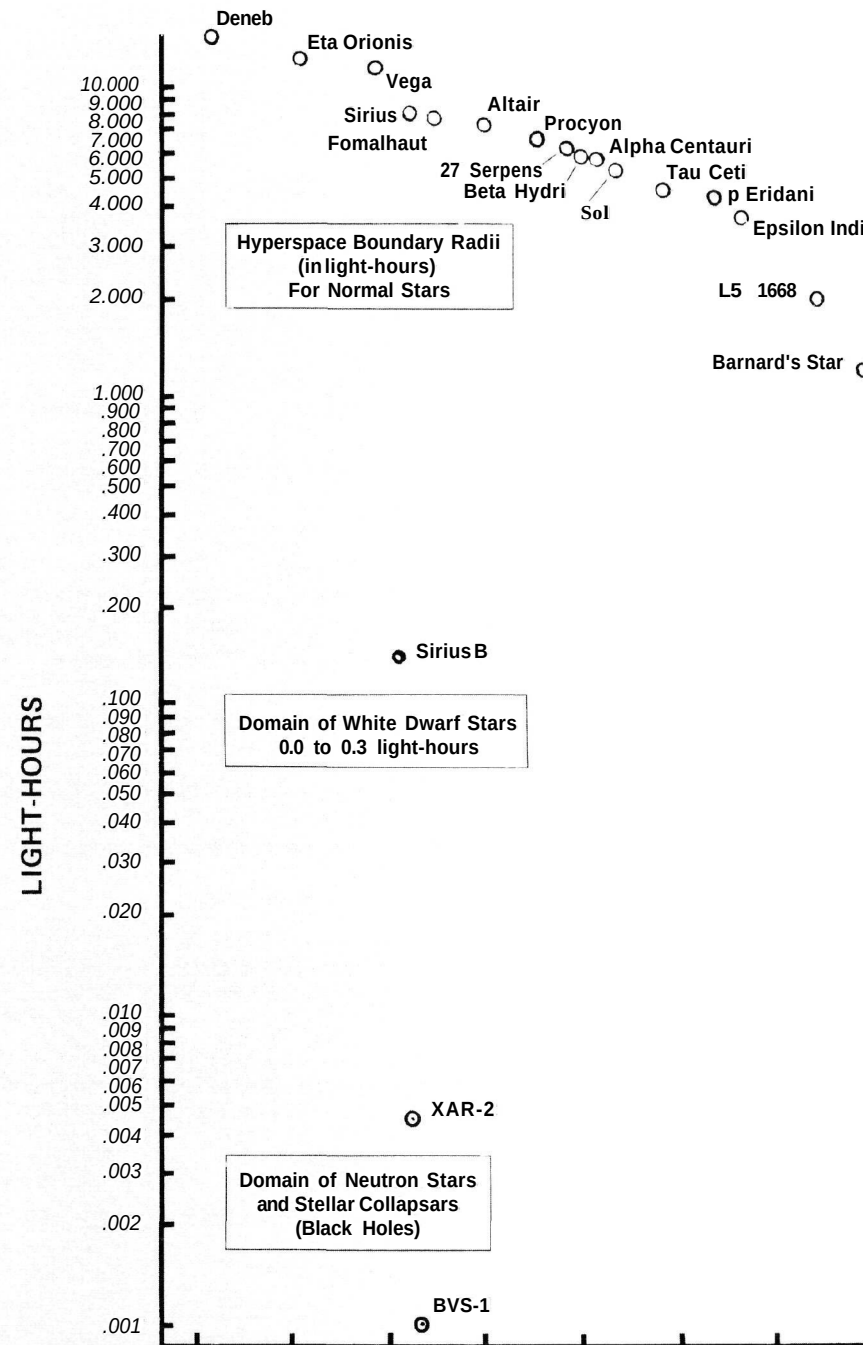
Then,

$$H_R = 10^4 R$$
$$= 10^4 \frac{\sqrt{M}}{\sqrt{3}}$$
$$= 10^4 (2.17215 \times 10^6) \text{ km}$$
$$1.73$$
$$= 10^4 (1.26 \times 10^6) \text{ km}$$
$$= 1.26 \times 10^{10} \text{ km}$$

Using the distance-time comparison table, we note that this is about 11 light hours.



HYPERSPACE BOUNDARIES FOR SELECTED KNOWN SPACE STARS

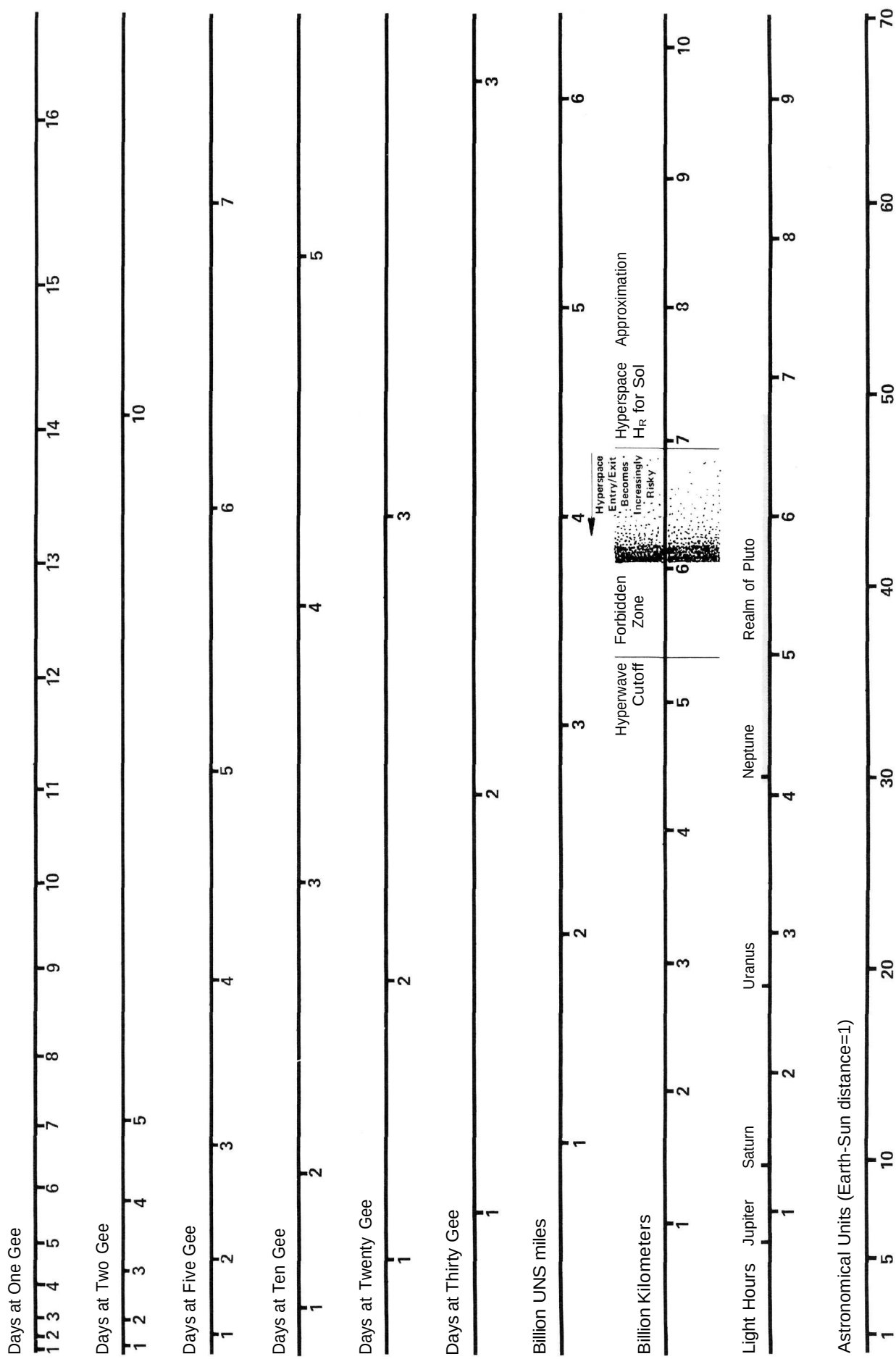


Spectral type	O	B	A	F	G	K	M
Apparent Color	violet-white	bluish-white	white	yellow-white	yellow	orange	red
Surface Temp. (degrees Absolute)	50-30,000	21,000	11,000	7,500	5,800	4,800	3,400
Luminosity (Sol=1)	10 ⁵	1,000	25	8	1	0.4	below 0.2
Typical Mass (Sol=1)	50-20	10-5	3	2	1	0.6	below 0.1
Typical Radius (Sol=1)	20	6	3	2	1	0.8	below 0.5

Average stellar parameters for normal main-sequence stars only.

DISTANCE-TIME COMPARISON TABLE

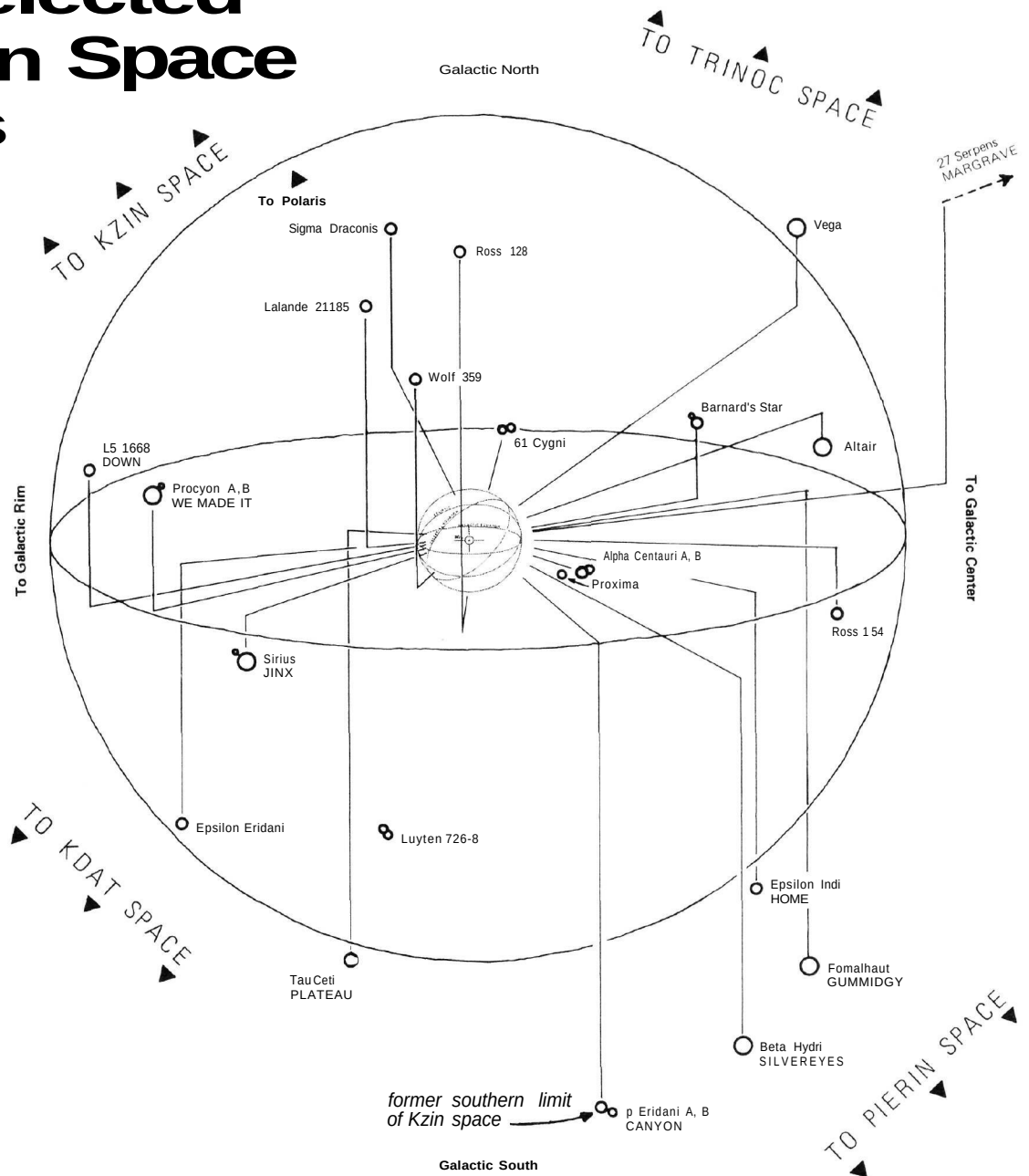
Computations made from the center of Sol.



Relative Positions Of Selected Human Space Stars

Selected Light-Year Distances From Sol

Alpha Centauri	4.3
Altair	16.0
Barnard's Star	6.0
Beta Hydri	21.3
Epsilon Eridani	10.7
Epsilon Indi	11.4
Fomalhaut	23.0
L5 1668	12.3
Lalande 21185	8.2
Luyten 726-8	9.0
Procyon	11.3
p Eridani A	22.0
Proxima	4.2
Ross 128	10.8
Ross 154	9.4
27 Serpens	34.7
Sigma Draconis	18.2
Sirius	8.7
Tau Ceti	11.8
Vega	27.0
Wolf 359	8.1



IMPORTANT NOTES: Many nearby stars (mostly low-luminosity stars) have been omitted and some vectors are foreshortened or slightly shifted for clarity of illustration. Some stars that appear close together on this diagram (e.g. Beta Hydri and Fomalhaut) are not close together in space.

Luyten 726-8 (also known as UV Ceti A-B) lies almost directly between Sol and Tau Ceti at a distance of 9 light years from Sol.

Alpha Centauri lies in the galactic plane. 61 Cygni lies just 2° above it.

SELECTED HUMAN SYSTEMS AND GOVERNMENTS

Name	Primary Star	Gravity (Earth Normal=1)	Length of Day (UNS hours)	Population in System (millions)	Number of Moons
Belt	Sol	negligible	varies	1,200.0	many
Canyon	p Eridani A	0.45	27.1	8.5	0
Down	L5 1668	1.15	28.7	620.0	1
Earth	Sol	1.00	23.93	18,500.0	1
Gummidgy	Fomalhaut	0.95	18.25	19.0	1
Home	Epsilon Indi	1.08	23.17	825.0	1
Jinx	Sirius A	1.78	96.00	2,100.0	0
Margrave	27 Serpens	0.87	21.0	0.45	0
Plateau	Tau Ceti	0.81	29.7	105.0	0
Silvereyes	Beta Hydri	1.04	32.2	172.0	2
We Made It	Procyon A	0.59	20.4	950.0	1
Wunderland	Alpha Centauri A	0.61	26.7	3,250.0	1

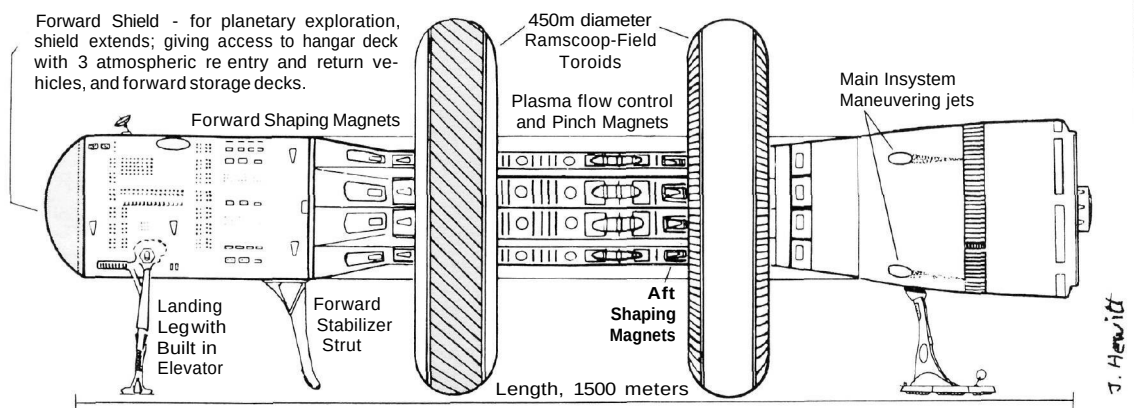
City Builder Ramship

Forward Section —
Life-support, complete passenger/crew accommodations.

Central Section —
Ramscoop/accumulator systems.

Aft Section —
Main fusion Reaction motor and exhaust cavity.

Forward Shield - for planetary exploration, shield extends; giving access to hangar deck with 3 atmospheric re entry and return vehicles, and forward storage decks.



Ringworld Vehicles

BALLOON TRAM (Spill Mountain People)

MAS: 20 (152kg)

DIMENSIONS: balloon is a 10m-diameter elongated sphere

POWER SUPPLY: stores enough alcohol for three journeys up and down the mountain

SPEED: 15 kph average

ARMOR: none

APPLICABLE SKILL: Atmospheric Craft

GENERAL HIT POINT: 10 (balloon), 40 (car)

HIT LOCATIONS:

roll 1D20

results

01-17

Balloon

18-20

Car (each passenger receives a luck roll to see if he or she is hit)

The Spill Mountain Folk use tethered balloon trams to haul cargo up and down the sheer surfaces of Spill Mountains. Two cables are used for each route, one for descents and the other for ascents. Cars suspended beneath the hot-air balloons are made from fiber and hardwood strips, a trade staple for lower-altitude species. For the downward trip the lift of the balloon is set to be slightly less than the weight of the cargo and vehicle, allowing the car to lightly descend. Lever emergency brakes can keep speeds under control, but mostly the operator varies the rate of burn to vary the lift, thereby going faster or slower in either direction. Lift for the balloons is provided by hot air generated by an alcohol jet-burner in a rigid frame over each car.

Skilled Spill Mountain Folk drivers keep the cars to a rigid speed limit — no living hominid remembers a runaway car — mostly to minimize wear on the hardwood pylons which bear the weight of the cables.

At the bottom of the line are interchanges for reversing the car or transferring the car to another route. Spill Mountain Folk man the upper stations; local lowland hominids run the lower stations. Occasionally a lowland hominid with breathing equipment makes the long journey up to a Spill Mountain city.

The Spill Mountain Folk take pride in their balloons; each is differently and beautifully decorated. The trams are often run in caravans or processions; the vision of seemingly-unending strings of huge multicolored balloons drifting slowly up and down the sheer Spill Mountain, disappearing into and reappearing from the mists above, is never forgotten.

DIRIGIBLE (Wind Walkers)

MAS: 42 (1038kg)

DIMENSIONS: 10m x 30m smoothly-tapered lozenge with 5m x 12m cabin suspended beneath

ENERGY USED: 3/im

POWER SUPPLY: solar collectors; storage batteries can propel the craft for maximum of eight hours

SPEED: 70 kph maximum; 50 kph cruising

MAXIMUM ACCELERATION: 2 kph/im

ARMOR: varies; usually none

APPLICABLE SKILL: Atmospheric Craft

GENERAL HIT POINTS: 100 (body) 20 (rudders), 80 (average cabin)

HIT LOCATIONS:

roll 1D20

result

01-12

Body: small individual cells containing helium are punctured; when 50 hit points have been lost, the craft can no longer stay in the air.

13-15

Rudders: craft cannot be maneuvered; this is mainly important in landing, for the propeller also can be used to situate the dirigible.

16-20

Cabin: make Luck rolls to see if passengers or crew are hit.

City Builders sold such dirigibles to many subject species. The Wind Walkers exchanged personal service for them; Machine People enclaves bought dirigibles with exotic goods and foodstuffs. In marketing massive airships, the City Builders found a use for helium, an otherwise useless by-product from their fusion generators; these sales also made dependent buyer-species wishing to keep their dirigibles flying. The isolated City Builders still continuing such policy might see explorers arriving in stasis blimps (which require no helium) as a threat to a carefully-established status-quo.

These huge football-shaped airships are common in some regions. When the superconductor plague destroyed more advanced vehicles, City Builders remnants also began using these energy-efficient craft. Thin, feather-light solar collectors coat the upper surface of the airship body, yielding enough power to propel it slowly and to operate auxiliary systems — searchlights, cabin lights, kitchen equipment, and so on. Battery banks near the rear of the craft store enough power to operate the dirigible throughout the Ringworld night. For every two hours of full sunlight, the batteries recharge enough to provide one hour of propulsion.

Beneath the dirigible body hangs the cabin, often finely decorated and well-furnished. The standard cabin is 5m x 12m long; at its rear is an outboard propeller driven by a light electric motor. The front end of the cabin, the forwardmost 3 meters of length, is the pilot's cabin in which all the controls required to fly the ship are located — only one pilot is required. The rest of the cabin is broken up according to the needs of the passengers or the cargo. Since the cabin is usually manufactured by the buyer, the cabin and the body of the craft often provide an interesting cultural contrast; the embellished, painted, wood-and-metal cabin hanging under the streamlined synthetic dirigible body.

Smaller personal solar-powered balloons are common near City Builder enclaves. They resemble the huge dirigibles, but of course generate and use less power. The pilot usually hangs from a harness below the balloon with the engine and propeller attached to a rigid frame hanging down behind him or her. These smaller craft have enough battery power to run the propeller for one hour of flight in darkness.

HYDROFOIL (Boat People)

MAS: 37 (660kg)

DIMENSION: 2m x 4m long; fan at rear rises 2m above the deck of the boat

POWER SUPPLY: 160 liters of alcohol in a tank; range of 1600km

SPEED: 180 kph maximum; 140 kph cruising

MAXIMUM ACCELERATION: 20 kph/im

ARMOR: 2 point hood over engine

APPLICABLE SKILL: Aquatic Vehicle

HIT LOCATION:

roll 1D20	locational hit points	result
01-15	50	Boat Body: hydrofoil must take heavy damage before it will sink, though it can be capsized by a heavy blow.
16	10	Right Foil: destruction of the foil halts the craft.
17	10	Left Foil: destruction of the foil halts the craft.
18	5	Engine: each point of damage to the engine slows the craft by 20%.
19	5	Propeller: each point of damage to the propeller slows the craft by 20%.
20		Crew: no damage to the boat; have crewmembers' players make Luck roll for them: each getting a failed roll takes full damage.

Primitive by Known Space standards, this small hydrofoil is the Boat People's best craft for quick travel across a very large world. While moving, semi-submerged foils support the craft, allowing it to skim across the water at high speeds. When there are noticeable waves, the hydrofoil's speed must be greatly reduced. An internal-combustion engine drives a large vertical airfan at the back of the boat. Frequently the shallow, plant-choked lakes and rivers of Ringworld make (impossible) the use of deep-drafted, submerged-propeller-driven vessels. An aluminum and cured-leather hood protects the engine from the spray, and a screen protects the propeller. Usually nothing protects the driver and passengers, who must resign themselves to being doused.

Typically the hydrofoil has a single operator and 1-3 passengers. In a pinch it carries about 1400kg of passen-

gers and cargo. The Boat People disdain rails and other restraining devices: a player must make a successful DEX x2 roll the first time that his explorer experiences hydrofoil acceleration, or his character is thrown overboard.

HYDROGEN-JET FIGHTER (Ringworld Kzinti; some Machine People)

MAS: 41 (946kg)

DIMENSION: 4m body length; 1 m body width; 4m wing-span

POWER SUPPLY: burns hydrogen; liquid-hydrogen tank is good for six hours of flight

SPEED: 400-700 kph cruising; 1200 kph maximum

MAXIMUM ACCELERATION: 50 kph/im in air; 10 kph/im taking off

CEILING: 20 km

ARMOR: 2 points; 3 points over fuel tank

APPLICABLE SKILL: Atmospheric Craft

GENERAL HIT POINTS: 100

HIT LOCATIONS:

roll 1D20	result
01-06	Tail/Engine: hits to this location cause an explosion 60% of the time which destroys the craft.
07-12	Fuel Tank: hits here cause an explosion 100% of the time destroying the craft.
13-18	Cockpit: pilot must get a successful Luck roll or take the rolled damage.
19-20	Nose: sensors or controls take damage.

These volatile devices were invented by Kzinti living on the map of Kzin in the Great Oval Ocean; Machine People on the coast of the ocean soon adopted the craft for purposes of status and commercial exploitation. The pilot of a Kzinti-jet-fighter must be highly skilled to fly the plane and to protect the quick-to-ignite fuel tank. Combat can be deadly to the pilot whose plane is hit by a single shot. Most of the craft are designed to automatically separate the cockpit and nose from the fuel section if the latter is hit; most of the light armor which the planes carry is in the form of a thick heat shield directly behind the pilot.

The Kzinti and the Machine People relish both the danger involved in flying hydrogen-fighters and the high performance which the planes afford.

The fighters look much like mid-20th-century jet fighters from Earth. The single engine is at the rear of the plane. Directly in front of the jet engine, separated from it by a thick fire-wall is the fuel tank. The tiny pressurized pilot's compartment lies between the wings, separated from the fuel tank by more armor and some machinery. In the narrow, tapering nose of the plane lies the pressurization equipment and occasionally primitive radar gear.

The fuel tanks are coated with a tough, flame-resistant substance which protects the fuel from heat and impact, but if this outer coating is breached the plane will explode, usually killing the pilot.

The Kzinti mount light machine guns in the wings of the fighters which fire 3 exploding bullets per impulse each doing 1 D8 to a random hit location if they hit.

SCRITH REPULSER LIFT PACK (City Builders and friends)

WEIGHT: 1.5kg

DIMENSIONS: 6cm x 10cm x 15cm

ENERGY USED: 15/im

POWER SUPPLY: generator, equivalent to fusion 1

SPEED: 165 kph maximum; 120 kph cruising
 MAXIMUM ACCELERATION: 10 kph/im
 ARMOR 1 point
 HIT POINTS: 20
 APPLICABLE SKILL: Personal Flyer

Faster and more efficient than the terrestrial lift belt, these flyers will be coveted by explorers. The City Builders use repulsor-packs for quick travel between buildings at different altitudes and for quick transit across cities when the walks are jammed. City Builder police always wear repulsor packs or similar devices. In most floating cities it is illegal to fly a repulsor pack (or any other type of personal flyer) without a license.

SKYSLED (Spill Mountain Folk)

MAS: 26 (250kg)
 DIMENSIONS: boxy 4m x 6m
 ENERGY USED:
 POWER SUPPLY: City Builder solar collector tube; battery stores enough power to operate the craft through the night
 SPEED: 60 kph cruising; 90 kph maximum
 MAXIMUM ACCELERATION: 5 kph/im
 ARMOR: 2 points
 APPLICABLE SKILL: Atmospheric Craft
 GENERAL HIT POINTS: 40
 HIT LOCATIONS:

<i>roll</i> 1D20	<i>locational</i> <i>hit points</i>	<i>results</i>
01-10	40	Body: no result until severe damage; then craft may disintegrate under stress.
11-13	8	Right Scritch Repulsor Track: damage causes sled to lose altitude and stability; destruction causes it to fail.
14-16	8	Left Scritch Repulsor Track: damage causes sled to lose altitude and stability; destruction causes it to fail.
17-18	4	Collector Tube: loss of the tube cuts the craft's flight time to 9 UNS hours, and only an outside power source can recharge it for similar additional periods.
19-20		Crew: make Luck rolls to see if riders each take damage.

Before the Fall of Cities, skysleds were the most common transport used by the Spill Mountain Folk. Few of these powerful MAGLEV devices still operate in the Ringworld era, for the Spill Mountain Folk relied on the City Builders to supply and repair the sleds and the compact, powerful solar generators which power them. Those few sleds which remain in operation have not needed parts or major repairs in a millennia — a sparkling operating record perhaps due to the thin air in which the devices are used.

Skysleds are plain-looking vehicles — like topless metal boxes (often the front panel of the box is glass) with tracks of scrith repulsors along the bottom, and a single propulsion unit at the rear. Around the lower edge of the sled runs an ultra-efficient City Builder solar collector tube, which can provide enough power to run the scrith repulsors and the thruster while generating enough excess to keep the sled moving for an entire night. The controls for the craft are located on the floor; the pilot must sit on the floor to operate the vehicle — Spill Mountain Folk don't use chairs.

A skysled owner is a person of high rank among the Spill Mountain Folk. Usually the remaining sleds belong only to the tribal chieftains, and seldom does more than one sled remain at any given mountain.

Skysleds are still stored on some spaceport ledges, kept in perfect condition by the vacuum of space. The explorer who brings one or more of these back over the rim-wall will be apt to gain friends among the Spill Mountain Folk.

STEAM YACHT (Boat People)

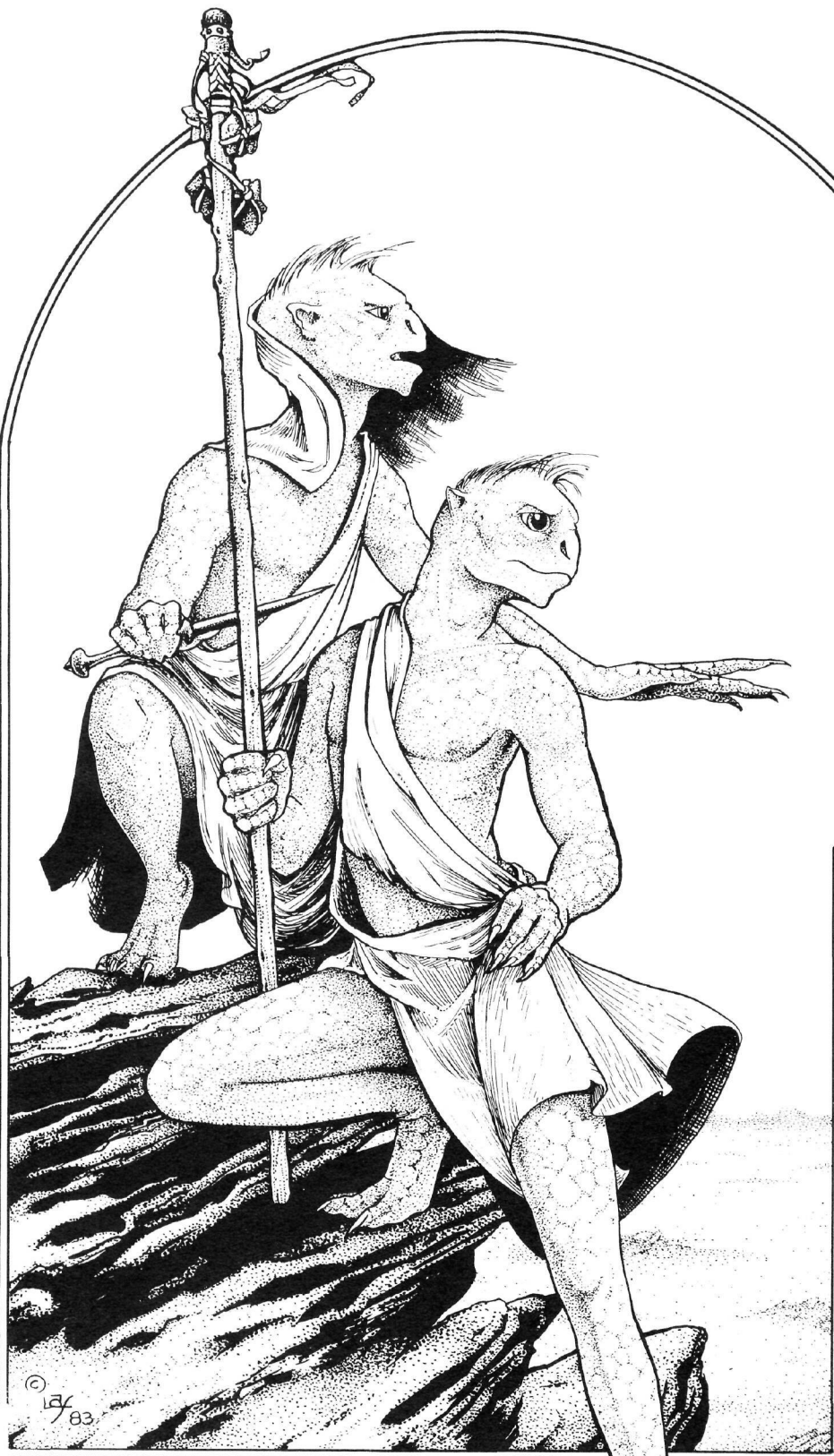
MAS 63 (6288kg)
 DIMENSION: 12m by 30m
 POWER SUPPLY: Wood-burning steam engine; wood storage varies depending on distance to be traveled and nearness of next convenient wood supply
 SPEED: cruising 30 kph; maximum 50 kph
 MAXIMUM ACCELERATION: .5 kph/im
 ARMOR: 4 points below deck; 2 points above deck
 APPLICABLE SKILL: Aquatic Vehicle
 GENERAL HIT POINTS: 400
 HIT LOCATIONS:

<i>roll</i> 1D20	<i>locational</i> <i>hit points</i>	<i>results</i>
01-04	240	Forward Below Decks: make Luck roll to see if any crew is hit.
05-08	240	Engine Room: possible loss of speed and/or maneuvering; make Luck roll to see if any crew is hit.
09-10	120	Engine: possible loss of headway; serious damage prompts 50% chance of fire.
11-13	160	Chieftain's Cabin: make luck rolls to see if any crew is hit.
14-15	80	Stack: serious damage prompts 50% chance of fire.
16-17	80	Pilot's Cabin: possible loss of steering; make Luck rolls to see if any crew is hurt.
18	40	Rudder: serious damage causes loss of steering.
19-20	120	Deck: make Luck rolls for any crewmen or passengers; damage may include loss or supplies or cargo.

Boat Person chieftains often live aboard opulent steam-powered yachts of many length and designs. On this one, the chieftain and his family live in a large cabin at the rear of the main deck. Directly in front of the single smoke-stack is a small cabin in which lives and works the pilot. The forward area below the main deck is a low-ceilinged common area used for storage and shared by the yacht's crew (usually three to four) and the servants of the chieftain. The rear below-deck area is the engine room — always scalding hot and stacked high with wood.

The ship is propelled by dual paddle-wheels powered by a massive wood-burning steam engine. Though slow to start, these yachts have formidable power and, given time, can work up quite a bit of steam.

Among the Boat People a chieftain's status is measured by the opulence of his yacht — the fineness of the wood hull, the firmness of the construction, the size and power, etc. Chieftains fill their yachts with exotic trade goods and treasures gained on travels taken by their tribesmen. Greedy explorers might wish to plunder these yachts, while prudent explorers might wish to offer the chieftain a gift, adding slightly to the splendor, and thereby gain his friendship.



*Two male Agamans
survey the landscape
to find an appropriate place
for a call stick.*

*The Agaman in the rear
holds a ceremonial dagger;
planted beside a call-stick,
such a dagger
summons the clan to war.*

SPECIAL SECTION

AGAMANS

Use this section to guide the independent creation of intelligent species. There are three general subsections: (1) a background discussion of the species (physiology, culture, history, environment), one complete enough to answer obvious questions; (2) a selection of technical items (from spaceships to domesticated animals), items showing how the species is able to live as described; (3) an introduction of members of the new species to the explorers. All the subsections should be complete enough that gamemasters can use the information quickly and confidently, fertile enough that new adventurers can spring from the information, and exciting enough that the players enjoy the experience.

These desert nomads may be found astride the same types of desert beasts they have ridden for millennia — or crewing armored fighting vehicles. They take technical artifacts as tribute from a few subject species; the devices they accept uniformly are simple and nearly unbreakable. Such technology does not require much coordination between groups. The accompanying drawing shows one Agaman holding a call-stick (*dis'ah*), a straight piece of wood planted at a trail juncture or other prominent place to request assembly of the clan to a pre-arranged site. The objects at the top are husks of *shapir*, a yellow-white gourd which decays to a nearly-weightless shell; these then are attached to the call-stick to wave in the winds and snare the eye.

As a species, Agamans are aggressive; other species living near Agaman homelands are likely to be vassals — or to be continually chivvied and raided. The desert-dwelling Agamans hate moist climates (where they are prey to many fungus diseases) and refuse to colonize their subject states. They do appreciate the fodder and other loot which wetter climates produce. Periodically, bands of Agamans sally forth from the desert to inspect their subjects, exacting tribute and sniffing out signs of rebellion.

Agamans are found in two great deserts on Ringworld, and in several smaller (planet-sized) macro-regions. Since the superconductor plague and the Fall of Cities, both the wastelands and the Agamans have increased: the increased powers of the Agamans some hold as fulfillment of the legendary compact made with God by Najid the Signer: God incised a stone with a mystic sign — Najid's testament prophesied that this would grant dominion of the Arch and all who live beneath it to the sons of Najid.

To Agamans of the faith, the descendants of Najid are purer and more holy, but a millennia of wars, migrations, conquests, and pilgrimages have blurred those bloodlines beyond understanding. Ritual adoption to the family of Najid is central to *Najidat* — the dominant religion of conquest which controls the largest Agaman empire, and at least two of the smaller ones. This faith evolved since the Fall of Cities. A few non-Agamans have been adopted and raised to Agaman status. This has occurred when political need forced cross-species ceremonial marriages; it is impious for Agamans to marry *azhogdim* ("made-animals-for-sins"), the status of non-Agaman hominids. There are reputedly two great heresies or schisms among the Agamans, but little more is known. The Agaman empires that do not practice *Najidat* worship a variety of generally-warlike deities, but some individuals are strictatheists.

It is unclear whether the Agamans evolved or were bred for their capabilities, but they are able to live in numbers where even small mammals are not much found. With their remarkable excretory/water-retention system, Agamans are perfect desert creatures, ranging and prospering in places worthless or inimical to other species.

Once Agamans domesticated the heaven, an event which occurred in historical times (though before the Fall of Cities), their armies could form and dissolve in demonic waves. The endless deserts from which the Agamans came were impenetrable defenses: those who entered found nothing but death, for this desert folk have no cities or farms to strike at, and own little of value.

The homeland deserts of the Agamans are rocky wind-and water-cut landscapes where topsoil long ago turned to sand. Portions of these wastes are utterly arid, for no true water tables exist on Ringworld; where it never rains, even the Agamans cannot live permanently. But most wastelands get 10-20cm of rain yearly; the lack of an aquifer layer means that the water cannot be stored, and must quickly evaporate beneath the fierce sun. Agamans and other desert-dwellers tend to live in or near hills or mountains where moisture can exist a little longer.

Description and Behavior

The average Agaman is tall and slender; his body is solid with muscle and bone, and has very little fat. He has long, sharp-nailed fingers, a nearly noseless face, an ichthyosed skin with thick horny scales, and a crest of hair atop his skull. He is colored like the desert, in tans and dark brown, sometimes with a startling jet of iridescent red or blue as a prominent birthmark. His bearing is sometimes rigid, sometimes incredibly fluid; there is always something wild and remarkable about the species, whether seen stalking through the night, or squatting to devour a kill.

Agaman babies are carried to term in about one UNS year; to accept the greater weight and size, the pelvis of the Agaman female has rather widened and deepened, making the female slower than the male at a dead run. In return, babies can accept solid food at birth; Agaman mammaries frequently do not develop and rarely lactate. Agamans are particularly long-lived; ages of 200 UNS years are not uncommon.

Agamans wear little or no clothing, though warriors routinely use belts, pouches, packs, hats, and projectile-proof clothing. Most Agaman males become warriors, as do some females; these standing armies are supported by

the tribute exacted from neighbor species and the marginal lands between them. Agamans most honor self-sufficiency, not communion or specialization. Agaman females tend to become child-bearers, negotiators, or traders (mostly importing fodder), but whether the Voice of a clan, a tribe, or a nation proves to be male or female is of no social or political importance.

Agamans at peace or in the deep desert group themselves in blood-related clans within fixed territories. The range of a clan may be a rough square or circle several hundred or more kilometers across; the population density within the range may be one Agaman per 1-100 square kilometers, depending on the forage.

These gatherer-nomads fill their stomachs with insects, cactus, small trees, fungus, animals, and so on. They certainly have food preferences, but they commonly evaluate food by how much gas it causes the eater to expel: food is not salty, sweet, or sour — it is well-behaved, mischievous, or belly-swelling.

Agamans are characteristically taciturn and haughty. They glory when king or clan launches fierce war upon City Builder enclaves, Machine People expeditions, incautious caravans, rival Agamans, or any other foe. Healers are known as *dodedj*, the twice-fallen; in Najidat mythology, Healers are trickster-like villains — their hubris caused God to sever the Arch from the world; it was they also who established the curse of science and caused the other hominids to fall from pre-Najidat grace. Even non-Najidat Agamans detest and suspect Healers and kill them. A sentient identifiable as a Healer may be slaughtered on the spot. But strangers who are not afraid, or who obviously have strength of arms and who yet do not churlishly threaten probably will not be slain; they will be robbed of course.

There is no tradition of chattel slavery among the Agamans; where the Agamans wander, slaves die.

The Agaman empires continue to expand and grow in might. Some of the greater empires have instituted programs by which their deserts are enlarged. The Agamans are a force of the future, even as the City Builders and Healers are forces of the past.

Characteristic	Average	
STR 3D6+6	16-17	Move: 4m/im for males
CON 2D6+6	13	3m/im for females
MAS 2D6+8	15	Average Hit Points: 28
INT 2D6+6	13	Action Ranking: 4
POW 3D6	10-11	
DEX 3D6+3	13-14	
APP 2D6+6	13	

weapon	attack%	damage
Jet Rifle *	75%	3D10
NAX Gun *	75%	1D8+3
Sword	50%	1D8+1

* does double damage on a special success.

SKILLS: Archaic Melee Weapon 50%, Athletics/Ride Heaver 80% or Ground Vehicle/Land-Ruler 80%, Heavy Weapon (Projectile)/Jet Rifle 75% or Heavy Weapon (Projectile)/NAX Gun 75%, Repair 30%, Ringworld 15%, Strategy 10%, Theology 15%.

ARMOR: Agamans soldiers usually wear 10-point fabron armor over their chests and abdomens; helmets are sometimes used.

location	melee	ranged	armor /HP
Head	19-20	20	0/8 (.30)
Left Arm	16-18	18-19	0/7 (.25)
Right Arm	13-15	16-17	0/7 (.25)
Chest	12	11-15	0/10 (.35)
Abdomen	09-11	07-10	0/8 (.30)
Left Leg	05-08	04-06	0/8 (.30)
Right Leg	01-04	01-03	0/8 (.30)

HEAVER

Heavers are large, thin-legged, desert-hooved riding beasts, so-called because of a characteristically-wild gait during which they rhythmically lower their heads toward the ground.

Over ten thousand Ring years the Agamans have bred heavers to a swiftness nearly unexcelled among non-flying Ringworld animals. Some herds of wild heavers still exist on certain massifs far to the interior of the great deserts, but most are domesticated, and the domestic heavers are of much greater speed. The heaver has exceptional stamina; desert journeys of 400-500 kilometers can be completed routinely within a few days, though the heaver must then rest for a least that many days again, and requires considerable water, 16-20 liters daily, during the trip.

The body of an individual heaver resembles that of a wiry horse, but the head is short and flattened — something like a rabbit's head without the ears. The heaver is quadrupedal, hermaphroditic, and its short fur normally is a salmon color, though many characteristic colors and markings exist. Foals are carefully tended by the parent for about six falans, then the youngsters join the general herd and fend for themselves. These animals are intelligent and expert foragers, and they can chew and digest almost any kind of vegetable matter.

Heavers are prized because much of the wastes are boulder-strewn and ravine-cut; these lands are impassable

to off-road ground vehicles. But heavers adeptly choose they right path, and rarely misstep. Heavers are reliable, intelligent, and amazingly sturdy. Their enormous speed makes them useful even in modern-style wars and, against primitive cultures, heaver cavalry is devastating.

To do much work, heavers need kilos of high-energy grains or shelled nuts. This is especially true of the cavalry mounts. The favorite native food of the heaver is the nut of the *pichol*, a small rugged tree resembling the juniper; the 2cm-diameter nut, sweet and fragrant, rests within a strong, fibrous shell rather like a coconut's.

Characteristic	Average	
STR 4D6+12	26	Move: 15/im
CON 2D6+6	13	Average Hit Points: 45
MAS 4D6+18	32	Action Ranking: 3
POW 2D6	7	
DEX 2D6+12	19	

ARMOR: 1 point skin

HIT LOCATIONS (melee and ranged)

Location	1D20	Armor/Average HP
Head	19-20	1/14 (.30)
Left Fore Leg	17-18	1/11 (.25)
Right Fore Leg	15-16	1/11 (.25)
Forequarters	10-14	1/16 (.35)
Hindquarters	05-09	1/16 (.35)
Left Hind Leg	03-04	1/11 (.25)
Right Hind Leg	01-02	1/11 (.25)

weapon	attack%	damage
Kick	15%	1D6+3D6

SKILLS: Forage 75%, Observe 50%

Selected Agamans Artifacts

Agamans Heavy Gun.	54
Air Still.	53
Bi-Runner.	54
Fabron.	54
Flywheel Power.	54
Gansdedj.	54
Heretical Saddle.	53
Jet Rifle.	53
Land-Ruler.	54
NAX Gun.	53
Voicebox.	53

The following technical items are used in the expanding Agaman hegemony of *Aj Dieler* ("granite faith"), the largest Agaman kingdom, and stronghold of Najidat. This nation, occupying a great sweep of desert fringed by subject satrapies, can be placed anywhere convenient for your campaign.

The acquisition of fabron armor revolutionized Agaman warfare, for it made common looters invulnerable to hand-held projectiles or laser weapons. When fabron was tailored for heavies, Agaman cavalry was once again useful in war. Hand weapons, such as the jet rifle, were developed to penetrate fabron, but these are bulky, and automatic fire is impossible except on special mounts. Even against jet rifle-equipped foes, the quick-moving Agaman cavalry is capable of charging at speeds which enable it to close with infantry before more than a couple of volleys are fired.

Heaver-mounted, NAX-gun-armed warrior clans patrol and police the Agaman hegemonies. Land-ruler units patrol both alongside the cavalry and on their own.

Threats, such as the presence of high-tech strangers in a satrap, are met with promptly and brutally. If an Agaman patrol cannot quickly capture an intruder, it radios for help, and breaks off combat, but shadows the foe. Within hours, a substantial veteran force, heavily-armed, begins to converge with the intent of slaughtering the intruders.

The Agamans make a dangerous, blood-thirsty enemy. They should probably be used sparingly.

AIR STILL

WEIGHT: 120 grams (empty)

DIMENSIONS: 2x3x7cm (folded)

HIT POINTS: 5

This is a pocket-sized water separator for desert climates, developed centuries ago. To use it, unfold the still so that the liter-sized receptacle jar rests beneath the sail of the 20cm circular filter (be sure to anchor the still with stones). An airtight tube leads from the interior of the filter to the jar. The device separates any moisture from the air which passes through it, and its own weight sends the intercepted water into the jar. The amount of captured water depends on the actual water content of the air and on the force of wind; the device works much more quickly when large amounts of air can be sent through it. On an average desert day with 10 kph of breeze, the still separates about a liter of water every 2-3 hours. The captured water is

pure, warm, and tasteless. The still action is molecular and requires no power. Hundreds of uses are required before the still loses its efficiency. Larger stills exist; the Agamans think it ludicrous to carry them without special reason.

VOICEBOX (Standard Design)

WEIGHT: 900g

DIMENSIONS: 9x10x18 cm

MAXIMUM RANGE: 100km in open country

ENERGY USED: variable; max. strength costs 1/minute

POWER SUPPLY: 200/.2/200/N battery

HIT POINTS: 9

The Agaman voicebox is a tactical range two-way radio. Pre-tuned wavelength randomizers for a clan or an otherwise established tactical unit keep that unit's voiceboxes on a preset pattern of varying frequencies, allowing reasonably secure in-clear conversations. Over-voice between units receives as white noise; because of the limited range, only concentrating fairly large forces risks much interference.

Optional headphones and throat mike are intended mainly to coordinate assassinations and other guerrilla-style activity. In major operations, various command levels may have their own sets of pre-tuned randomizers. When comclaser or microwave equipment is not handy, the variable output of the units allows them to be used as low-power comlinks which are not easily detected.

HERETICAL SADDLE

The traditional saddle was merely a shaped felt-like pad stuffed with heaver fur and belted round the girth of the animal. There were as many designs and decorative schemes as there were Agaman clans and saddlemakers. In the last few ringyears, however, several chiefs among the border clans have introduced a radically-different design created by Hanging People technicians. These captives, who were methodically collected and brought together in a concentration camp hundreds of kilometers from the nearest tree, created at dictation a bizarre concoction.

The heretical saddle is made of leather or plastic, with conventional stirrups and cinch. Several rings and straps are built in to hold gear, and the back of the anatomically-curved back-rest is not only armored, but acts like a pack frame to carry additional gear. There is a mounting niche for a voicebox; a three-liter-an-hour air still is built in, as are adjustable arrangements for rifle and sword scabbards. Most importantly, the eight fodder boxes fold like a bandolier over the withers. Each fodder box carries three kilos of pichol nuts — enough to fully satisfy the heaver for three days of hard riding, or four to five days of ordinary traveling. This saddle is quite heavy, and its use shortens the heaver's life substantially, partly because, in order to give the animal the stamina to carry the saddle, they are given strength-enhancing drugs.

JET RIFLE

WEIGHT: 5 kg, + 1 kg per 12-round clip

DIMENSIONS: 1.3m long, 8cm at widest point

ENERGY SUPPLY: chemically-powered projectiles held in large forward-curving clips, 12 projectiles per clip

DAMAGE DONE: 3D10 (6D10 if special success is rolled in an attack)

RANGE: 50/150/300 meters; maximum range 1000 meters

APPLICABLE SKILL: Heavy Weapon (Projectile)

ARMOR: 5

HIT POINTS: 10

The Agaman jet rifle is a military weapon. It has a light plastic stock, a telescopic sight with built-in starlight scope, a long heavy bar barrel, and a thick, clumsy-looking projectile-clip between the firing button and forward grip. The projectiles are self-propelled — each is a tiny rocket, 2x5cm, tipped with an armor-piercing shaped-charge explosive. The weapon fires one round per impulse; it takes an action ranking to replace an empty clip.

The jet rifle's barrel must be frequently cleaned, or the accuracy of the weapon is progressively affected: in extended fights, subtract 50 meters from range effects for each clip fired without cleaning. Cleaning solvents are kept within the hollow plastic stock. Each clip fired requires one additional action ranking to clean off the increasing deposits.

The exploding charge makes horrible wounds in flesh; the projectiles are designed to penetrate light steel plate or fabron armor. Agamans use jet rifles when fighting each other, or against armor-using cultures or species. Against unarmored enemies, the NAX gun is far superior.

NAX GUN

WEIGHT: 1.5 kg barrels and chamber; 1 kg per cylindrical magazine

DIMENSIONS: 70cm long (barrel is 12cm wide; magazine is 2x30cm flat cylinder)

ENERGY SUPPLY: chemically-powered projectiles held in magazines of 120 each.

DAMAGE DONE: 1 D8+3 (2D8+6 if special success is rolled in an attack)

RANGE: 70/140/350 meters

SKILL: Heavy Weapon (Projectile)

ARMOR: 2

HIT POINTS: 6

The NAX (an Agaman acronym) gun is used against foes lacking body armor. The weapon has eight 40cm barrels and a large magazine. Much of the gun (though not the barrels or firing mechanism) is plastic.

The gun fires 10 shots per impulse. It can be aimed at a single target, in which case 1D10 rounds strike that target per impulse in which a successful attack is made. The gun can be traverse-fired across an area, in which case 1D10 hits (-1 hit per extra target) are divided up among the potential targets. For example, if 4 targets are being fired at, and the firer's player successfully hits, 1D10-3 is rolled and the hits are divided as evenly as possible among the targets. If zero or fewer hits are received, no one takes damage. If the shots cannot be divided evenly, make luck rolls to determine who takes the extra hits, the extra hits.

If a special success is rolled, the first bullet does double damage, but the others do only normal damage.

It takes 2 + 1D3 action rankings to remove and replace an empty magazine.

FABRON

WEIGHT: 2 kg per square meter of cloth (a full suit weighs 8-10 kg)

ARMOR: 10-point armor vs. most types of attacks

Fabron is an extremely-tough, Kevlar-like synthetic used as armor by the Agaman soldiery as harness material for their mounts, wheel protection on land-rulers, and even tent material (despite its weight). It is coarse, resembling tentcloth or canvas. It can be produced in any color desired.

Fabron not only protects against projectiles, explosions, and lasers, it also effectively blocks radiation of body heat and the sound of heartbeats and of small movements: it is good protection not only against weapons but against detection by quick sensor scans (given time, or course, a starship computer can distinguish between huddled small animals and heat pockets at the edge of the sheets). Because of heat reflection, the Agamans only wear fabron chest and abdomen armor, but they routinely carry larger sheets with which they cover themselves for a few minutes to escape detection, especially from flying vehicles. When the call comes, all the marksmen crawl under their fabron and lie motionless; as a fire-fight progresses, they gradually move free of the loose fabron.

As effective as it is, fabron as the Agamans use it is of minor importance in a large-scale engagement in which chemical or nuclear explosives are employed.

GANSDEJ, or Loot-Raft

MAS: 13 (82kg)

DIMENSION: 1.7m x 3.8m long; 67cm thick

ENERGY USED: 155/im

POWER SUPPLY: fusion generator

SPEED: passive towed device

MAXIMUM LIFT: 1600kg

ARMOR: none

APPLICABLE SKILL: Athletics/Ride Heaver

GENERAL HIT POINTS: 45

The loot-raft is a heaver-towed design which is the equivalent of a wagon or travois which never touches the ground. Built-in microcircuit controls compensate for various loads, wind strengths, and land slopes. A nicely-conceived sub-routine even learns the gaits characteristic to the heavers currently pulling the thing, and accelerates or decelerates within set limits to compensate the ride; this also makes it possible for the animals to stop without being smashed by a still-moving load behind them. The Agamans term for loot-raft is *gansdedj*, which approximates to "traceless and sneaky."

LAND-RULER (armed and armored ground vehicle)

MAS: 64 (6.5 metric tons)

DIMENSIONS: 5m long x 2.5m wide x 2m high)

SPEED: maximum 200 kph; cruising 80 kph

ENERGY SUPPLY: flywheel-battery weighing 2000 kg carrying 3,000,000 points of energy, and providing up to 60/im

ENERGY COST: 20/im at full cruising speed; 60/im if moving in excess of that. This gives the land-ruler about 40 hours of endurance at

normal speeds, and no more than 14 hours at top speed.

CREW: 9 — driver, co-driver, gunner, and up to six passenger-gunners in the rear compartment.

SKILL: Ground Vehicle

ARMOR: armor plate over most of the vehicle, double-thickness fabron wheel-protectors, armor-glass viewports

<i>location</i>	<i>1D20</i>	<i>points</i>
Right Rear Wheel	01-02	20/20
Left Rear Wheel	03-04	20/20
Rear Compartment *	05-08	40/50
Right Center Wheel	09	20/20
Left Center Wheel	10	20/20
Flywheel	11-12	50/20
Weapon Mount *	13	30/15
Right Front Wheel	14-15	20/20
Left Front Wheel	16-17	20/20
Front Compartment *	18-20	40/30

* make successful luck roll to avoid injury if compartment penetrated

The land-ruler is an Agaman reconnaissance vehicle commonly deployed along the outer edges of Agaman deserts and wastes. Its power supply is a synthetic-material flywheel spinning at high velocity contained in a heavily-armored jacket. The spin is tapped for kinetic energy, powering the vehicle by a system of belts and shafts.

The rear compartment is sometimes open, with seats and railings, and the riders there can either fire from within the vehicle or dismount and deploy individually. At the very front of the rear compartment (mounted over the driver's head) is a niche and firing post for a top-mounted Agaman heavy gun (described below) with a wrap-around gun shield.

This vehicle normally patrols roads as an independent unit, or acts as part of a mobile reserve stationed more deeply within the arid homeland of the empire.

At a minimum, a land-ruler carries a 100-km range radio, an infra-red searchlight, flares, emergency provisions and water, and spare parts.

AGAMAN HEAVY GUN

WEIGHT: 50 kg, including mount

DIMENSIONS: 30cm x 40cm x 2m, not counting 1m-diameter gun shield

ENERGY SUPPLY: chemically-powered projectiles, 800 to a belt

DAMAGE DONE: 3D10 (6D10 if special success is obtained on an attack)

RANGE: 50/150/300 meters

APPLICABLE SKILL: Weapons Systems

ARMOR: 30 points with gun shield, 8 points without

HIT POINTS: 15

This eight-barreled automatic weapon fires the same rocket projectiles as the jet rifle, but at a higher rate — 6 projectiles per impulse. If aimed at a single target, and a hit is obtained, roll 1D6 to see how many rounds actually strike home. If sprayed across an area, the hits are divided up among the potential targets, and subtract one from the 1D6 for each target beyond the first. Thus, if 3 foes are targeted by a heavy gun, 1D6-2 is rolled to determine how many hits are divided up among them. Zero or less indicates no one

is hit. If more than zero but less than the number of targets, randomly determine who is hit.

These weapons are regularly mounted on land-rulers, but are also found in static mounts in rare Agaman fortifications.

BI-RUNNER

WEIGHT: 205 kg

DIMENSIONS: 50cm x 1m high x 2m long

SPEED: maximum 250 kph; cruising 80 kph

ENERGY SUPPLY: flywheel battery weighing 66 kg carrying 100,000 units of energy, and feeding up to 8/im.

ENERGY COST: 2/im at cruising speeds, 8/im when moving in excess of that. This gives the bi-runner about 14 hours of endurance at normal speeds, dropping to 3.5 hours at top speed.

CREW: 1, plus 1 passenger

APPLICABLE SKILL: Ground Vehicle

ARMOR: 20-point armor plate over much of vehicle, plus 10-point fabron wheel-protectors and 5-point plastic windscreen.

<i>location</i>	<i>1D20</i>	<i>points</i>
Rear Wheel	01-04	10/10
Flywheel	05-10	20/5
Driver/Passenger*	11-15	5/varies
Steering Mechanism	16	20/5
Front Wheel	17-20	10/10

* roll randomly to see which one hit if both are present

The bi-runner is a two-wheeled motor vehicle, much like a motorcycle. Sometimes Agaman security forces replace their heavers with it.

FLYWHEEL POWER

The major Agaman source of propulsion is their flywheel device. This consists of a tapering disk of synthetic material held in an armored compartment, mounted on ball-joints to allow it to swivel freely, and connected to the rest of the vehicle with a complex series of gears and chains. The kinetic energy of the flywheel, which spins in a vacuum, is transferred to the vehicle's wheels, or whatever needs power, and gradually spins down from this tapping.

Agaman technology cannot build flywheels with a smaller mass than 10 kg. Each kilogram a flywheel weighs permits it to store up to 1500 units of energy.

The great advantage of the flywheel is that it can be recharged by muscle power. A simple attachment inserted into the gear joints permits a user to crank the flywheel up to greater speeds with his own arms or legs. This attachment is geared to increase torque as the flywheel goes faster and faster. A character thus cranking up a flywheel can store up a number of energy units equal to his own STR every action ranking. A gear attachment has been manufactured for attachment to heavers, allowing these beasts to so 'wind up' the flywheel, but this is rarely used, at least partly because Agamans using vehicles do not have heavers as readily available.

Essentially, the flywheel and its attachment make up no more than an extremely advanced windup toy. Explorers encountering the Agamans may derive some amusement from this fact.

The Sand Eaters

This short scenario can be connected to the adventure provided in the gamemaster book of the *Ringworld* box, or it can be fitted in as an isolated adventure occurring anytime in a campaign. Gamemasters presenting the adventure as written will need at least one photocopy of the ransom site map, and one photocopy of page 42 of the *Ringworld* gamemaster book.

Skreet makes an attractive victim, both because his is physiologically limited in his current environment and because he is a sympathetic character, but the kidnap could as easily be anyone in the expedition. Similarly, Skreet's life support limitation gives a time limit for the adventure, but the Agamans could announce a deadline of a day or two, and accomplish the same effect. Since the adventure must have a viewpoint, it is written as though it begins at the original crash site in the *Ringworld* box scenario.

A player may operate or adopt Skreet as his or her own explorer, but that player should understand that there will be little for Skreet to do after the initial encounter.

Allow the explorers full use of their technology: if the problem can be resolved only through successful negotiation, it is immaterial how much equipment is stacked about, even in the combat situation described below.

If a Kzin or Puppeteer explorer is prominent among the explorers, probably no scenario adjustment will be necessary; neither species will be much good at face-to-face negotiations, though a Kzin could be impressive at a distance.

Situation

As it crashed, the explorer starship smashed through a great desert under the sovereignty of an Agamans khan. He dispatched servants to learn the secret of such destruction, to bring evidence and plunder to him, and to spread news of his glory and power. The Agamans dutifully followed the enormous gashes across the desert and far into the fertile, well-watered hills beyond. After much study of the activity at the crash site, Per-najid, the leader of the Agamans party, concluded that the explorers were only a kind of hairy City Builder, and that City Builder devices could be expected to fail again as they had before, and that there was no wonder in the thing falling from the sky except that it fell harder than tales of old reported.

Since any kind of City Builder could be dodedj or puppets of dodedj, the Agamans sent an intermediary, a Ghoul who was instructed to ask for gifts. Because many are wandering scavengers, Ghouls in folklore have little use for devices; an exclamation often heard on the Ring can be translated as "give metal to a Ghoul" — it is foolish to give value to someone who doesn't appreciate or want it. When the Ghoul emissary returned to the Agamans with nearly a kilo of worked and shaped metal, the neatness of the parallel to the saying caused the stolid Agamans to roar with laughter and swear that no Healers

could be among such idiots as those who had accidentally buried their skycraft. The Agamans concluded that clever hominids could extort or steal almost anything from such folk, and crafted a plan.

Background

It has been 50 days since the starship crashed. The ship has been patched and repaired as well as possible, and raised from its watery tunnel. The ill-fated marinex expedition has been dispatched, and apparently is lost. But while the fate of those explorers remains uncertain, the expedition lingers at the original site. Now that the starship is secure, the life-science specialists enthusiastically collect and study Ringworld zoological and botanical specimens.

Have the players make luck rolls for their explorers. Those who receive successful rolls witnessed an interesting meeting a few weeks after the starship crashed. A shy Ghoul came on foot to the expedition site; in an easily-translated Night Hunter dialect he demanded gifts in return for the damage which the explorers had inflicted upon the world. When pressed, the Ghoul said that cruel Agamans had sent him, and that he must return with something or be killed. Watching him whine and grovel, those explorers getting successful Psychology rolls perceive him to be in genuine fear for his life. Suggest the trade goods from page 42 of the *Ringworld* gamemaster book as a cheap gift, and show them the list. The Ghoul can ask what his present is, and reject non-metallic items as inappropriate without indicating that the basis of choice is metal. Then close the incident by saying that the Ghoul is satisfied and grateful, and that he departs.

The Ghoul's name is Radek; make a note of him. If the explorers stay in the neighborhood, he may repay their act of kindness at a later date.



Contact specialists have made successful visits to several local Herder tribes who have been driven into the hills by Grass Giant pressure. Many wandering families of Ghouls have also been encountered; their chief interest has been to make sure that the aliens understand that the Night People have eternal claim upon hominid corpses.

These encounters can be played out; in both cases the gamemaster's strategy should be to make the local area familiar. Unless you make special preparation, keep the actual play time of such visits to a few minutes.

The Okobijon Herder Tribe

This tribe is about 140 strong; nearly half are under 20 UNS years of age. Hordes of incredibly-speedy children zoom around the camp. Read the Herder essay and give the explorers a party. Parties can include party games, like obstacle races and rope tugs-of-war. Wakbreath can speak for the tribe. He is fast-talking, manic, and acutely jealous of his new wife, Alurde. By human standards, she is young and pretty; if she can, she'll make a play for one or more of the human explorers — variety is her spice of life. Wakbreath's job at tribal parties is make sure that every jar of beer is of decent quality. Consequently, he may be asleep early during the proceedings. He may wake up later, of course.

Taxmil & Tros' GhouL Family

Wife (Tros), husband (Taxmil), son, daughter, husband's brother, wife's mother, and an older female friend make up this group, who with other such groups circulate among the local Herder camps watching for the flutter of the traditional white flag — which means in effect "hominid corpse here: please come and eat it." Sometimes the tribe or clan lights a big smoky fire if several folk have died. The Ghouls are honor-bound to make all haste to the source of a big fire; consequently Ghouls throughout the region know of the downed starship, though they do not know exactly what it is.

One of the expressions the anthropologists sometimes hear is "give metal to a Ghoul." If one of the explorers who met the ghoul emissary of the Agamans gets a successful Anthropology roll, he deduces that the locals would think that giving a metal gift to the Ghoul emissary was ridiculous.

Prominent in the conversation of Ghoul and Herder is a third species, whom they variously call desert demons, ghost men, Agamans, or (venomously) sand eaters. At first, some among the crew believe that the species is merely an anxiety projection, prompted by the long-term encroachment of the spinward desert.

Have Search rolls made for any explorers who have been on watch on the starship bridge; successes indicate that they have noted (and check-referenced in the ship's log) peculiar sensor readings showing life forms which appear and dissolve without pattern, though several such images are persistently found within visual range of the starship.

Explorers seeking visual corroboration of the sensor readings sometimes do see lithe hominids racing on foot for cover, and then disappearing from view as though swallowed up by the earth.

Explorers who pursued the elusive, scaly hominids have been fired at with projectile weapons. Expedition anthropologists have cautioned against pursuing this species, but have failed to make contact themselves, nor have the beings done more than observe. Explorers may feel uneasy, or pass off the situation as typical of hominids.

THE KIDNAP

Though invaluable while planning repairs and rebuilding the wounded starship, Skreet now has little to do. The death of Gregor Lopez, Skreet's friend and patron, has left the dolphin disconsolate; the present pathetic condition of the ship's drives thwarts his plan to study piloting; Skreet's art now seems to him shallow and escapist; the new night sky above fails to intrigue him. Skreet's one pleasure now is to slide into his walker suit and trek down to the new freshwater lake formed by the crash-landing. Following a regular route which his walker treads have now turned into a narrow road, Skreet drives his walker into the lake until the suit is well-submerged, then opens the hatch and swims out. These new waters, unformed and bland, still hint of the seas of Earth. Skreet asks himself, what are the seas of Ringworld like? If there are human-like walkers on the land, are there dolphin-like finfolk in the oceans? Skreet would like to know very much.

As he rolls on his walker treads toward the lake a dozen kilometers distant, he puts the suit on automatic and dreams of strange encounters. Mounted on or in Skreet's unit is a 30-point stunner, a sonic knife, a corn-disk, and a sensordisk, a dolphin-specific minidoc, and a hullmetal shield with which to fend off large amorous mammals. Skreet looted a few components from his walker to help repair the ship; as a result, his life support system is not good for more than about one full Ringworld day; if necessary, use this information to increase pressure upon dawdling explorers.

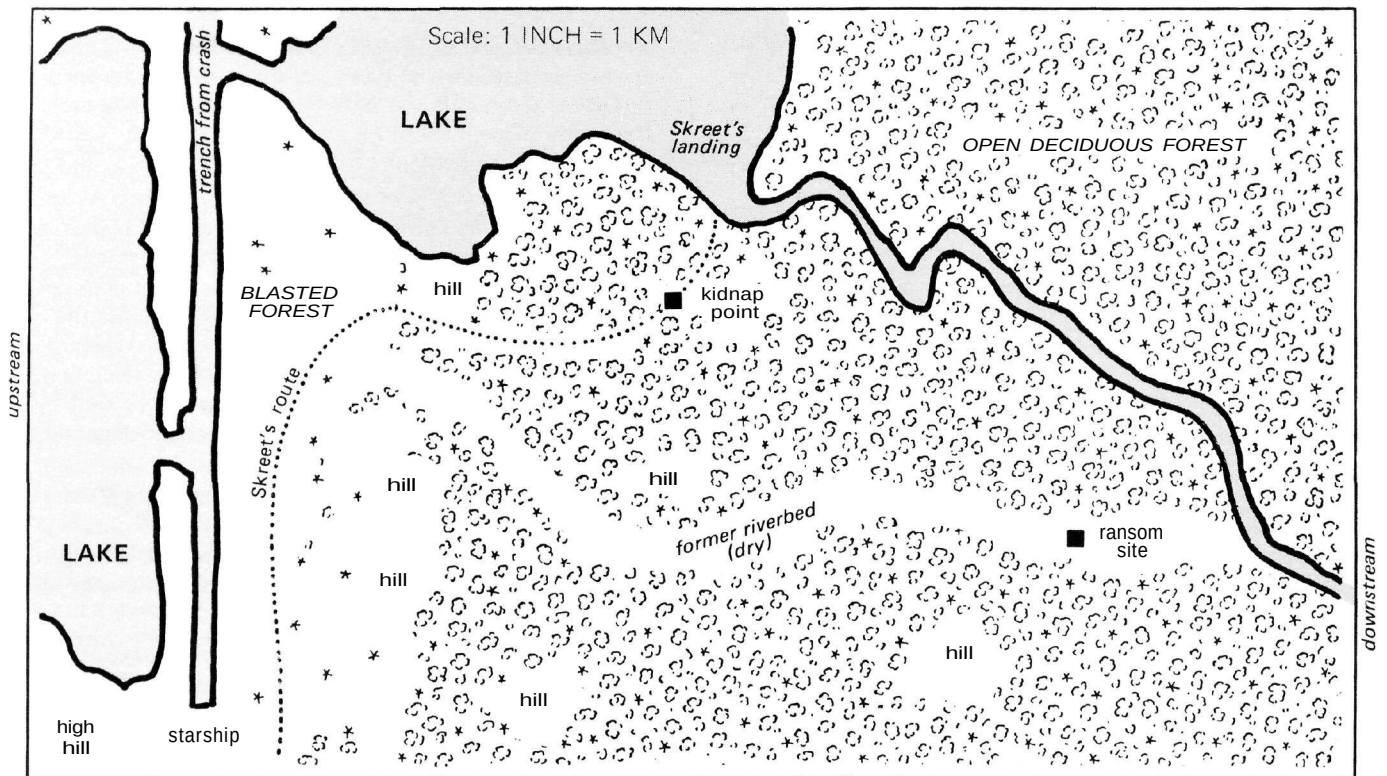
SK'KRREEETL "SKREET" A'AIKKRLLLA, male Dolphin, self taught artist and glactographer, age 26 UNS years.

STR 19	melee	ranged	general hit points: 40	
MAS 26	18-20	17-20	Head	2/12
CON 14	16-17	15-16	Left Fin	2/10
INT 12	14-15	13-14	Right Fin	2/10
POW 11	09-13	08-12	Forebody	2/14
DEX 13	04-08	04-07	Hind-body	2/12
APP 13	01-03	01-03	Flukes	2/10
EDU 16	action ranking: 4		general HPs lost:	
Speed: 5m/im swimming; 4-12m in walker suit (land)				
weapon	skill	range	s/m/l	damage energy
Head Butt	68%	melee	1D10	_____
Stun	84%	melee	special	
Stunner	03%	20/40/100	*	1-30/im
*unconsciousness				

NOTES: the Dolphin's stun attack works only on creatures within 1m range and with MAS 2 or less, knocking out the target. The Dolphin's stunner is mounted on his walker suit, and is unavailable to him unless he is in the suit.

ARMOR: 2 points over entire body, from thick skin and a layer of blubber.

SIGNIFICANT SKILLS: Athletics/Swim 500%, Astronomy/Astro dynamics 62%, Astronomy/Galactography 45%, Astronomy/Navigation 45%, Computers/Software 43%, Ground Vehicle/



Walker Suit 39%, Heavy Weapon/Stunner 03%, Fine Arts/Holography 78%, Mathematics/Topology 66%, Own Language/Dolphin 65%, Reactionless Drive/Thrusters 02%, Second Language/Interworld 24%, Stun 84%, Unarmed Combat/Head Butt 68%.

SPECIAL ABILITY: psionic projection and rotation or enlargement of pre-existing tri-dee and holographic images, within 11 meters of his head. He may re-angle, distort, or enlarge the still image, or slightly adjust its color. It is impossible for Skreet to do this under pressure of time or in a tense situation, though this meditative skill is integral to his art.

PHYSICAL DEFECT: transplant-resistant

ROOT MAXIMUMS: Agility 32%, Communication 25%, Knowledge 28%, Perception 25%, Technical 25%.

SKREET'S WALKER SUIT (Hands of the Sea, Inc., Earth)

MAS: 40 (850kg)

DIMENSIONS: approx. 3m sphere mounted on treads

ENERGY USED: 75/im cruising; 120/im maximum

POWER SUPPLY: fusion 2 generator

SPEED: 4m/im cruising, 12/im maximum

APPLICABLE SKILL: Ground Vehicle

GENERAL HIT POINTS: 50

HIT LOCATION TABLE:

roll 1D20 melee and ranged	location	armor/hit points
20	auxil. equipment	per item *
15-19	bowl	5/10**
14	left arm	7/5
13	right arm ***	7/5
07-12	pedestal	10/25
0406	left tread	10/10
01-03	right tread	10/10

* Skreet's comdisc, stunner, sensordisk, etc., are carried here. Roll randomly to determine which one is hit.

** Once the bowl is destroyed, hits to this location directly damage Skreet.

*** this arm can reach the hullmetal shield.

A walker suit is a Dolphin-specialized vehicle which lets the single occupant move about on land while staying within water. Life-support abilities of the suits vary with the external environment; a walker suit on Earth could draw from the air and earth, and keep its occupant alive indefinitely; a walker suit on Luna could keep its occupant alive for 1-2 weeks.

Lost in fantasy, Skreet does not notice the Agamans' trap. The ambush is a rather crude affair; the Agamans have been impressed with the vagueness of the expedition's security, and they have not put much ingenuity into kidnapping Skreet. If Skreet is being played, allow his player a Luck roll. If successful, Skreet glances up from his revery and notices a large cloth, hanging like a canopy from the tree branches above the road. Ask the player what Skreet does. If Skreet does anything but immediately spin about and head for the starship at top speed, immediate capture results. If Skreet does react correctly, then the Agamans chase him down on their heavers and perform the same operation: the difference is that the starship learns of his problem a few minutes earlier.

The Agamans drop a log just in front of the walker suit, and another just to the rear, imprisoning it (dead wood is easy to find around the crash site). While the walker's automatic systems deal with this unprecedented event, the cloth canopy drops and covers the entire walker. The cloth is the fabron cover for their MAGLEV loot-raft. The fabron also effectively blocks a comdisc call for help to the starship. Some of the Agamans systematically jam the walker treads with branches and rocks, then lever Skreet and walker suit onto the *gansdedj*, while others immobilize or disable Skreet's outside mechanical arms. Fabron cover left on, the walker is lashed in place, the lift compensation of the *gansdedj* is engaged, and remount heavers tow off the whole assembly. It takes about two minutes to get underway.

If Skreet's player succeeds with the Luck roll and the decision, Skreet retreats along his road. Thirty meters back, more logs fall to entrap him, buckets of paint splash against sensors and bowl, and heaver-mounted Agamans sweep down with the fabron. The effect is the same, but Skreet may be able to contact the starship.

Preparations

The Agamans can't escape from flycycles and starships, but they don't need to. Given the *gansdedj*'s automatic

aerodynamic compensation, they can move poor Skreet fast; they need only three minutes to reach their destination.

With reference to the accompanying map, the Agamans make their stand in a dry portion of the former riverbed where the builders of the Ring sculpted a pit-drain into the scrith. Its shuttered grate (approximately 4cm mesh) is scrith as well. The walls of the drain-pit are nearly vertical (or scrith for several meters up) and about six meters deeper than the riverbed floor. The drain bottom is about 30 meters across. The *gansdedj* carries Skreet to the bottom, where he and his walker are unloaded.

A being of a different species, Twerant of the Night Hunters, steps gingerly onto the *gansdedj* and rides it down with the Agamans. She carries a satchel. She crawls off the vehicle and onto the dangerously-slick scrith, and moves far away from the Agamans, who unload Skreet and his walker. They remove the fabron cover but do not free the dolphin or his vehicle. Skreet's position inside the scrith drain makes it impossible for him to contact the starship, though dispersion may make it possible for him to talk to anyone within a few hundred meters. If Skreet can actually see someone in the air, the comdisc will function perfectly.

The Night Hunter carefully crawls back across the scrith grate and onto the walker. With black adhesive tape she methodically attaches three jars to the bowl of Skreet's walker. The jars are filled with an oily semi-solid which begins to visibly melt; she is careful not to jostle the containers. She then tapes some sort of battery-powered electronic device (which has a prominent antenna) near to the jars, and runs electrical cable from the device to the jars. Each line terminates in a small coppery capsule. Poor Skreet can see a clock-like dial ticking away some interval of time: there is no telling just what the clock means.

The Agamans lower a rope and haul up Twerant. Many of the Agamans then crawl under fabron covers on the riverbed floor to disguise themselves as rocks; more of them enter the open forest on either side of the dry river

Another Way for the Explorers to Learn of the Kidnap

The Agamans send a messenger (a random Night Hunter captive) to the starship, who informs the explorers that the might Sand Demons wish to be relieved of a metal-bound wet-thing which they have in their possession. The explorers are warned, if they refuse to heed the demands of the invincible desert dwellers, that the Agamans will dispose of the slimy, finny thing. After delivering the message, the Night Hunter describes the "hard water" — he has never seen ice — which the Agamans have had taped to Skreet's walker. Any explorer benefiting from a successful Chemistry roll hypothesizes that the explosive is nitroglycerin. The messenger further says that the wet-thing is held at a point in the dry portion of the riverbed, and that he can take the explorers there.

Once his message is delivered, this gaunt, knock-kneed Night Hunter pleads with the explorers for sanctuary. His name is Farad. He says that he is but a prisoner bent to the will of the Agamans. He swears that if the explorers do not save him, then his beastly owners will surely eat him. Explorers receiving successful Psychology rolls judge that Farad tells the truth.

and there pretend to be rocks also. There are 28 Agamans around the site. Two of them and the Night Hunter sit in the open, about half-way between the drain-pit and the flat sandy place marked on the map. There they wait patiently for the explorers to come.

Per-najid, the leader of the Agamans, is patient. As he sits in the open he knows that the explorers will come for their friend when they dare; the wet-thing which the Agamans hold for ransom is of high status, for it does no work and wears an impressive amount of metal. If the Hairy-City-Builders never dare come near, the Agamans can slaughter the wet-thing or dump it into the river, and take its metal back to the great khan, who will be well-satisfied with the gift of metal and the tales accompanying it.

Along with Per-najid sits his lieutenant, Emegri, who has no holy blood but is exceptionally wise. Both are content. With them cowers the female Twerant, the Night Hunter explosives expert, who fears that she will never see her family again.

Four radio-equipped scouts watch from vantage points several kilometers from the ransom site; another four walk strings of heavens through the trees close to the new river-course. With Per-najid and Emegri sitting unarmed in the open, that leaves 18 marksmen defending the point of exchange. Four have NAX guns; the rest have jet rifles. All have had ample time to sight-in on the sandy area where they anticipate that negotiations will be held; so long as they do not move, treat their fire toward that locale as short range, no matter how far away they arc, but apply standard range modifications otherwise.

Photocopy the accompanying map, marking your dispositions on one and give the other to the players, or simply draw the setting on the table-top.

PER-NAJID

The leader of the Agamans party, Per-najid has served his Khan for more than a UNS century, and never failed a task with which he was entrusted. He is a skilled fighter and an expert swordsman, and has remarkable perseverance. If this ransom fails, he will immediately began to hatch a new plot.

Sometime in the next 10-15 Ring years, Per-najid expects to die. Before he does, he plans to undertake a quest to find the Original Stone, the great rock upon which God inscribed the Granting Sign and then hid away to protect against azhodgim defilement. Placid in his faith, never-failing in his skills, negotiations with him will be a formidable task for any Known Space being.

PER-NAJID, male Agamans, trusted fighter for the Great Desert Khan, age 127 UNS years

STR 20	melee	ranged	general hit points: 30	
MAS 16	19-20	20	Head	0/9
CON 14	16-18	18-19	Left Arm	0/8
INT 13	13-15	16-17	Right Arm	0/8
POW 12	12	11-15	Chest	10/11
DEX 15	09-11	07-10	Abdomen	10/9
APP 11	05-08	04-06	Left Leg	0/9
EDU 0	01-04	01-03	Right Leg	0/9
Speed: 4/im	Action	Ranking: 4	general HPs lost:	
weapon	skill	range	s/m/l	damage energy
2H Sword	85%	melee		2D8+1D6 ---
1H Sword	140%	melee		1D8+1 + 1D6 ---
Jet Rifle	90%	50/150/300	3D10	*
NAX Gun	60%	70/140/350	1D8+dx10*	

* fires chemically-powered individual projectiles.

ARMOR: 10-point fabron over chest and abdomen hit locations.

SIGNIFICANT SKILLS: Archaic Melee Weapons/2H Sword 85%, Archaic Melee Weapons/1H Sword 140%, Athletics/Ride Heaver 70%, Athletics/Run 50%, Bargain 45%, Debate 65%, Emergency Treatment 30%, Ground Vehicle 13%, Handgun (projectile) 26%, Heavy Weapon (projectile)/Jet Rifle 90%, Heavy Weapon (projectile)/NAX Gun 60%, Hide 80%, Observe 60%, Orate 48%, Own Language 65%, Psychology 65%, Ringworld 18%, Search 50%, Sneak 85%, Strategy 45%, Theology 20%, Weapons System 20%.

ROOT MAXIMUMS: Agility 35%, Communication 24%, Knowledge 13%, Perception 26%, Technical 25%.

EMEGRİ

A clansman of Per-najid, Emegri is noted for his canny evaluations of both Agamans and azhogdim. Emegri privately says that he finds little subtle difference between Agamans and azhogdim; he believes that God chose the Agamans because their physiology allowed them to remain pure. Someday, when the deserts have covered the world, he thinks that God will appear amid the Najidat and bring them all to the paradise of the Arch.

EMEGRİ, male Agamans, trusted fighter for the Great Desert Khan, age 87 UNS years

STR 14	<i>melee</i>	<i>ranged</i>	general hit points: 21
MAS 10	19-20	20	Head 0/7
CON 11	16-18	18-19	Left Arm 0/7
INT 17	13-15	16-17	Right Arm 0/7
POW 9	12	11-15	Chest 10/8
DEX 13	09-11	07-10	Abdomen 10/7
APP 17	05-08	04-06	Left Leg 0/7
EDU 0	01-04	01-03	Right Leg 0/7
Speed: 4/im	Action	Ranking: 4	general HPs lost:

<i>weapon</i>	<i>skill</i>	<i>range</i>	<i>s/m/l</i>	<i>damage</i>	<i>energy</i>
Thrown Dagger	60%	STRx2**		1D4+2	
1H Sword	60%	melee		1D8+1	—
Heavy Pistol	70%	10/40/120		1D10+2	
Jet Rifle	120%	50/150/300		3D10	*

* fires individual chemically-powered projectiles

** maximum range in meters

ARMOR: 10-point fabron armor protecting chest and abdomen hit locations.

SIGNIFICANT SKILLS: Anthropology/Cultural 45%, Archaic Melee Weapons/1H Sword 60%, Archaic Ranged Weapons/Thrown Dagger 60%, Astronomy 15%, Athletics/Climb 45%, Athletics/Ride Heaver 65%, Bargain 85%, Debate 50%, Emergency Treatment/Agamans 72%, Handgun (projectile)/Jet Rifle 120%, Hide 90%, Listen 77%, Observe 90%, Orate 106%, Own Language 85%, Psychology 130%, Search 90%, Speak 105%, Strategy 67%, Unarmed Combat 33%.

ROOT MAXIMUMS: Agility 27%, Communication 34%, Knowledge 17%, Perception 10%, Technical 30%.

TWERANT

Yesterday Twerant was setting excavation charges for a new building in her city. Then the Agamans came, and demanded someone of her skills; the city leaders gave her to the overlords for "as long as their worships shall desire." With her husband and children hostages to her obedience, the Agamans took her antispinward for an entire day, riding their heavers at breakneck speed through the broad valleys. Terrifyingly, they made her bring more than a kilogram of nitroglycerine. Though it was frozen and packed in ice (therefore in a more stable form), the longer the ride took, the more frequently she feared that the next stride of the heaver would excite the stuff or the blasting caps and blow away the Agamans,

herself, and the landscape to boot. For the moment, she is safe. But she dreads having to disarm her bomb; by then the nitroglycerine will have melted to liquid form, and will be very dangerous to move.

TWERANT NIK OPOVV, female Night Hunter, explosives technician owned by the city of Bilgjak, age 39 UNS years

STR 10	<i>melee</i>	<i>ranged</i>	general hit points: 24
MAS 13	19-20	20	Head 1/8
CON 11	16-18	18-19	Left Arm 1/6
INT 14	13-15	16-17	Right Arm 1/6
POW 9	12	11-15	Chest 1/9
DEX 15	09-11	07-10	Abdomen 1/8
APP 11	05-08	04-06	Left Leg 1/8
EDU 10	01-04	01-03	Right Leg 1/8
Speed: 4/im	Action	Ranking: 4	General HPs Lost:

ARMOR: 1 point fur

SIGNIFICANT SKILLS: Astronomy 10%, Bargain 23%, Chemistry/Explosives 35%, Emergency Treatment/Night Hunter 15%, Engineering 29%, Fast Talk 11%, Ground Vehicle/Animal Buggy 41%, Hide 35%, Observe 30%, Own Language 70%, Physics 20%, Repair 10%, Second Language (local Herder dialects) 30%, Sneak 40%.

SPECIAL ABILITY: with 4 meters' movement, Twerant can leap horizontally up to 5 meters and leap vertically up to 3.3 meters.

ROOT MAXIMUMS: Agility 19%, Communication 25%, Knowledge 24%, Perception 20%, Technical 29%.

THE NEGOTIATION

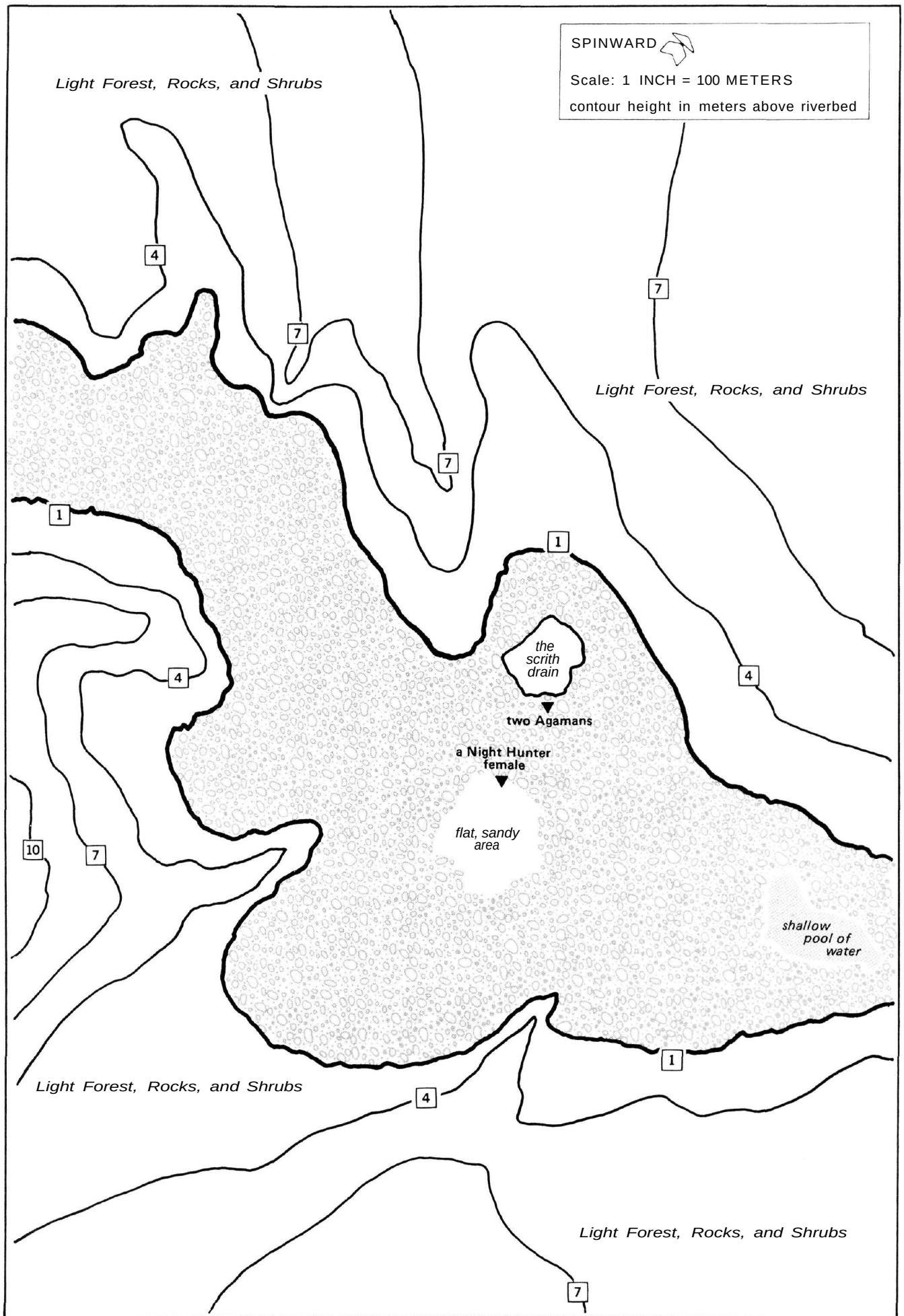
These Agamans are of those border clans which have adopted enough technology to be considered almost anti-Najidat by the deep-desert brethren. For centuries the border Agamans have encountered technologies superior to their own; with rare exception, they find a policy of boldness, surprise, persistence, and non-negotiation to be personally, socially, and theologically satisfying. Over time, azhogdim dependence upon social organization and technology proves to be too elaborate to easily defend, and the fallen-into-science species discovers that it is cheaper and more effective to give the Agamans the little that they really want.

Let the explorers make up any sort of response that they want: do they decide to move the starship there, to overawe the Agamans with its 100-point laser cannon? Do they rig a drone life belt with which to take a peek? Do a few brave explorers volunteer to scout the location? Does everybody pour out in a mob, with no plan at all? If there is no attack, Per-najid and Emegri will sit calmly beside their improvised call-stick and amusedly wait for the explorers to make a decision.

When the explorers do come, the Agamans send Twerant to greet them. She explains that Agamans always appoint servants to treat with strangers, and that she may not negotiate, but only convey messages between the explorers and the Agamans.

She will try to prevent the explorers from physically moving to where the two Agamans sit on throne-like boulders; if they confront the Agamans directly, the Agamans will laugh and ignore them for as long as the explorers persist. If the explorers become aggressive or insulting, the Agamans will walk away, first halting to draw a picture of the clock dial and to imitate a great explosion.

Twerant says that the Agamans have a scale built into a vehicle (the gansdedj), and that they will return Skreet unharmed in return for metals and technical devices



SKULKING AGAMANS FIGHTERS

All the Agamans marksmen have the same weapons statistics; their action rankings and general hit points differ. For the limited purpose of this scenario, an Agamans stops firing when he or she has taken damage equal to one-third or more of his or her general hit points; he or she then attempts to move to the heavens and escape to a pre-arranged rally point many kilometers distant.

weapon	skill	range	s/m/l	damage	energy
Jet Rifle	65%	50/150/300	3D10		self-powered
NAX Gun	75%	70/140/300	1D8+3 x10		self-powered

Jet Rifle User	1	2	3	4	5	6	7
Action Ranking	3	3	3	3	3	3	3
General HPs	27	30	27	24	33	28	36

Jet Rifle User	8	9	10	11	12	13	14
Action Ranking	3	3	4	4	4	4	4
General HPs	27	24	33	37	30	33	27

NAX Gunner:	15	16	17	18
Action Ranking	3	3	4	4
General HPs	30	27	30	27

weighing an amount equal to the walker, Skreet, and the water in the bowl. If questions are asked by the explorers, or counter-proposals made, she will always go to the Agamans; she will never volunteer information on her own. Each time she goes to them, she abases herself before the Agamans, who appear to become more haughty and indignant with every question.

Per-najid and his friend are old hands at awing inferiors; examine every explorer statement or question for implications of status, superiority of species, and inarguable rightness of action, and whenever possible insult the explorers in a lordly fashion. Remind them that they are ignorant fools, and that the clock-bomb is necessary only because they are so stupid that the Agamans pity them, and have deigned to dramatize the situation in order that the explorers may learn of Agamans invincibility without being harmed.

If the explorers agree to the ransom, make them state just what they are giving up; have the Agamans accept some items as appropriate, and have them sneeringly refuse others.

Do not discuss the marksmen and gunners surrounding the site; if shooting breaks out, Per-najid and Emegri will move for cover without regard for dignity.

If the explorers threaten the Agamans, have one NAX gunner fire a warning volley; if they persist, have all four NAX guns open up. The NAX guns may not be effective against good protection; if the explorers then attempt to negotiate from a position of strength, warn them severely that the next attack will provoke the destruction of their friend and themselves. If they do attack, blow up Skreet and let the jet rifles fire at will. Fight without mercy until the result is clear, then bow to God's will like any good Najidat. These Agamans are sworn to the personal service of the great khan; none will surrender without taking damage equal to one-third or more of his or her general hit points.

The starship hull protects against both Agamans weapons, and its tracking and firing gear will quickly pinpoint all of the Agamans gunners. The 100-point mounted laser cannon is protected by 25-point armor; the weapon itself

has 20 hit points. The airlock and the hatch both currently have 10 points of temporary protection.

If they are smart, the explorers can rotate the starship so that they can fire hand lasers through the clear portions of the hull, not exposing themselves at all. This tactic results in the death of Skreet, and earns the explorers considerable respect from the Agamans. But in a couple of days Agamans survivors return with the gansdedj and salvage the walker metal.

There is no way to electronically bollix the device controlling the explosives. Finding and jamming the control frequency simply detonates the nitroglycerine. Stress to the players that their explorers have no good way to calculate the characteristics of the device (Skreet's sensors are not built for that at all), and that the smartest thing to do is to keep all electronic activity far away from the ransom site.

Once the explorers give the Agamans what they want, the Agamans will be true to their word. They ride away with the control device and Twerant; in the equivalent of 8-10 UNS hours, they say, the device will no longer be functioning, and only the nitroglycerine need be removed — gently — from the walker. The Hairy City Builders, being great technologists, then should have no difficulty raising the walker out of the pit.

Once Skreet is safe, the explorers may be interested in revenge. Only if they thought of and were able to hide a beacon in the ransom will they be able to find the gansdedj — the Agamans will abandon it if the starship catches up. The Agamans party immediately splits up and rides like crazy in every direction. For three days thereafter searchers find 1D4 Agamans daily: some run, others rein up and watch with curiosity. None surrender without a fight. As captives, the little they say is designed to lead the pursuers far into the desert; as picked men, all will die rather than lead the explorers to the fabron tents of the Great Desert Khan.

The safest way to remove the nitroglycerine from the walker is tore-freezeit, with ice, liquid oxygen, etc. The explorers also will want to be careful of the blasting caps, which are as sensitive as fulminate of mercury. Depending on the method, disassembly and final rescue should not take more than an hour. If the explorers try to remove the liquid nitroglycerine by hand, each of the three jars requires a successful DEX x3 die roll, or it explodes, killing everyone in the pit. Frozen nitroglycerine can be safely moved.

Conclusion

Twerant will be turned loose 50-60 kilometers from the starship, and told to make her own way home. She will count herself very lucky.

Depending on what the explorers were silly enough to offer the Agamans, they may be able to chalk off the incident to experience, or they may be forced to attempt to pursue the gansdedj; such pursuit should require several adventures to resolve. If they pursue, make clear that the Agamans in general have no centers, installations, bridges, vehicles, or other property which they are not prepared to give up without regret. Strive to get the explorers in tangling pseudo-religious arguments with prisoners. It could be amusing to provide the explorers with a snivelling Agamans atheist who covets goods and misinterprets everything, or it could be interesting to try to convert some of the explorer guards.

THE KALADIANS

1. Journey & Meeting

Introduction

This scenario is in three parts; presenting each part probably takes an average session of play. That time can easily be lengthened if the gamemaster presents the hunt of the haemonts, which is only mentioned, or creates other material. Players also may make surprising choices which could take additional sessions to resolve.

The scenario seems to give players a variety of choices, but in fact leads them through the main story in an apparently voluntary manner. Hints to the gamemaster are in the text. Read the entire scenario before trying to present it: understanding emphases, and alertness to catch-phrases is important; make any needed photocopies beforehand.

Throughout this scenario some familiar-seeming translated terms are used, such as transdisk, flak suit, and walkie-talkie. These technical items are conceptually familiar to the explorers, but they are unfamiliar with the actual operation of Ringworld models — finding on- and off-switches is not automatic, for instance; with a complex device the gamemaster may legitimately ask for several different rolls before the device functions. As they occur, stress such differences: it makes Ringworld a stranger place.

The Kaladian Ruins may be played as a sequel to the Catseye scenario in the *Ringworld* gamemaster book. If so, the explorers probably have no significant equipment. Without minidocs or other Known Space technology the explorers are in great danger, especially from the several fire-fights which break out in the scenario.

Gamemasters must handle the combat scenes delicately. The object is not to slaughter explorers — they are too important to treat lightly, and they are too hard to transport to Ringworld to kill casually: place them in danger which kills or damages them if they are reckless or stupid, but which is not so overpowering that it is certain to murder or maim them.

First, though the enemy shoots a lot, most of the shooters can be extras, not experts, who supply noise and background, but have no dice rolled for them. Secondly, damage can be adjudicated by rolling dice in secret and suppressing rolled damage to the level of wounds, not destruction. Thirdly, you could determine beforehand what happens, including who gets hit and for how much. A fourth method, that of following the rules completely, is often preferred by gamemasters who believe in total impartiality. Each gamemaster must determine his or her method or combination of methods.

Transition from the Catseye

Good King Arruprul has allowed the explorers their freedom. Although ("for the good of the people") he confiscated their marinex, flycycles, lifebelts, and weapons, he has allowed them to keep their personal gear, any human-specific medicines and docs which survived the adventure, and whatever else the gamemaster desires (though the less given out, the easier the scenario is to run).

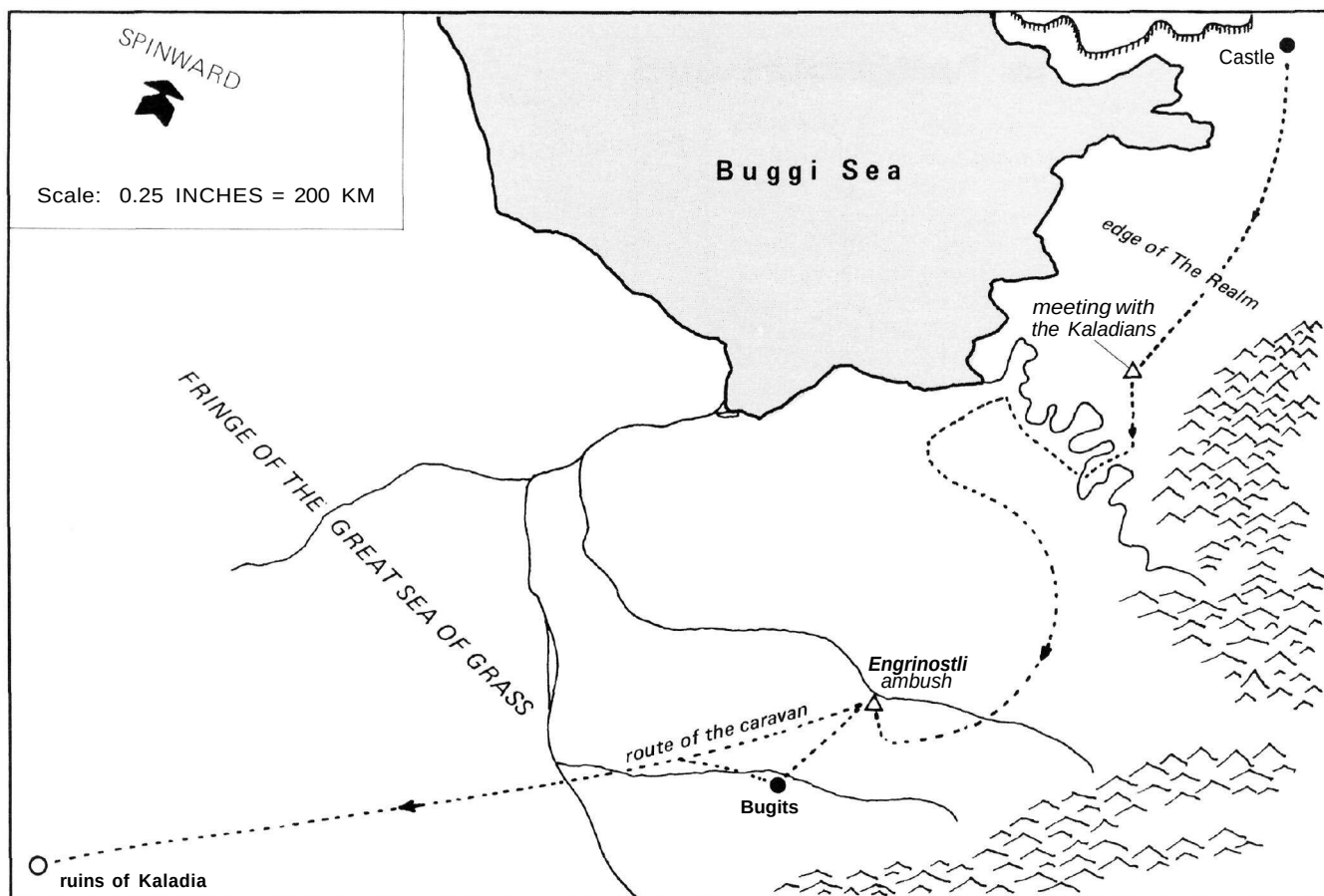
The king also gifts them with some archaic weapons. Each explorer may choose any two entries from the following list:

- (1) — crossbow and 15 quarrels in a quiver
- (2) — short bow and 25 arrows in a quiver
- (3) — one-handed spear and medium shield
- (4) — one-handed sword and medium shield
- (5) — two-handed sword
- (6) — two-handed axe
- (7) — two-handed mace
- (8) — three throwing daggers
- (9) — two javelins

Appropriate belts, bindings, and scabbards are included. Statistics for the weapons are in the gamemaster book. Don't let the players see the ranges and weapon damage before they choose the weapons, unless at least one of the explorers has more than base chance skill with one or more archaic weapons — it is likely that he knows something about all of these weapons, at least by reputation. It is also likely that he has heard of slings. Since the explorers have a lot of walking to do, they'll also need a lot of time to rest; they might use some of it to develop proficiency with that difficult and invaluable weapon.

If the gamemaster wishes, the explorers can also receive one or two pack dak-daks. They will not move more quickly, but if they have a lot of gear, this small dispensation lets them take it with them. The endless confrontations between sophisticated explorers and balking pack beasts could be amusing. However, for the rest of this scenario it is assumed that the explorers walk: the gamemaster will have to develop his or her own theories about dak-dak behavior, traits, and tricks.

The explorers have plenty of time for weapons practice as they go. Grant each explorer ten percentiles to add to or divide among any appropriate weapon skill or skills. It is also possible that Arruprul or an aide may grant some teaching time, but the hours should be scant. After all, these lords have all they want from the handful of stupid aliens; those bizarre creatures need no more unless they have more to offer — it is the way of the Arch.



Generous King Arruprul provides crude but serviceable camping gear, blankets, a few weeks worth of dried food, and kindly lets the explorers keep their tempting wear-ever explorer boots that are always so shiny.

For three days the explorers are carried in dak-dak carts; then they arrive at the edge of the Castle Reaches, are let off, and must begin to walk through the rich agricultural territory of the Realm beyond.

The general direction of travel lies around the Buggi Sea, the narrow sea to the left (on which at present only fishing rafts are known); shown is an orientation map and a smaller-scale map. Walking at the healthy rate of 40 km daily, it will take a minimum of 1000 Ringworld days to get back to the still-downed starship some 40,000 km distant. (On the next page, a large-scale map shows macro-features of the superconductor grid area.)

After 1000km of walking - 25 days at 40 km daily - the crowded Valley People farms of the Outlands give way to long stretches of empty path which occasionally fork without any markers at all. The vegetation is brushy, with occasional gloomy stretches of forest. A few travelers are seen, but they flee from the trail and hide long before the explorers could talk with them.

It should be obvious to the explorers that they are going through apparently-abandoned wild country, where dangerous animals may live. The players should determine any schedule to stand watches. The gamemaster must be aware of any detection equipment, etc.

The opening scene is at night. Draw a diagram of the explorer's camp: locate their sleeping places, weapons, guard point, and fire (it is best to have a fire, so that everyone has the feeling that they can see). Determine who is standing watch.

THE ENVOY

By Listen or by sensors, the explorer standing guard becomes aware of forms moving about in the brush beyond. More than one creature is apparently scouting the camp. They sneak within seeing range, surrounding the campsite. More wait quietly in the rear.

If the explorers foolishly open fire instead of negotiating, have the Kaladians return fire briefly (2D6+2 damage, 25% chance per explorer to be hit), then sink back into the bushes and disappear; keep the explorers up all night with strange noises and rustlings, then have it rain all the next day to make the sleepless explorers miserable. Bring the Kaladians back the next afternoon, perhaps in their boxcars on an open plain, and the explorers may be in a more hospitable mood. Treat the encounter as totally new, but remember that the explorers opened fire on someone without provocation, and use that incident as a rationale at some later time.

If the explorers make peaceful gestures, a single figure approaches the camp, waving a large frond-like branch overhead in a slow, figure-eight motion.

The envoy is a Valley Person. Unlike those whom the explorers have seen previously, this one is obviously from a more technically-advanced culture. She is about 180 cm tall, of thin hominid build, and has an old scar across her face which has closed her left eye. The pupil of her right eye glints red in the firelight. She wears a heavy flak suit and a light metal helmet which does not cover her face. A stout equipment belt girdles her waist, a metal box with antenna hangs from her shoulder, and a circular transdisk (much like a comdisc in appearance) hangs from a thong around her neck. No weapons are visible. Those explorers who receive a successful Search notice, unlike other Valley People they have seen, that this

cont. p. 66

The Neighborhood

Scale: 1 INCH = 6143 MILES
= 9884 KM.



SPINWARD

active 3E mission ●
3E mission ruins ○
superconductor grid

D E S E R T

salt flats

Opal Ocean

scrith plateau

D E S E R T

star-ship

marinex route

Whistling Ruins

G R E A T S E A O F G R A S S

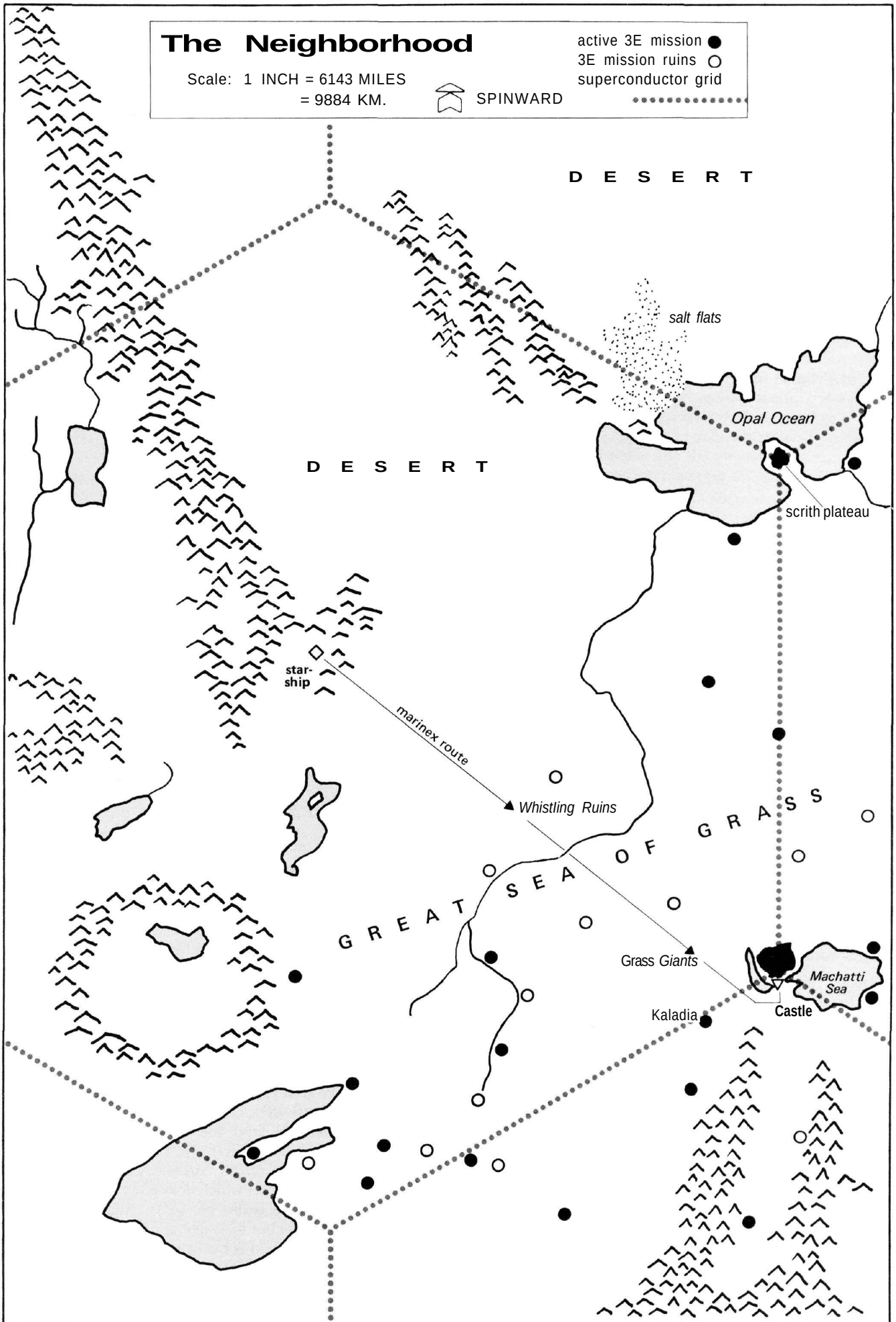
Grass Giants

Kaladia

Castle

Machatti Sea

Rim Wall at hexagon edge



THE KALADIAN-KITON FOLK

The Kaladians, now thousands of Ring years distant from their horticultural heritage, are part of a nomadic merchant branch of the Valley People. These folk arc traders roaming this part of Ringworld, mostly crossing or skirting a vast grassy plain nearly a million kilometers on a side. The Kaladians are organized into clans, each of which controls and is identified with a particular long-established trade route. Unlike their forebears, the Kitons have become omnivores.

The Kiton clan which the explorers have encountered is led by Uvugaru Mang. Usually the clan is called Kaladians, since one end of the route is at the ruined city of Kaladia. Clan families are organized by boxcar; crews are related by blood or ritual to the owner. Men and women are social equals, with superiority determined by the worth of their technical or mercantile skills. Half the boxcar owners are female.

The Kaladians are a gregarious and proud people. They state that the hundreds of thousands of agricultural Valley People surrounding the Realm once rode in proud machines too, but were condemned by Ohjomo the Just for engaging in rishathra with *yana*. Although Uvugaru Mang always says this with utter solemnity, all other clan members within hearing distance burst into laughter. No explanation is given; Malareet Igin hints that it is a religious secret.

The Kaladians wear bright clothing, considerable jewelry (mostly metal), and both sexes paint their skins with swirling patterns of color.

The quality of their technology varies. Their vehicles are patchworks reconstructed from sophisticated machinery. The MAGLEVs and solar panels show excellent workmanship apparently unachievable by the Kaladians in their boxcar homes, for many items are decidedly inferior. Their weapons fire slugs propelled by a chemical explosive contained within ceramic cartridges. They eat from primitive plastics which actually absorb greases and other contaminants. Small scavenger insects routinely harbor themselves within the boxcars and live there unmolested for generations. The Kaladians even use dangerously-exposed electrical coils for heating and cooking.

Seventeen boxcars, harboring about 200 individuals, arc in this clan's caravan. Most of the boxcars are combination house-gunboat-freighters. A few are specialized (refrigerators for perishables, vacuum seals to guard against explosions of bulk grains, etc.). One boxcar is not lived in — it's reserved for parties, feasts, and as a get-away when family squabbles become too intense. Childless adults and confirmed singles live in another — the only boxcar without petrifying numbers of children constantly underfoot.

KITON WALKIE-TALKIE

These have a maximum range of about 3 km before interference and non-reception render them useless. These primitive devices actually include vacuum tubes, which will break if the unit is dropped. Among buildings or boulders the useful range may be extremely short.

KITON BOXCAR

MAS: 71
VOLUME: 3,500 cubic meters
SPEED: 100 kph maximum speed
MAXIMUM ACCELERATION: 12 kph/im
ENERGY USED: 100/im empty, 250/im loaded
POWER SUPPLY: approx. 200 square meters of solar panels producing a maximum of 270/im; 4 serial storage batteries, 4 x 100,000/270/90kg/R each
APPLICABLE SKILL: Atmospheric Craft
COST: 2000 man-hours to salvage, assemble, and test
GENERAL HIT POINTS: 125

location	1D20	armor/ hit points
landing leg (roll 1D6 for leg)	01	5/5
belly	02-04	2/50
left or right MAGLEV (1D2)	05	5/30
area & door 1	06	5/10
area & door 2	07	5/10
area & door 3	08-09	3/15
area & door 4	10-11	3/15
door 5	12	5/15
solar panels right	13	0/15
solar panels left	14	0/15
left or right turret (1D2)	15	30/15
vertical stabilizer (rudder)	16	2/10
nose spoilers	17	1/5
sensors, spotlights, com gear	18	1/10
control and living quarters	19-20	5/30

Kaladians live and work in their boxcars. A typical boxcars' salvaged MAGLEVs, solar collector and converters, and hull come from different machines; much work has made the composite craft smooth-running and reliable, though the close quarters and continuous associations of the crew make for endless squabbles, frictions, curses, and fights, broken by weeping pleas, fits of shame, whining prostrations, and ribald guffaws. Everyone talks, talks, talks.

MAGLEV-powered machines, boxcars float a couple of meters off the ground, and usually run in caravans back and forth along long-used routes; they are tramp freighters plying Ringworld's enormous grassy plains. Their tree-top ceiling, poor radar, and sluggish handling characteristics confine them to daylight flight except along well-known, beacons routes. See page 69 for the plan of a typical boxcar.

KITON TURRET GUN

MAS: 8 (including monitor; turret separate)
DIMENSIONS: 1.2 meters long; single barreled, belt-fed automatic weapon
ENERGY COST: ammunition, plus 2 units of energy per impulse when firing
ENERGY SUPPLY: ship's power
DAMAGE: 1D8+4 (four per impulse)
RANGE: 100/300/600 meters
APPLICABLE SKILL: Heavy Weapon
ARMOR: 30 point turret
GENERAL HIT POINTS: 15

Each of a normal boxcar's twin turrets mounts one remotely-aimed and -fired gun; the turrets can fight independently. A turret rotates 360 degrees, and its gun aims out at any angle. Kaladians must trade for ammunition; most boxcars carry about 1500 rounds.

ASSASSIN BOLT

This throwing weapon is a piece of machined steel, with three wickedly-sharp 10cm blades at the head. A thin hasp acts as a handle and trails the head. The weapon is about 30cm long; it can be thrown with great force. Analysis shows fragments of scrith cast into the head for greater mass and accuracy. The Kaladians say that some Kiton tribes use a mechanical bolt-thrower something like a crossbow, and that at close range such bolts pass through wood, bodies, and steel. The Kaladians trade through intervening civilizations to get these expensive little death-dealers. Range — 20 meters; damage — 1D10+2; general hit points — 20; weight varies from 2-3 kilos.

GEFORZ

A traditional Kaladian alcoholic drink, each serving of *geforz* must be made fresh and must be served in a clear glass or cup. Pure alcohol is combined with the crimson juice of a tree fruit called *bakiko*, which resembles a pomegranate. When the proportion of alcohol to *bakiko* is 2:1 or more, the blood-red juice does not disperse, but hangs suspended in sheets and tendrils. When the proportion is less than 2:1, the juice disperses throughout the drink and assumes a pinkish cast. It is therefore possible to visually gauge the potency of the drink, and the Kaladians say that pink-drinkers are *prorgs* — wimps. Perhaps in consequence, most Kaladians appear to be addicted to alcohol.

KITON FLAK JACKET

All Kaladians wear flak jackets, which should indicate to the explorers that the Kaladians do not lead tranquil lives. The jackets are vests covering the chest and abdomen. Metal or ceramic plates are sewn within cloth pockets. The flak jackets uniformly stop three points of damage from projectile weapons.

KITON TRANSDISK

The transdisk is a translation device. It can learn a new language in 3-6 hours; it already knows all of the languages along the Kaladian caravan route. The technology which produces the transdisk is obviously very advanced, but the Kaladians have had to wire and strap their transdisks to large, heavy, and unsophisticated batteries good for about six hours of transdisk use before the batteries must be replaced.

text continued from page 63 —

woman's fingernails are cut short: she works with equipment and goods rather than with the soil.

If an explorer stands or comes forward, the envoy approaches, waving the branch and speaking in her native tongue (Valley People/Adult Female Social) and other local languages. She continues this until the explorers speak, whereupon her own transdisk will translate the language aloud, if the explorers spoke in a local tongue. If they spoke in their own tongue, or any other strange language, her transdisk makes only a squawk ("insufficient data"). The transdisk already knows all of the languages usually encountered along the Kaladian caravan route.

Once friendly communication is established, the envoy relaxes. She turns and locks a dial in her belt (disarming the explosives which are keyed to her continuing heart-beat), pulls a walkie-talkie from her shoulder, and calls to her fellows in a language which her transdisk does not translate. She identifies herself as Malareet Igin of the Kaladian branch of the Kaladian peoples and engages in casual speech, asking what this implement is, or what that symbol means. She continues in this vein for an hour or two, until she is able to understand nearly everything the explorers say. Once she is satisfied with the translation, she informs her clan, whom she says will now join the camp.

Within a few minutes, nearly a score of armed Kaladian boxcars glide into view. Spotlights flit everywhere. If nothing untoward occurs, then a cargo door opens on the side of one painted with sarkbestes engaging in "mating" battles, and the leader of the caravan, preceded by several armed guards (whose conspicuous sidearms are bolstered), descends to greet the explorers.

The Kaladian Way

The Kaladians regularly traverse a 5200 km route between the ruined city of Kaladia to the Valley People settlements on the fringe of the Realm, attending the larger open markets and making individual deals with larger farms and cottage manufacturers along the way. The caravan works as a unit for self-protection; there is no law and no police along the route, only different species and customs. One of the caravan's most profitable cargoes is the



Malareet Igin

transport of passengers and information; nothing else in existence along its route moves as quickly, as regularly, or as securely.

As a whole, the Kiton tribe deals in alcohol, compressed methane, foodstuffs, metal and plastic ingots and scrap, housewares, and hand-crafted luxuries. Wood, especially the hardwoods, is an important item for any deep-plains farming community. The Kaladians in particular trade machines and machine parts which eventually find their way all over the Realm in the form of taxes and tribute exacted from the Valley People. Kitons also hunt for food in the wilderness, and raid isolated Valley People settlements and nomad camps (as a folk, they have little concept of decency towards outsiders). Kiton radio equipment is not good; the tribe has never managed to establish a radio net which was not promptly destroyed by migration, stampede, scrap-seekers, looters, or storm.

DEALING WITH THE KALADIANS

After the leader and his friends descend, a crowd of onlookers gathers along the ramp. A dozen more figures, armed with rifles, line the top of the boxcar.

Uvugaru Mang, leader of this caravan, is friendly and communicative. If the explorers do not have transdisks, he generously supplies one to each. Raising both hands upward and extending his fingers, he pronounces a solemn

holds out his hands. "It requires a short adoption ceremony, then you will be as one of us. Will you do it? As clan members you receive fine weapons," as he brandishes his revolver, in design something like a Colt Peacemaker, "and the right to drive a boxcar!" If they do it, the explorers will be some 4000 km closer to their starship (as nearly as they can judge from what the Kaladians say), and have a chance to shorten their trip from years to weeks. Explorers receiving successful Psychology or Search rolls notice that many Kaladians roll their eyes, snort in disgust, or look amused at the announcement.

If the explorers agree, Uvugaru Mang returns to his group and engages in more animated conversation, impolitely out of earshot of the explorers. The others often glance over their shoulders towards the explorers, asking questions, then disagreeing or agreeing with smiles and warm looks. Then they disperse, calling out to still others, and a burst of activity occurs.

The Adoption

The ceremony need only be taken by one explorer, Uvugaru explains. If only one does participate, then to the Kaladians he is the titular leader of the explorers.

WOGGO

If the gamemaster desires, one child of the clan begins

The people circle around the spotlighted area; their clothes, though brightly colored, are still greasy from the feast, matching their pungent body odors. During the ceremony most clap rhythmically, but several have crude mechanical noise makers which punctuate the speech. Uvugaru Mang and a female, Navar Loday, lead the rites.

The couple relate a long story in the untranslated language. The only which the explorers recognize is the name Ohjogo. At some points the crowd bursts into laughter. The pair of leaders act out a story wherein they meet, show great happiness by laughing and dancing and singing, lapse into a tender embrace which turns into sexual foreplay, then break apart and sing a tearful lament.

In a few minutes the two turn towards the candidates. The explorers have been forewarned to answer affirmatively to all questions. Each explorer to be adopted is questioned by the leader Kaladian of the opposite sex. The questions are innocuous: "Are you here? Are you real? Is this your hand? Are you friendly? Are you kind? Will you help me?" and so on, until the candidates must take a short oath: "Do you swear to aid me, with fair words, in my suit?" The ceremony culminates when all participants nick a finger, spill their blood into a common cup full of liquid, and each sip. The drink is harmless; it tastes like orange juice.

"Now you are far-kin to us, and to be treated as all far-kin are treated. Welcome to the clan. Welcome to the family." Each new clan member then receives a belt carved with the face of Ohjogo, a revolver, six rounds of ammunition, and a sturdy sharp plastic knife, each in leather scabbards.

Festivities continue until everyone is stuffed. Gradually all the Kaladians wander off to bed. Venturesome explor-

ers learn that the Kaladians chiefly like to eat, and that rishathra is not an important component in their culture.

JOURNEY

The explorers can now ride with Uvugaru Mang while following the regular trade path to Kaladia. During the trip, the explorers will witness the full range of human emotions exhibited between various clan members; if nothing has convinced them before, they should now believe that the Ringworld hominids are human in every essential. The clan shares considerable knowledge of the route they follow, and convey rumors of that beyond, but explorers receiving successful reasoning or Psychology rolls will perceive that the clan has contempt for dirt-bound outsiders and desires to cheat them whenever possible. Any knowledge of matters other than trade and the routines tied with trade may be stereotypical or uninformed. Sometimes Kaladians seem to say anything that the explorers want to hear; other times, the explorers find themselves being persistently teased and laughed at.

Four days of stops and of uneventful travel across endless rolling plains. Explorer clan members can practice driving the boxcar (Atmospheric Craft/Kaladian Boxcar); for those with any Atmospheric Craft experience, the controls are simple and foolproof, and the speeds are so low that boredom and gusts of wind are the only enemies.

At one point a herd of haemonts is sighted; the boxcars turn to hunt them. Let the explorers maneuver the boxcars and fire Kaladian projectile rifles at the creatures. The clan members sometimes regard their efforts with amusement, encouragement, and patient tolerance; at other times the clanspeople swear at them and the children play cruel jokes. All in all, Woggo tells them, the clan would rather be without them, but the leaders have decreed otherwise.

2. Ambush

The next day a scout reports to Uvugaru Mang that he spotted a herd of stampeding sarkbestes to spinward. Uvugaru Mang speculates aloud. "Those lazy monsters never run unless they are mad, and only two things drive them mad. Was there smoke on the horizon?"

"No, sir."

"Then it was probably the Engrinostli caravan. This time they'll learn not to nibble on our route!" Uvugaru Mang radios for a meeting to ensure that everyone understands the situation and that everyone has ammunition. If the explorers ask why the clan is attacking other clans of Ohjogo, Uvugaru Mang replies, "They are only far-kin." and goes back to his work. The clanspeople are confident of success in any impending brawl with the Engrinostli: "We have to teach them another lesson."

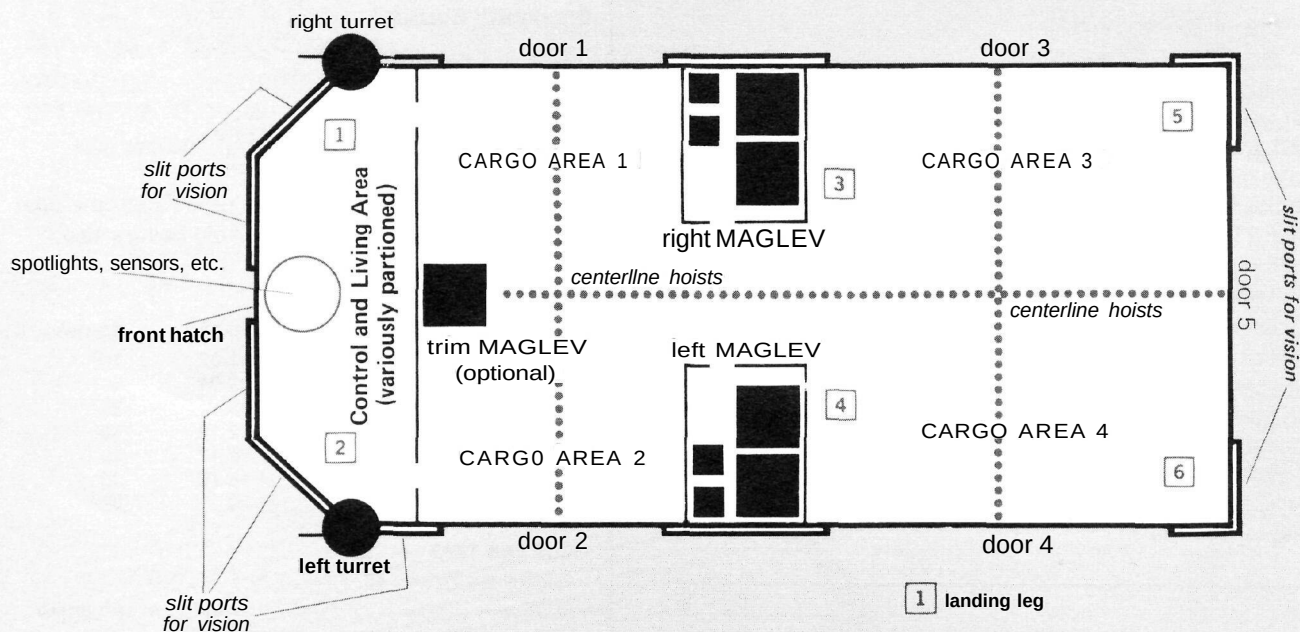
During the meeting, the stampeding sarkbestes approach. The boxcars hover at maximum height, five meters, allowing the maddened animals to pass below. The herd numbers millions, maybe billions; they take hours to pass. The dust dims the sky and the vast roar of their hooves shakes the boxcars and makes discussion impossible. At first the Kaladians shout jokes about the passing animal sea, but gradually fall silent as the mass rolls

by, and at last most refuse even to look out the ports. It is an inescapable lesson of the smallness of the clan and the colossal size of the Ring, but the Kaladians refuse to accept it.

Where the sarkbestes have passed, the plains are chewed by foot-marks, and the grasses are smashed and flattened. Scattered sarkbeste cadavers can be seen, smashed and burst, unlucky victims of accidental falls during the thunderous rush. Some boxcars indicate that they will swing out and follow the tail of the herd, bagging fresh sarkbestes for the clan larder. Encourage the explorers to get firearm practice by participating in the hunt.

Battle with the Engrinostli

After the herd passes, Uvugaru Mang dispatches three boxcars as scouts to spinward, and three more as pickets in the other direction. The caravan heads spinward also, at a slightly slower rate. Everyone prepares for battle — throwing out debris, tying down loose goods, checking arms, pulling on flak jackets, etc. Children are confined to the most strongly armored parts of the boxcars; goods which might stop bullets are piled around them for extra protection.



Typical Boxcar

Scale: 1 INCH = 7.8 METERS

Kaladian Player-Boxcars

BOXCAR ONE

General Hit Points: 125

location	1D20	armor/ hit points
landing leg (roll 1D6 for leg)	01	5/5
belly	02-04	2/50
left or right MAGLEV (1D2)	05	5/30
area & door 1	06	5/10
area & door 2	07	5/10
area & door 3	08-09	3/15
area & door 4	10-11	3/15
door 5	12	5/15
solar panels right	13	0/15
solar panels left	14	0/15
left or right turret (1D2)	15	30/15
vertical stabilizer (rudder)	16	2/10
nose spoilers	17	1/5
sensors, spotlights, com gear	18	1/10
control and living quarters	19-20	5/30

BOXCAR TWO

General Hit Points: 150

location	1D20	armor/ hit points
landing leg (roll 1D6 for leg)	01	5/5
belly	02-04	5/60
left or right MAGLEV (1D2)	05	8/30
area & door 1	06	0/10
area & door 2	07	5/10
area & door 3	08-09	5/15
area & door 4	10-11	5/15
door 5	12	5/15
solar panels right	13	0/15
solar panels left	14	0/15
left or right turret (1D2)	15	5/15
vertical stabilizer (rudder)	16	2/15
nose spoilers	17	2/10
sensors, spotlights, com gear	18	5/10
control and living quarters	19-20	10/20

BOXCAR THREE

General Hit Points: 172

location	1D20	armor/ hit points
landing leg (roll 1D6 for leg)	01	3/5
belly	02-04	10/40
left or right MAGLEV (1D2)	05	5/20
area & door 1	06	5/10
area & door 2	07	5/10
area & door 3	08-09	5/5
area & door 4	10-11	5/5
door 5	12	5/15
solar panels right	13	0/15
solar panels left	14	0/15
left or right turret (1D2)	15	20/10
vertical stabilizer (rudder)	16	2/15
nose spoilers	17	2/10
sensors, spotlights, com gear	18	5/10
control and living quarters	19-20	5/20

BOXCAR FOUR

General Hit Points: 185

location	1D20	armor/ hit points
landing leg (roll 1D6 for leg)	01	5/5
belly	02-04	6/50
left or right MAGLEV (1D2)	05	5/30
area & door 1	06	3/10
area & door 2	07	3/10
area & door 3	08-09	5/10
area & door 4	10-11	5/10
door 5	12	6/10
solar panels right	13	0/15
solar panels left	14	0/15
left or right turret (1D2)	15	4/20
vertical stabilizer (rudder)	16	2/15
nose spoilers	17	2/10
sensors, spotlight, com gear	18	5/10
control and living quarters	19-20	5/30

text continued from page 68

Photocopy and divide the provided boxcar stats so that the players each have one. Explain to them that they are temporarily assuming the role of prominent clan members and ace boxcar pilots so that they can participate more fully in the fight. They should be happy to have a chance to dogfight a bit. All will be controlling characters with a 2D6 x10% skill in Atmospheric Craft/Kaladian Boxcar, a 1D8+1 x10% skill in Heavy Weapons (proj.)/Kaladian Turret Gun, and a 2D6 x5% Observe skill.

Everything being equal, these boxcars can accept one-half of their general hit points in damage before they lose all power and mobility. A hit location that loses all of its hit points can no longer function; further hits on that location could start fires which might spread through the boxcar. If explorers are riding in a location hit by enemy guns, they can escape being hit that impulse by successful player luck rolls.

ENGRINOSTLI BOXCAR (for gamemaster use)

Hit Points: 265

location	1D20	armor/ hit points
landing leg (roll 1 D6 for leg)	01	5/5
belly	02-04	5/80
left or right MAGLEVS (1D2)	05	10/30
area & door 1	06	5/15
area & door 2	07	5/15
area & door 3	08-09	5/20
area & door 4	10-11	5/20
door 5	12	10/20
solar panels right	13	0/15
solar panels left	14	0/15
left or right turret (1D2)	15	30/15
vertical stabilizer (rudder)	16	2/15
nose spoilers	17	2/10
sensors, spotlights, com gear	18	5/10
controls and living quarters	19-20	8/50

ENGRINOSTLI BUZZER

MAS: 48 (1630 kg loaded)

DIMENSIONS: 2.5m wide, 8m long including tail, 4m high to rotor

SPEED: 200 kph maximum; cruising 100-120 kph; can hover as well as rise and descend vertically

MAXIMUM ACCELERATION: 2 kph/im

ENERGY USED: alcohol; max range 400 km

POWER SUPPLY: alcohol-burning internal combustion engine

CEILING: 5000 meters maximum at 1 atmosphere

APPLICABLE SKILL: Atmospheric Pilot

COST: 1200 man-hours

ARMOR: none

HIT POINTS: 45

This light gun platform has short range and no armor, though it is very agile compared to a boxcar. It can take off and land vertically and is small enough that six can be carried by a standard boxcar. Its chief tactic against boxcars is an attack from above, either by machine gun or by rocket.

Engrinostli Buzzers

weapon	attack%	damage	range
Kiton machinegun	60%	1D8+4	100/300/600
gas rocket	60%	sleep	50/100/150

PILOT SKILLS: Atmospheric Craft/Buzzer 60%

Luck Roll 30%

NOTE: if pilot compartment is penetrated, the pilot must succeed in his luck roll to avoid being killed.

BUZZER ONE

General Hit Points: 45

location	1D20	hit points
twin fixed guns	01-02	10
gas rockets	03-04	5
pilot compartment	05-11	25
fuel tank	12-13	10
engine	14-17	15
horizontal rotor	18-19	10
vertical rotor	20	5

BUZZER TWO

General Hit Points: 45

location	1D20	hit points
twin fixed guns	01-02	10
gas rockets	03-04	5
pilot compartment	05-11	25
fuel tank	12-13	10
engine	14-17	15
horizontal rotor	18-19	10
vertical rotor	20	5

BUZZER THREE

General Hit Points: 45

location	1D20	hit points
twin fixed guns	01-02	10
gas rockets	03-04	5
pilot compartment	05-11	25
fuel tank	12-13	10
engine	14-17	15
horizontal rotor	18-19	10
vertical rotor	20	5

BUZZER FOUR

General Hit Points: 45

location	1D20	hit points
twin fixed guns	01-02	10
gas rockets	03-04	5
pilot compartment	05-11	25
fuel tank	12-13	10
engine	14-17	15
horizontal rotor	18-19	10
vertical rotor	20	5

BUZZER FIVE

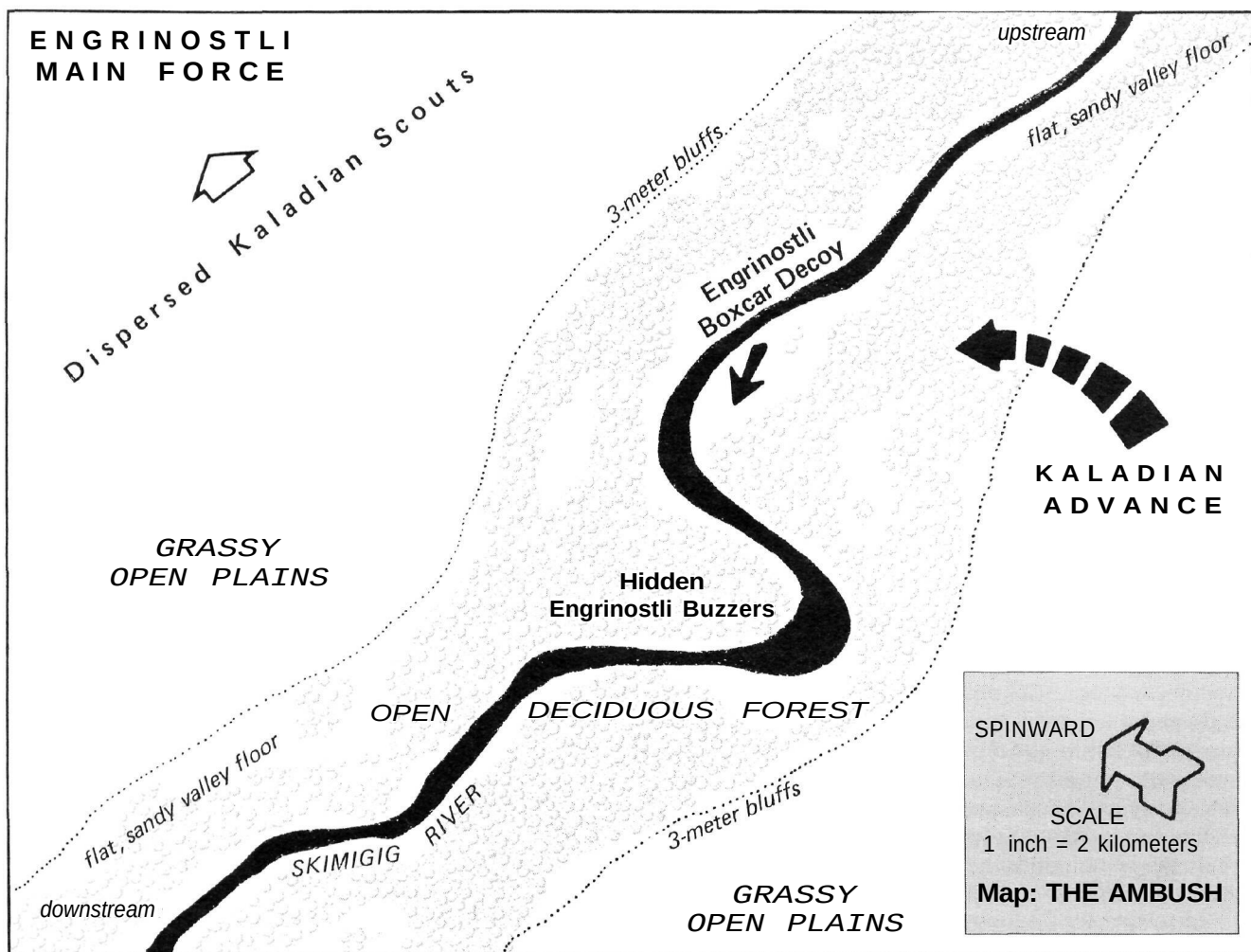
General Hit Points: 45

location	1D20	hit points
twin fixed guns	01-02	10
gas rockets	03-04	5
pilot compartment	05-11	25
fuel tank	12-13	10
engine	14-17	15
horizontal rotor	18-19	10
vertical rotor	20	5

BUZZER SIX

General Hit Points: 45

location	1D20	hit points
twin fixed guns	01-02	10
gas rockets	03-04	5
pilot compartment	05-11	25
fuel tank	12-13	10
engine	14-17	15
horizontal rotor	18-19	10
vertical rotor	20	5



As the Kaladians anxiously search the horizon for their enemies, the radio crackles. Spinward scouts report one Engrinostli boxcar sneaking along a river. The well-armored boxcar appears to have been scarred by fire.

Uvugaru Mang orders an attack, joking that the lone Engrinostli is as sure a kill as a lone sarkbeste. With their superior speed, his boxcars will make firing passes from two directions, dividing any return fire and making unlikely accidental hits from his own guns onto friendly boxcars. Picket boxcars will hold their positions: 11:1 odds should be more than adequate, he calculates.

The ships can shoot at long range for several impulses as they close. Tactics are minimal, but the enemy will try to flee the attackers by dodging through the trees along the river, always lumbering downstream. Lay out or photocopy the battle map to show the players the general situation.

When the players' boxcars close to middle range, let them have a few impulses more in which to merrily blast away. The Engrinostli ship is well-armed, well-armored, and only faking being crippled, but it certainly will lose shortly. Do not let the firing go on so long that the Engrinostli boxcar is destroyed or even badly hurt — that clan has an ambush planned which must be sprung before then. During any impulse in which a player-pilot does not fire and is over the trees, allow the player an Observe roll. If successful, he notices the glint of metal among the trees: the glint comes from the buzzers, waiting in ambush. If the gamemaster wishes, the explorers may also receive Observe rolls, though they probably are watching

the arc of tracer bullets and wondering where they can find flak jackets.

The Ambush

The Kaladian sensors are primitive; the Engrinostli trap cunningly laid. No Kition clan has ever used these small helicopter-like craft for war, though several clans carry them as taxis, messenger-carriers, etc. The buzzers lift from the ground and appear without warning at point-blank range from several boxcars. The Engrinostli plan is to down or damage at least half of the Kaladian caravan then quickly withdraw: if the undamaged Kaladian boxcars pursue them, then they must risk encountering all of the Engrinostli caravan (12 more boxcars, and possibly more buzzers as well), perhaps fatally splitting the Kaladians.

There are at least two dozen buzzers. Have 1 D2 buzzers attack each player boxcar on the first pass. Have them fire their guns first, then their rockets, and resolve those attacks. Continue to attack until the player-boxcars go down, or until those particular buzzers are knocked out of the air. Then simply state that Uvugaru Mang's ship, on which the explorers are gathered, has meantime been hit by a gas rocket, and that the action must shift to there. The gas bombs hit, easily penetrate the boxcar's lightly-armored walls, and release thin, greenish clouds of vapor. All Kaladians aboard Mang's boxcar pass out; the boxcar automatically settles gently to earth when the deadman switch activates. Oddly, the explorers are still awake.

The explorers have some interesting options at this point. Though the gas is rather nauseating, it apparently

does not harm Known Space humans. The stalwart explorers might run away on foot, man the guns, or steal the whole boxcar and hope to get back to the starship after ejecting the sleeping owners, or try to re-establish radio communications among the Kaladians — whose common radio channel just now is choked by panicky shouts.

But remind the explorers of the clan oath. If the explorers do steal this gaudy, well-known boxcar, they probably should be captured in a few days by other factions of the Kaladian clan and sold as slaves to some perverse scientist seeking new species upon which to experiment. Kaladian survivors who catch up with the explorers will try to kill them out of hand.

While the buzzers continue to exchange fire with still-airborne Kaladians, the decoy Engrinostli boxcar has landed; any explorers peering out from the control section notice that many armed men are running from the large Engrinostli craft toward the several downed Kaladian craft, including the one in which the explorers stand. Beyond, they see that the other downed Kaladians are also surrounded by the clinging green gas, and that a fourth boxcar has crashed among the trees and is burning. The fight between the remaining boxcars and the buzzers has moved beyond sight. Continual gunfire can be heard, though, and a successful Listen roll calls attention to several explosions up and down the river.

Any gunfire from the explorers' ship sends the Engrinostli boarders scurrying in panic, and brings their whole operation to a stand-still — it was not part of the plan that the captures be resisted by heavy weapons fire. There is no cover but sapling trunks in this open forest. Gunfire directed toward the Engrinostli boxcar, the ramps of which are wide open, immediately ignites internal fires. Until they can close their ramps (which will take at least ten impulses), the Engrinostli boxcar takes damage directly to hit points if the explorers aim for the open doors. Any buzzers passing over will also be surprised if fired at, and will not fire or dodge until first hit.

The plans of both sides have fallen through, and both sides have had many killed and wounded, and lost capital goods and vehicles worth many months of trade. The other Engrinostli boxcars show up as the Kaladian scout and picket cars return. The two factions glower at each other for a while in fine hominid style, declare a truce, and try to recover the wounded and arrange the dead for ghoul or vulture disposal. If the explorers have not been in a firefight before, this should be an exemplary experience.

Since the Kaladians in the lead boxcar are still unconscious, Malareet Igin from the scout section takes command. The scouts destroyed two Engrinostli boxcars and one buzzer without taking significant damage, holding back the Engrinostli main force long enough that the buzzers had to break off or be shot down.

The effects of the sleeping gas wear off after three hours. A chastened Uvugaru Mang weeps as he inspects the corpses of his clanspeople (there are 26 dead, including nine children). He takes their blood on his hands and declares that he no longer decides for the Kaladians; they must elect a new leader. Malareet Igin is chosen; she makes the 'singles' boxcar the new lead vehicle. An almost silent dinner is held that evening. Some of the clan salvage metal and guns from two downed buzzers which the Engrinostli did not find. In the morning, a few of them stay with one crippled boxcar, while another boxcar flies the more seriously-wounded clanspeople to a smallish town antispinward where the medical facilities are reputedly good. If the explorers go along on this side trip, they find that the town (named Bugits) has roughly the medical knowledge of a general hospital in 1950 United States, and no important medical supplies.

Aftermath

Malareet Igin calls a meeting. Everyone is worried, angered, or depressed, and Igin has difficulty breaking through the moodiness of the clan. The explorers learn that the caravan was shot up enough that they are going directly to the ruins of Kaladia to get parts, and there is much speculation that the Engrinostli got their gas rockets from the Nightjack proprietors of Kaladia, a point about which many heated arguments occur. While the point is of minor consequence to the clan, the explorers will get a chance to get their own vehicles more quickly.

The journey to Kaladia is across vast plains. Compensating for limping, damaged boxcars, the caravan's journey takes four days. Malareet Igin and Uvugaru Mang spend many hours talking, and Mang seems to be regretting his resignation. Mysterious, surreptitious conversations multiply, and formerly-friendly clanspeople begin to avoid the explorers. On the last day of the trip, they are shifted without explanation from Mang's boxcar to Igin's lead ship. During the trip, Malareet Igin (or Woggo, if he is used) answers explorer questions about Kaladia. Read out loud or photocopy the "Excerpts from the Tales." Treat each paragraph as separate; there is no necessary continuity between the paragraphs.

EXCERPTS FROM THE TALES

"When Ohjogo the Archmaker divided the world among his faithful, our ancestors received this region as their share. For a hundred times a hundred lives we lived here in peace and splendor. Then the Nightjacks attacked with terrible powers, and destroyed the wonderful city. They turned our people into dirt-hackers by means of the *yana* potion. Since that time we have been held in bondage and servitude by those who stole our heritage. They enslave us yet."

* * * * *

"Ohjogo of the Free, who called himself Eliasor Eliasor Eliasor, returned to our ancestors in the time of my grandmother's grandfather. With his leadership,

we Kitons regained a portion of our heritage. The Nightjacks in the cities agreed to supply us with machines and goods, each clan receiving rights to machines from various ruins. By oath, each must receive the same machinery, but it is clear that the Nightjacks have broken the agreement, for they have supplied the Engrinostli with armed buzzers and the strange mist."

* * * * *

"When Ohjogo departed, the Nightjacks dared not break the agreement. But they erected the Forbidden Towers and threatened destruction to any who entered the ruins without the Peace Signal."

"We have long struggled against the Nightjacks, and our blood has returned ancient rights back to our hands. At the Hour of the Knife we will meet them in battle at the Glistening Forest, and triumph. Though that time is prophesied, no one knows when it will come."

* * * * *

"The Peace Signal is a loud noise which emanates from the Waiting Place when a certain code is punched into the transmitter. Everyone must wear earplugs because it is so loud. When anyone enters the city without activating the signal, an army kills everyone."

"The Nightjacks are vicious, untrustworthy man-eaters. They lurk at night, shunning daylight because they cannot stand the purity of the sun. They eat only meat and will not cook it. They cannot use the machines which they hoard, but they seek to control us with them."

* * * * *

"They demand an awful tribute of five healthy adult slaves each time we speak to them. They eat the wretches, removing organs or cutting off limbs one at a time to keep the meat fresh. They have ways of keeping the wounded alive."

3. Nightjacks

The Kaladians casually reveal their usual procedures to the explorers. A negotiating party stops at the Waiting Place and hands out earplugs. Malareet punches in the code to start the siren, whose wailing pierces everyone's ears despite the plugs. The party proceeds down the Slow Road to the Rally Square, and waits until twilight abruptly falls. No lights are turned on, but the sirens stop.

Shortly after dark a gravelly voice echoes across the square. The players may make Search rolls while their explorers listen to an untranslated voice. If successful, the explorers spot a pair of creatures standing on a rooftop nearby, both with hands raised overhead and fingers extended. After a moment they stop speaking, then begin again in a voice translatable by the transdisks.

The creatures on the roof are Nightjacks (called Night Hunters and described in the Hominids section of this book). Use of enhancing gear or another successful Search roll indicates that these individuals wear tight clothing with a short cape. No colors are visible in the darkness.

"I am Porgalka Nambil, woman of the Hunters by Night. The Truce of Two Nights is begun. What gifts have you brought to us, as demanded by Eliasor Eliasor Eliasor? Where are the Five?"

The explorer adopted into the Kaladians and called "far-kin" now hears a voice in his head, as if by telepathy. If more than one explorer was adopted, all the adopted explorers hear it, but only one (designated by the gamemaster) feels compelled to respond. The others feel like bystanders.

The voice rings, "Do you swear to aid me, with fair words, in a suit with others?" The explorers may well recall that they vowed to do this very thing in the adoption ceremony. The speaker of the voice is unclear.

Malareet Igin then states aloud, "This is our leader, Great Ones; this is the Speaker, High Ones; this is the one who directs us, Mighty Ones." She turns expectantly to the just-contacted explorer, as if expecting a comment.

The compulsion of the voice demands that the designated speaker do his utmost to comply with his oath. However, the explorer has little idea of what to say or of what is expected. But he knows he must speak. As he struggles to say the right thing, or to say nothing at all, his player must succeed with a CONx5 roll the first impulse, then a CONx4 on the next impulse, then CONx3, and so on until the player fails the decreasing roll. When

the player fails, his explorer must say something. If the explorer still has no plan, he blurts out a stream of incoherent babble. Force the player to state what his explorer is saying without giving him time to prepare.

Alas, whatever the speaker-explorer says is inappropriate. As he babbles, the Nightjacks on the building move restively, looking at each other and fidgeting with their hands. After the explorer finishes, there is an embarrassed silence. At last the Nightjack speaks again.

"This is not the Truce of Two Nights. This is not the way to do business! No Five greet us, no gifts come our way. Begone quickly, for the doom is upon you now!"

At this all the Kaladians in the negotiating party dash for the boxcars, which have already lifted and crept down the Slow Road. Turret guns begin to blaze. The two Nightjacks on the roof instantly jump for cover as the low building shudders and splinters under the impact of hundreds of bullets. Take care here to understand what the explorers are doing and to start calling out impulses.

Moments after the shooting begins, high-pitched whines of electromagnetic stunners can also be heard, and a few Kaladians drop. Though none can be seen, Nightjack guards are evidently returning fire from prepared positions. The frustrated Kaladians let go with everything they have, filling the square with tracer bullets and ricocheting rounds. Ask the players what their explorers are doing.

There are mostly blank walls at the edges of the Rally Square. Whether they remain in the square or race to the boxcars, have the players make a luck roll for each of their explorers. A special success indicates that the explorer made it to a boxcar and got picked up. A success still means that the individual was struck by a Nightjack stun bolt and dropped unconscious to the pavement. A failure indicates that the explorer was struck by a ricocheting turret gun bullet which does half rolled damage, and a special failure indicates that he was struck by a turret gun bullet doing full damage. The explorer that was "spokesman" is automatically struck by a Nightjack stunner bolt — possibly six or seven! Since the clanspeople within the boxcars can safely ignore stunner fire, the boxcars methodically pick up all the clanspeople and far-kin in the square, then depart. The gamemaster should take care to make this as exciting as possible — attempt to make the players fear for their stricken characters, and worry about whether or not the Kaladians will be able to

PORTION OF KALADIA

This explanation includes information related by the Kaladians, information observed during the approach to the city, and deductions from any scouting done at a distance.

THE WAITING PLACE: a flat, paved area with a single small building which houses a sonic transmitter. Above it a single thin pole rises about 90m, topped by speakers which wail like 20th century air raid sirens.

THE FORBIDDEN TOWERS: six towers, each about 200m tall. They are reflective silver on the outside, impenetrable to sight, sound, or even Known Space sensor equipment.

SLAVE PENS: reconstructed buildings and yards house the miserable captives of the Nightjacks. They are kept here until devoured.

SLOW ROAD: the traditional route to reach the Rally Square.

RALLY SQUARE: the place where the Nightjacks meet with the traders to reiterate their agreement.

BOXCAR WRECKS: within the rubble of this area lie many semi-ruined boxcars. Aided by a successful Observe roll, explorers realize that the remains are those of a large factory.

COMMUNICATIONS BUILDING: this ruin can be explored. From it come transdisks and many strange electronic parts.

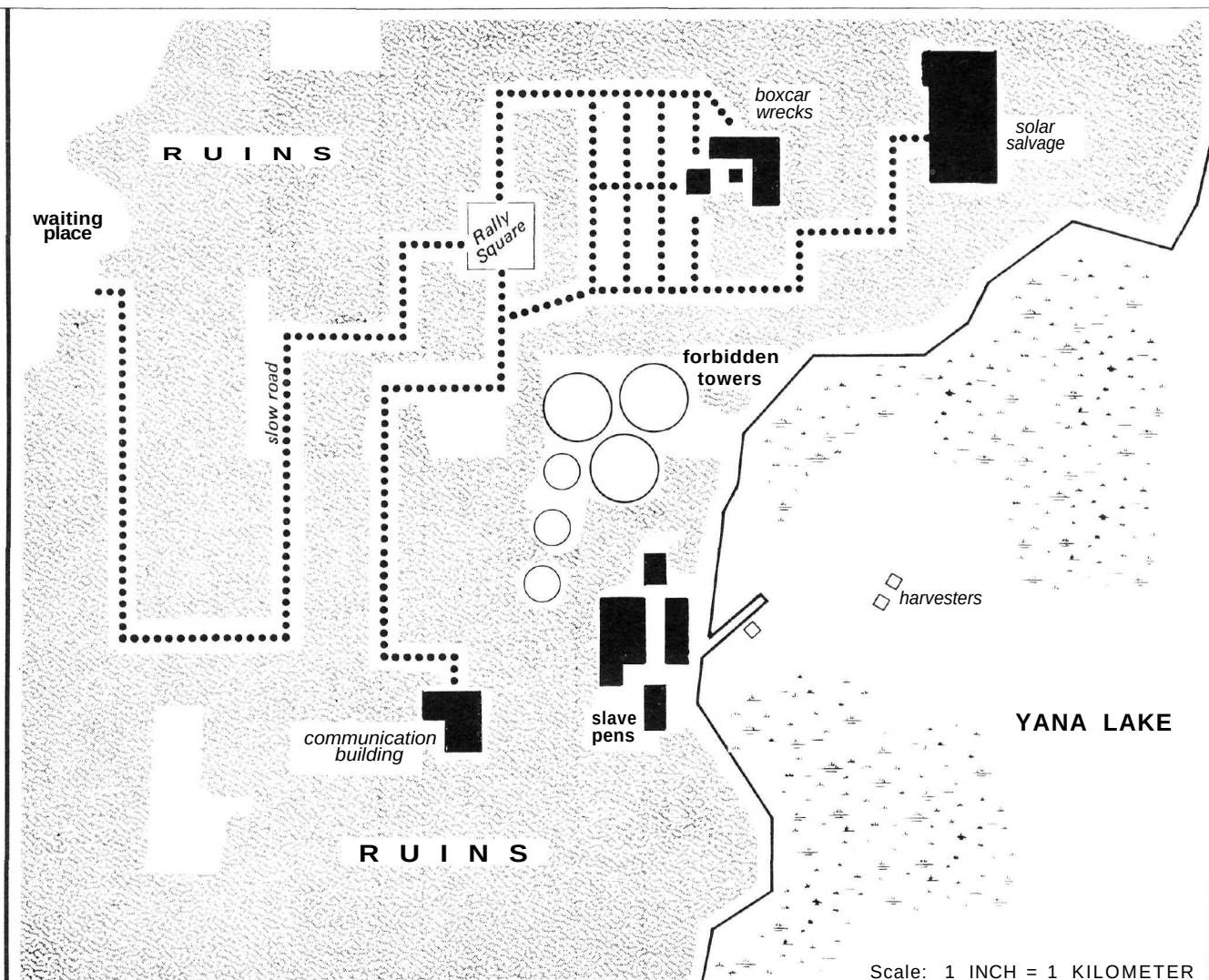
SOLAR SALVAGE, a single, very large building with an intact roof made of a single piece of black plastic. With a successful Physics or Engineering skill roll (and perhaps a reasoning roll), an explorer may hypothesize that the roof is a single solar panel, potentially

yielding a wonderful amount of power. From the interior come many of the machines salvaged by the Kaladians.

YANA LAKE: this islandless body of water is about seven km across and is roughly circular. Its surface is green and scummy.

HARVESTERS: several large machines float on the lake; inspection and a successful Engineering or Botany roll will reveal that they may be harvesting the weeds and muck. Occasionally a small flyboat zips from harvester to shore or back again. One, apparently unloading, is drawn up near the slave pens.

RUINS: most of the city is shattered. A survey of a few hours and a reasoning roll indicates that the damage was done by one gigantic or many smaller sonic blasts.



KALADIAN CLAN RIFLEMEN

All the Kaladian Valley People gunmen have the same weapons statistics; their action rankings and general hit points differ. For the purpose of this scenario, a rifleman stops firing when he or she has taken damage equal to one-quarter or more of his or her general hit points (round fractions up); he or she then attempts to move to the nearest boxcar and escape.

weapon	skill	range	s/m/l	damage	energy	rate of fire	magazine							
Projectile Rifle	45%	20/60/180		1D10+2	self-powered	1 round /4 im	8 rounds							
RIFLEMEN	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Action Ranking	3	3	3	4	4	4	4	4	4	5	5	5	5	5
General Hit Points	20	24	18	21	20	16	25	26	19	22	20	28	21	33

rescue them. Make sure they notice that, though the designated speaker was struck by the bolts, Malareet Igin escaped scot-free.

Council of War

Ten kilometers beyond the city, Malareet Igin calls a meeting of the clan. Assume that any explorers hit have come awake, groggy and grouchy. All the Kaladians are gleeful and excited. "Now they did it. Now they broke the truce. Now they fall." the Kaladians say. Malareet Igin yells that the treacherous Nightjacks prefer the Engrinostli. No one seems surprised.

Call a halt to the adventure for a moment to learn just how the explorers are feeling. They probably realize that this dangerous episode seems to have been pre-arranged, and that at best, the explorer spokesman was an inglorious dupe left to fend for himself while bullets flew. Give the players a chance to talk. If they decide that their explorers feel cheated and betrayed, and a bit bewildered, they are being true to the situation.

Malareet Igin, Uvugaru Mang, and the other adults brush off the incident, saying "The Nightjacks are treacherous and unreliable. Prepare yourselves for battle." and continue their own preparations. "On to the slave pens!" cries Malareet Igin. As one, the boxcars rise, circle far beyond the city, then sweep across the lake from the right of spinward toward the buildings at the edge of the water.

"You are in my group," Malareet Igin tells the explorers. "Stick close, shoot straight."

The Slave Pens

Woggo or anyone explains to the explorers that the clan is attacking the slave pens to liberate the hominids still alive. "Everyone fears what we will find," implying that corpses and skeletons and ghastly refuse litter the area.

The swooping caravan is not fired upon. As they near the shore, the Kaladians congratulate themselves, saying in effect that the foolish Nightjacks were not expecting a raid from this direction. When near the outer buildings, many boxcars stop and lower their cargo ramps. Fighters pour forth and dash inside several of the slave pen buildings. Others kneel beside the ramps, firing parachute flares into the sky, boasting that "The Nightjacks will be blind under such stars!" In the glare, explorers notice other boxcars watching further offshore, their turret guns pivoting, ready to close and do battle at call. Further off, several boxcars have landed beside a large building "where everything has been stored," according to a guard. A successful Anthropology roll suggests that this phase of Kaladian life is well-practiced and keenly enjoyed.

Malareet Igin and the explorers wait for a while until runners return with reports; the thick walls of the slave buildings have made walkie-talkies useless. Calls from the other boxcar landing unit say that nothing but ammunition and some hand weapons have been found at the storage buildings. Astonished, Igin is silent. Then news comes from inside the slave pens.

"They won't come," pants the first runner. "They are thralls of the *yana*. What shall we do?" Now Igin is completely taken aback. She thinks for a minute, while second and third runners arrive with the same news. "Wait here," she growls at last to the explorers, "Don't move from here." She turns and, with all the runners, dashes through one of the slave building doors.

The gamemaster should ask the players what their explorers plan to do now. Though the boxcar is guarded, they are free to move and can do anything they want. If they hesitate, announce a temporary halt to scenario time and discuss how the explorers feel right now. If the players hesitate, assist them. Are they optimistic? How do they feel about their clan friends now? What do they think has happened? What do the Kaladians intend to do? Do they have doubts about the course of the action? If they do, try to tempt them into following Malareet Igin and her runners — otherwise they can simply stand there like dummies. Or they can kill a half-dozen clanspeople (some of whom they like), seize a boxcar, and attempt to pass through the outer ring of supporting attack boxcars.

Advise against seizing a boxcar. Any explorer who has flown a boxcar, fired a turret-gun, or otherwise participated in a fire-fight knows that it is dangerous to try to flee past other alert boxcars. Several explorers are likely to die during the attempt or the escape. If the explorers ignore good advice, several alert guards within the boxcars will open fire, possibly damaging the boxcar, but the explorers should be able to escape by flying down an alley.

Without being pedantic, remind the players that it is perfectly possible to be shot or burned to death in Known Space — explorers do not have to travel 200+ light years to Ringworld for that dubious treat. If an explorer must die, attempt to cause it by something special to Ringworld. But if the explorers insist upon a crackling good fight, give it to them. If the explorers lose and any survive to surrender, let the Kaladians pull them apart with their bare hands for such naked, uncivilized, non-mercantile, anti-Kaladian treachery.

If the explorers do nothing, they hear heavy gunfire (punctuated by screams and moans) from the direction which Malareet Igin took. This goes on for most of a minute — drag it out, allowing the players at any time to change what their explorers are doing. If the explorers adamantly do nothing, several Kaladians eventually reel through the doorway through which Igin passed; they are blood-spattered, wild-eyed, and laughing hysterically. "Malareet's right!" one giggles, "Only thing to do!" Go directly to the section headed "Realization", below.

If the explorers follow, they can go undetected and unhindered. The door opens into a long hallway. Voices come from ahead.

Within a large, glass-doored room, Malareet Igin and some armed Kaladians face perhaps a hundred hominids. Most are Valley People, many are Grass Giants, and a few are Hairy Ones. All wear simple shifts. Most stand, facing the Kaladians with raised hands, fingers outstretched. They hum a wordless, rhythmic tune. Some of the hominids wave tree parts. Explorers receiving a reasoning roll see that the fronds are the same type which Malareet Igin waved on first meeting the explorers.

Malareet screams something which the transdisks cannot quite catch. The hominids continue to wave, weave, and hum. The Kaladians open fire, methodically volleying and reloading until every hominid before them has fallen to the floor. If the explorers flee, go to "Realization," below.

If the explorers happen to open fire on the Kaladians, those worthies lurch through an opposite door, holding their wounds, leaving behind the fallen. The explorers should realize that they can easily be caught in the hallway, and run.

Realization

The beliefs and the policies of the Kaladians are at odds, trapping the entire clan. Even if the Kaladians argued for hours or weeks, they might not admit that they have attacked the Nightjacks hoping to get the same weapons with which they imagine the Nightjacks have equipped their clan rivals, the Engrinostli.

The Kaladians have broken the agreement which created and maintained their boxcar caravan; this may mean that the existence of the Kaladians as a caravan clan is doomed.

But the clan pretended that they attacked to free the prisoners of the Nightjacks. Previously, the Kaladians had simply thought that exchanging the explorers (non-kin) as captives for fine machines was a great bargain. Only when the Engrinostli threatened and killed many Kaladians did they decide to break the Nightjack "bonds." If the slave hominids refuse to leave with the Kaladians, it can only be because they are hopelessly drugged, and it is better to destroy them. But what now? The attack has failed to find weapons, and murdered the hominids which the Kaladians ostensibly hoped to free. Now the Nightjacks will surely refuse further trade, and soon hide the materials and devices which the Kaladians need.

The question which the explorers must answer to their own satisfaction is whether or not the Kaladians want any outside far-kin witnesses to this cataclysmic failure of policy? Do the Kaladians blame the far-kin for any part of the disaster — after all, things only started to go sour after the explorers were picked up. Do the clanspeople look narrowly at the explorers? Do they keep them away from the boxcars and toward conveniently-blank walls? Just how vicious did the Nightjacks prove to be? Do Woggo's stories of assassins, treachery, and clan wars come to mind? How secure are the explorers' lives when all around them the clan is wild-eyed, sullen, and pretending the irretrievable loss is a great victory? Any explorer receiving a successful Psychology roll may begin to speculate along these lines, as will any explorer whose player realizes the implications of what has happened.

Flight

If they are smart, the explorers should flee on foot, either down an alley or through the hallways of the slave pens. If they do not take the hint, within the night the Kaladians will try to disarm the explorers and stand them up against a wall "where you far-kin can be watched more easily." If the explorers still do not try to escape, within an hour or two more, the Kaladians will suddenly decide to kill them and open fire. This is not a carefully-organized execution - the Kaladians will just start to shoot. The explorers should feel as though they are in enormous danger, but some, perhaps most, should be able to escape.

As said before, the explorers should be smart and run. Perhaps Woggo can join them or warn them. Any pursuit by the Kaladians is both close and cautious; running fast, the explorers easily make their way to deserted nooks in the ruins which only a full-scale search could uncover. To the Kaladians, out of sight is out of mind; they'll be glad to tell favorable stories about the aliens who saved the day, then left when the great Kaladian triumph was assured. The circumstances of departure never will be mentioned, or perhaps even consciously understood.

Once secure, allow the explorers to take stock and to discuss their options. Remind them that they are armed, and that it may be possible to deal directly with the Nightjacks. Let them consider the alternatives before the Nightjack patrol approaches; if they decide to seek out the Nightjacks, let them initiate contact. If not, let them sleep: the one left on guard can inform them that the glare of flares (still floating in the sky) reveals several figures approaching, and that they are not Kaladians. Give the explorers time to prepare themselves, so that no one acts rashly.

A figure steps into the open and raises both hands. A voice grinds through the transdisk on its chest. "The Four Dialects of Peace descend upon me. I am Zarang Nambil, man of the Hunters by Night. Peace I give you. Peace I ask."

If the explorers respond in kind, several more Nightjacks reveal themselves. Most carry heavy weapons of an unfamiliar type, but refrain from pointing them at the explorers. Initial negotiations are first hesitant, then more confident. At last the emissary states that Kaladians are coming, and that everyone should retire to safety. The explorers are guaranteed safety and may keep their weapons. If the explorers do not agree to come, then sure enough a patrol of Kaladians comes running down the street, and if the explorers do not immediately run after the retreating Nightjacks, they will be left to engage in a firefight with twice their number of armed, blood-mad Kaladian warriors.

If the explorers agree to come with the Nightjacks, the party walks a short distance, enters a blasted house, then descends a basement stairwell clogged with trash. The stairwell leads to a door which opens when a Nightjack places his palm against the center. A wide clean hallway continues beyond, dimly lit by red lights.

Safety

After a half-kilometer, the tunnel ends in another security door which also must be palmed open. The explorers find themselves in a sparsely-furnished but comfortable room. The Nightjacks relax noticeably, lock their weapons into holsters or lean them against the wall, and look towards Zarang Nambil, their leader.

"Please relax," says Zarang Nambil, "Is anyone wounded or needy of assistance? My sister arrives soon; food may precede her visit. I see from your teeth you are omnivores. Does your meat need be dead? Is there some food you prefer which we might have?"

The room is 7 x 12 meters, with 4m-high ceilings. The players may attempt Observe rolls; if successful, the explorers notice that all the doors are also quite high. Four doors open into the room.

Zarang Nambil does his best to make the explorers comfortable and at ease. Wounds are tended with a substance resembling plastiskin. Seriously-wounded explorers are carried to the room next door, where surgeons cleanse the wounds and stop blood loss (they cannot administer antibiotics to an unknown hominid species).

The food proves to be varieties of raw vegetables, steamed fruits, and ground meat patties with different spices. Some servants bring in small cages which contain little pink-furred rodents. The Nightjacks dabble at the fruit and vegetables, and unselfconsciously extract rodents. The neck is deftly snapped, its head bitten off,

and then the rest of it is sucked and crunched until the whole animal is neatly eaten, with not a drop of blood spilled.

Be sure to ask the explorers' reaction to this way of taking food. It is clear that the Nightjacks do it all the time. If even one explorer seems to be distressed, Zarang looks about to seek the reason, rushes to comfort the explorer, and then snaps orders to the others, who quickly clear the animals from sight.

Porgalka Nambil arrives and is introduced. She is polite and neat, precise and penetrating, candid and open. She asks who the explorers are, what they think of the Kaladians, and what their intentions are. She answers the explorers' questions as well, but make sure the conversation is mostly hers. If the explorers become hostile or belligerent, she withdraws with her brother and leaves the explorers locked into the inescapable room (only a Nightjack palm will open any of the doors). They return and repeat the procedures until the explorers become calm and agreeable.

After she determines that the explorers are not up to mischief, she invites them into the tower, and conducts them to the main living area.

THE NIGHT HUNTERS

Read the general Night Hunter (here called Nightjacks) description among the hominid section of this book; there is an illustration of this species there as well.

The Nightjacks of Kaladia are pacifistic. Their only weapons are stunners. They preach and follow non-violent behavior based upon the instructions of their great teacher Eliasor Eliasor Eliasor, which they feel leads everyone to a better way of life.

They revere Eliasor Eliasor Eliasor as a prophet who apparently had powerful psionic abilities now no longer understood. Eliasor Eliasor Eliasor taught individuals to activate latent natural psionic abilities, but his method is known only for Nightjacks. Thus, many of the Kaladian Nightjacks have psionic powers. For instance, Porgalka Nambil is empathic and can sense the emotions of most hominids, though she admits that the explorers, for instance, are harder to read. She also volunteers that several leaders of the Kaladian Convoy are independently powerful psionics; she does not know the origin or particulars of those powers, but the explorer-spokesman at the Rally Square may well deduce that his babbling was forced by a Kaladian psychic.

Forty celestial cycles ago, Eliasor Eliasor Eliasor established this colony as one of a network of similar colonies. But shortly after he left to continue his work elsewhere under the Arch, other folk seized or made demands upon Eliasor's missions. The Nightjack followers at Kaladia decided upon a scheme to slowly change and retrain the hard-pressing Kitons. The slaves which the Nightjacks were paid each visit were introduced into their work force, taught the ways of Eliasor Eliasor Eliasor, and placed on a maintenance program of *yana* drug. Eventually a large-enough community could be built that everyone could be secure.

Porgalka Nambil conducts the explorers on a tour. Underground tunnels connect the slave pens with the Six Towers. Other tunnels in the ruins also are used.

The explorers are invited to speak at length with any slave who are actually treated more like soldiers in a

gentle, weaponless army. The former captives are happy to be where they are, and are resolutely devoted to the way of Eliasor Eliasor Eliasor, and express sincere pleasure at their way of life. Their food is better and more plentiful than in the old life, their existences more peaceful and stable, their leaders more intelligent and capable, and their purpose in life clear for the first time.

If an explorer comments on their semi-glazed expressions or feels (even without stating aloud) doubt concerning their sincerity, then Porgalka Nambil speaks, "I sense your doubt. You recognize symptoms of drug indoctrination. Believe me, these friends who were brought to us are sincere. I could not treat them without sincerity." The explorers must decide whether or not they think this Nightjack policy appropriate. Any successful Psychology or Anthropology roll indicates that the Nightjacks do seem to believe that they work for the best.

The six towers are transparent viewed from within. From the top the explorers can see Kaladian boxcars prowling about the ruins.

Living quarters fill the tops of the main buildings. Most of the central floors are devoted to animal-raising pens for some two dozen species of rodents, each favored for some specific trait or flavor. Their food is mainly pellets which are processed from plants harvested in the lake. The processor is on the bottom floor.

While their explorers inspect the animal cages, the players may attempt a Biology or Zoology skill roll. If successful, the explorers notice that many cages are empty and that many of the living rodents have lost patches of pink fur and are listless. If they comment, Zarang Nambil expresses admiration at their powers of observation, and asks if they know what disease afflicts their rodent hutches. It is slowly destroying all their breeding stock.

The Nightjacks also express great regret and sorrow over the massacre of the slaves. If asked about retaliation, they state that they'll do nothing but maintain the ancient rules. "The deeds of the Doer attract justice."

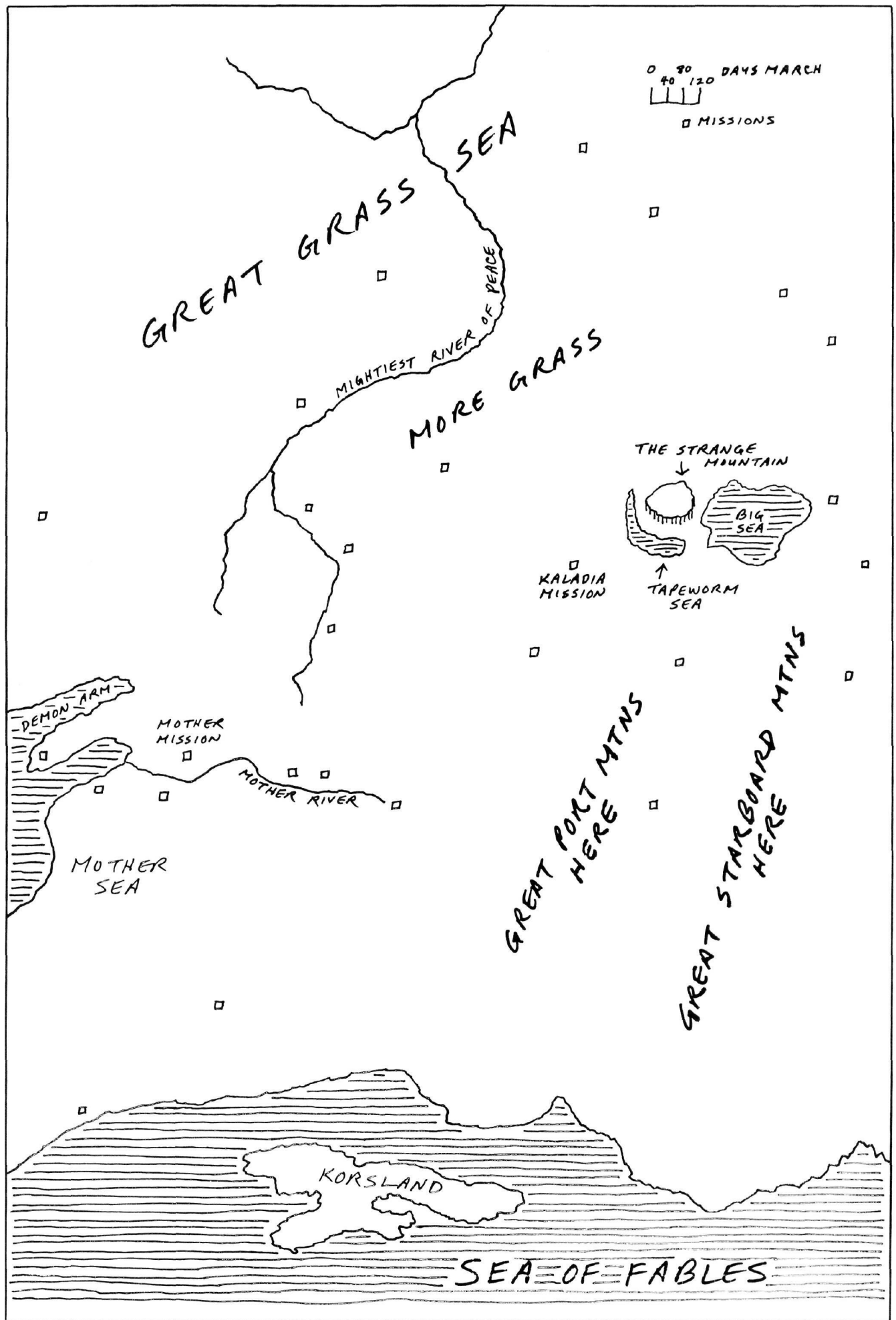
The explorers can also survey several underground storage rooms where much boxcar-part salvage, weapons, and signal materials lay on table after table. The Nightjacks notice that the explorers show great interest in this material. "I regret that we cannot give you the parts you seek," they say, "But Eliasor Eliasor Eliasor insisted that everything be bought with the proper price. Had you known the ritual of Truce of Two Nights you would have access to the ruins."

The explorers notice that the ruins seem to hold nothing resembling the Engrinostli gas rockets which the Kaladians wanted so badly. If asked, Porgalka Nambil says she knows nothing of buzzers nor gas rockets. She will, however, get as much information as she can, and thank the explorers for the news.

The tour takes the whole day. When eating time nears, the Nightjacks discreetly slip off to devour their animals if the explorers previously had expressed disgust, shock, or other negative emotions.

Eliasor Eliasor Eliasor

Porgalka Nambil takes the explorers to a library if they ask for more information about the great prophet, Eliasor Eliasor Eliasor. "This is all I can teach of the Prophet," she says, "The rest is up to you."



The viewing room is a large transparent dome open to the sky. The floor is composed of living plants which feel to bare feet like silky warm fur. Pleasant odors linger on the air, hauntingly familiar and tempting. In the center, a meter in diameter and raised a meter from the floor, is a shining cylinder. The Nightjack passes her hand over the top of the cylinder, muttering unintelligible code words, then steps back.

A holographic image forms above the cylinder, rotating slowly. A cross-legged man sits calmly on air, peering out. His bright red skin has many darker freckles. Patches of hair sprout irregularly from his body and face. A mechanical device, like a speaker, rests on his chest, and a thing like a gun barrel sticks from his forehead. His skin is scarred; belts of small blue circles ring his waist, chest, neck, and forehead. Call for Search rolls; those benefiting from successes see several irregular protrusions under the skin of his arms, a faint network of blue veins across his chest and back, and notice that the scars on his back regularly undulate.

"I am Eliasor Eliasor Eliasor, son of folk and sum of folk. Teacher and learner, I wander ten thousand years."

As he continues, his voice dwindles and a telepathic projection replaces it. Throughout his talk, the prophet's demeanor is dispassionate, calm, and radiant.

"I was sent by those who made the Circle of Life — to walk it, to take of it, to learn from it, to grow within it, and to heal it of the inner pain which all who live must know.

"That pain comes from this. Though love solves all problems and soothes all conditions, love cannot be sought. All who seek love must desire it; it is so arranged beneath the Arch that never, therefore, can seekers attain love — only their desires. And who can master their own desires? Those who try must be the slaves of desire. But some forget love and the desire for love, and act for fitness of deed. They then know love; to those holy ones, love is a faint light shining from them: they are glad love gladdens others, for life is difficult, yet they feel much which is greater than love.

"Love is like sparks thrown off by the furnace of the soul. The child in us seeks love in those moments when it tires of seeking the base of the Arch. Adults obsessed with love become cruel." Eliasor Eliasor Eliasor then tells how life is made up of the four dialects — doubtful definition, actionless action, mobile essence, and centerless being — and how coherence occurs only on the cusp of contradiction. After a time, Eliasor stirs, stops rotating, and peers at each explorer. "And so the way of life must be the way the heart commands, for in no other manner may the soul best cohere and shine, and without that radiance all that is best in us seems mere accident, which makes our fellows hate us.

"Well, I have told no secrets. Is there more you would have of me?"

Explorers may now ask questions, and the optical circuits of the computer reply, if they hold the answer. Eliasor Eliasor Eliasor has traveled millions of kilometers, encountered innumerable hominids and animals, and recalls much of everything. The holographic record within the cylinder contains everything the prophet remembered when he made the recording.

Conveniently for your campaign, Eliasor Eliasor Eliasor remembers every desirable clue. For instance, he certainly remembers taking the longevity drug, and might remember some nearby landmark as well, but probably doesn't recall exactly when or where. Other tantalizing replies to likely questions include "I have met others like you humans. They said they came from Earth, which lies within a great sea." or "I learned who made this place, and why, in an ocean land where ships sail over the edge and fall to destruction, and sail between the 87 isles. You must discover the reasons for yourself."

Gamemasters may wish to use the teachings of Eliasor Eliasor Eliasor, as interpreted by the Nightjacks of Kaladia or other cultures, as a resource in many adventures.

Save-the-Rodents Research Project

If the explorers can cure the rodents (called "pinkies" in translation) they can use the cure to pay for salvage rights among the ruins. The idea is acceptable to the Nightjacks, and they place their facilities at the explorers' disposal to aid in the research. Unless the explorers are completely incompetent or lack the necessary skills, they should be able to solve this problem. Give them the time they need.

GOAL: cure the affliction haunting the pinkies.

ACTIVE SKILLS: Biology or Zoology, Search

STEPS: 3

Step 1: the explorers attempt to isolate and establish control groups. They may think to ask if any rodent hutches have been unaffected, or a successful reasoning roll may remind them to ask this. They can find that one rodent farm in the spheres has not been touched by the plague. If they isolate the hutches here, they will have a control group with which to test and re-test hypotheses. Establishing procedures which allow the rodents to be fed, yet which create as sterile a barrier as possible, take 150 man-hours. Urge the players to be creative in the establishment of the sterile barrier: UV, sound waves, full-body wash, antiseptic solutions, etc. Remind the explorers that the Night Hunter have many Valley People slaves, some of whom are expert animal husbandrists.

Step 2: once a reasonably-sterile barrier has been created, the control group is safe. Successful Biology and Search rolls (one of each is needed) allow comparison of the rodents, their cages, their food, and anything which contacts them. A second successful Search roll detects a small flea-like parasite living in the fur of afflicted rodents; it is not present among the control-group rodents. This painstaking examination takes 250 man-hours and a minimum lapsed time of 12 days. If blood-test equipment is available (the Nightjacks lack this), antihistaminic levels in the afflicted rodents seem to be unusually strong.

Step 3: with a successful Biology or two successful reasoning rolls, the explorers learn that the small insect is easily killed by contact or proximity to grain alcohol, that its eggs do not hatch when coated with a standard Valley People fungicide; applications of ultrasonic waves also keep it under control, as does systematic hutch hygiene, and merely washing each rodent every few days. There prove to be many routine measures available to the Nightjacks. This takes 50 man-hours to determine.

It may be hypothesized that the bite of the parasitic insect in some way had begun to upset the typical rodent immune system, decreasing the ability to fight off low-

level diseases. Perhaps the not-very-clean Kitons unwittingly left the new insect on the fur of a Nightjack, who in turn brought it to the rodents, which the insects thought tasty. During the course of the operation, the explorers will also discover that the Nightjacks know little or nothing about biology or zoology, except for medical techniques and harvesting. They also lack the scientific method of investigation, working solely by trial-and-error. Hence the ease with which the infested rodents stymied their efforts.

The Nightjacks are very pleased by the explorers' success. They allow the explorers complete access to the ruins and give them an underground shelter as a workshop which will not be looted by anyone coming to perform the Truce of Two Nights. Several hominid slaves also are at the explorers' disposal for shifting heavy items.

To emphasize their gratitude, the Nightjacks provide a pair of laser heavy weapons (doing 3D10+20 damage per shot) which they had hidden from the Kaladians; they are sure that the wise explorers will not use these without great need. The gamemaster should determine the actual characteristics of these weapons as a compensating factor for the boxcar which the explorers actually build; the lasers definitely will outrange the Kiton turret guns.

Build-a-Boxcar Research Project

Constructing their own boxcar is tedious but not difficult if the explorers have the right skills. The explorers must determine their boxcar's design characteristics. Hint about possible variants: mounting extra armor to stop control section hits, reducing the size of the boxcar, doubling MAGLEV banks for more flying height or speed, scavenging electronic parts for adequate sensor systems, etc. It will have to be sturdy enough for a lengthy journey; the nearest spare parts will be thousands of kilometers distant. GOAL: build a boxcar.

ACTIVE SKILLS: Atmospheric Craft, Engineering, Physics, Repair, Strategy

STEPS: 5

Step 1: the explorers must systematically survey the remaining technical resources of Kaladia. Everything they need is here, but finding the best and using it at the right time can be tricky. With a successful Strategy roll, this planning takes 60 man-hours. Without the roll, the process takes 150 man-hours. This survey also demands successful Engineering and Repair rolls; if one or both fail, then major portions of the design do not work when in place and tested. Repairing the items after installation takes 50 hours more if one roll is failed, and 150 hours if both rolls are failed.

Step 2: bringing the pieces together — the MAGLEVs, the batteries, the solar panels, the hull, the optical circuitry, the hull, etc., takes the explorers 1000 man-hours, but they can use as many as a dozen slaves to ease this chore. They must remember to ask for this help.

Step 3: installing all the gear, wiring, and testing it takes a minimum of 500 man-hours. Examine the hit location table for the Kaladian boxcars to remind yourself of some of the things which could go wrong. If one of the rolls in step 1 was missed, an industrial accident occurs, and a random hominid worker dies during the work. Though the Nightjacks will still be grateful to the explorers, after the accident no more slaves are provided for the explorers' use. Successful Atmospheric Craft, Engineering,

and Physics rolls are required in this third step, as well as two Repair rolls. Each missed roll costs 50 man-hours before it can be tried again.

Step 4: at this point the craft is static-tested as a complete unit. This requires both a successful Atmospheric Craft and Repair roll, taking 100 man-hours, and an additional 50 hours each time a roll is missed.

Step 5: the boxcar is flight-tested, requiring a successful Atmospheric Craft roll. Each time the roll is missed, it costs 100 hours in trial-and-error trimming and balancing. If the roll succeeds at first, no extra time is taken. When the boxcar is finally ready, the explorers should adequately provision it.

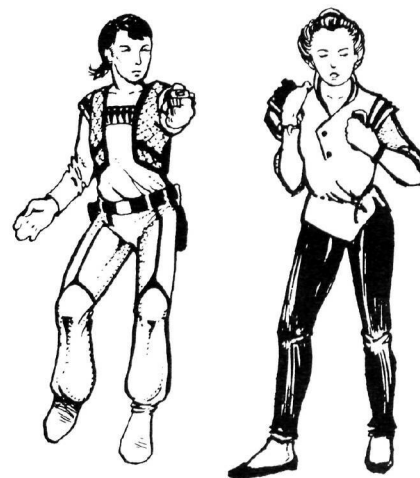
Departure

The explorers can leave when they wish. They are equipped with everything available. The Nightjacks supply a sketch map of the Eliasor mission-colonies which they believe to exist, but caution that the world is wide and their knowledge cycles old. This map is on page 78. Photocopy it and give it to the players; the larger-scale map on page 64 contains the true information. The Nightjacks also supply a florid letter of introduction — the explorers haven't a chance to interpret it.

The Nightjacks wave goodbye, calling out words of gratitude and encouragement as the boxcar lifts silently from the ground. Porgalka and Zarang Nambil call, "May life fit you well."

The boxcar ought to work well. The food is pretty good. The explorers should be in a fine mood. Choose whether or not the Kaladians or Engrinostli lurk about waiting for targets. If a caravan does appear, the explorers must decide what to do. They may be able to outrun Kaladians or Engrinostli; with their laser weapons they certainly out-gun them. Are the explorers still fearful, or will they let matters be? What is fitting? Did they learn from Eliasor, or from the Kaladians?

Allow this adventure to close with the explorers happily MAGLEVing in the direction of their starship.



ARCHMASTERS

Shadowwords and Seekers

Covenants without the sword are but words.
— Camden

Archmasters are robust hominids whose remote forebears the City Builders once bred selectively to form a hereditary warrior caste. Properly, City Builders (Engineers) and Archmasters (Half-Engineers or Half-Builders) are genetically-related subspecies, their bloodlines co-evolved from a common progenitor. They are still able to interbreed. In appearance, though, they are distinctly different. Flatlanders find Archmasters physically imposing, and often strikingly human in appearance. The term Archmaster grew to encompass the professional order originally founded to defend and to advance City Builder interests.

Dispatched to distant lands by the ancient City Builder emperors, Archmasters spread widely, though thinly, over vast areas of Ringworld to pave the way for City Builder civilization. Though never numerous relative to City Builders, their physical perfection and superb training, and the backing of the godlike Ringworld "engineers," made the Archmasters a formidable presence where ever encountered. Their bearing, formal discipline, and code of honor marked them as bold, resolute professionals impossible to mistake for barbarian adventurers. Their way of life required military skills, an ability to select or create stable political structures among the lesser hominids, and a detailed knowledge of many practical crafts, local languages and customs.

Archmaster legions were empowered to bestow the title of their particular professional order, occasionally, upon carefully-chosen members of other species within their administration or dominion, especially when this proved politically expedient. Such distinction normally followed many falans' apprenticeship and training — and a proper initiation incorporating tests of honor and courage. With the aid of City Builder cross-species fertility drugs, Archmasters sometimes even interbred with local hominids. Consequently, Archmasters of various species and appearances are found in some regions.

Most species nonetheless still speak of the original, archetypal Archmasters: they were tall and heavily-muscled, weighing 100-150 kg, with broad shoulders and lean hips. Their skin was generally tanned deep bronze to nearly black. Naturally beardless but not bald, their hair was often worn to shoulder-length, the hairline shaping a noble brow. Their faces exhibited strong, angular features, with a resolute mouth and jaw. Though sometimes taciturn, they spoke with commanding clarity. They dressed simply, perhaps clad only in tunic, loincloth, or kirtle. They often carried no arms other than swords of dark, polished iron, steel, or City Builder *Shadow Metal* alloy, relying on their personal force of character and combat training. Female Archmasters were not uncommon — some of the most famous Archmaster epics sing of Athena-like women, whose grace, intelligence, and ferocity was unmatchable.

For ages, archmaster legions were an important facet in the ever-expanding City builder empire. Stationed in remote, often-barbaric regions dominated by primitive hom-

inids, they provided a crucial buffer and important link between the magnificent urban oases and the outland frontiers. Species unimpressed by City Builder ambassadors and their advanced technology often were quite impressed by the brawny and forthright Archmasters.

Archmasters served as elite guards, soldiers, and naval commanders; as generals of primitive hominid armies; as local magistrates, constables, rangers, or gendarmes; as overseers and foremen of massive engineering projects; and as hunters and leaders of great expeditions. These dedicated half-engineers often set their lives to exotic tasks entrusted them by their distant City Builder lords, whose fabulous floating towers they might never again visit. In some areas the children of Archmasters became hereditary rulers of the lands claimed by their fathers (or mothers) for the empire.

Very rarely, Archmasters went dark, forgetting their honor and denying their origins, carving out personal empires. Some became ruthless conquerors, erecting giant statues, obelisks, and other monuments to their own prowess. City Builder historians speak of several famous civil wars fought against such opponents.

The Fall of Cities stranded most Archmasters far from the chaos of the shattered City Builder empire, in borderland provinces and outpost garrisons, or in lawless wilderness, isolated and unimaginably remote from their peers and lords. Over the passing falans, many foreswore their duties and became wanderers, adventurers and tale-bearers — knights errant, adhering to archaic traditions handed down and shaped by the centuries, colored by myths of strange origins and destinies.

Others, as determined to assist in the rebirth of their civilization as they had been in defending and promoting it, began epic quests in search of its legendary source — the ancient City Builder centers existing somewhere "at the base of the Arch." These Archmasters are sometimes called seekers, and lone individuals sometimes take the name Seeker. Traveling slowly afoot, by animal, or by water craft, Archseekers frequently have turned their strength, will, training, acquired skills, and slight knowledge of 'ancient magic' to the benefit of the hominid cultures through which they passed. Local custom, in turn, has often influenced these solitary searchers: some buy their mates, see slavery as right and natural, follow unusual diets, practice bizarre religions, and so on. Some have survived many centuries (a few, perhaps, since the Fall of Cities!) using massive doses of the Ringworld longevity drug — searching ruins for hidden caches of it, trading it, and occasionally killing 'evil magicians' for those unfortunates' hoards of the substance.

In some present-day locations, bands of surviving Archmasters (or of those claiming the title and tradition) serve isolated City Builder enclaves, local hominid governments, kings, and even mad despots. These latter-day champions are generally called Shadow-Swords, after a legendary legion of the ancient order. Distinct alliances of modern Archmasters, though are nearly always local

in nature, have their own unique names — Shadow-Swords of Zrillar, Darkblades, Rim-swords, Golden Legion of Flame, Swords of Sunfire, Defenders of the Empress of the Floating Tower, etc. Archmasters of these legions normally are content with the established order in their realm, and with their place in it.

Archetypal Archmaster Traits

Their great abilities notwithstanding, Archmasters are discernably less intelligent than City Builders. (It is unwise to dwell upon this among them, as their teachings hold them to be second only to City Builders in a few trivial respects, insignificant in light of their superiority in other areas.) Archmasters are also less socially-sophisticated, less shrewd at bargaining, and less adept at subtle political intrigue. Honest and forthright in the main, they often seem reserved, formally courteous, an stubbornly noble and courageous. Most live austere, disdaining luxuries. While well-of communication — sharing to a degree the City Builder's natural skills in hominid languages and customs, culturally determined modes of thinking, and biological limitations in speech and perception. Their commanding presence usually proved an asset in opening negotiations, mediating disputes, and otherwise creating territorial order — but where it did not their duty was clear. Archmasters swore solemn and forceful oaths of allegiance; and the traditions of their service demanded lifelong, disciplined training in techniques of primitive combat, single and otherwise. Archmasters seldom were issued, or needed, advanced energy weapons. They were skillful, dangerous warriors: when no other choice was possible, their long swords of dark-gleaming metal dripped with blood.

For archetypal Archmasters increase these City Builder characteristics by 1D6 each; STR, MAS, CON, POW, DEX; decrease INT and EDU by 1D6. For most other hominid Archmasters increase all characteristics by 1D6. Such hominids are chosen for overall exceptional abilities.

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LEAVING FOR RINGWORLD — A last view of the solar system from the edge of the Sun's gravity well. "The sky of deep space looked not much different from the lunar night sky. In the solar system the planets add little to a naked-eye view. One remarkably bright star glared in the galactic south; and that star was Sol." *Front-cover stars are a background pattern only.*

