



2320 AD

Mankind's Battle for the Stars Continues

Colin Dunn

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BASED ON THE ORIGINAL 2300AD PUBLISHED BY GAME DESIGNERS' WORKSHOP AND TRAVELLER20

Written By

Colin Dunn

Cover Art

Ted Lindsey

Interior Art

Ted Lindsey

Bryan Gibson

Colin Dunn

Laurent Esmiol

Some artwork from the original 2300AD

PDF Layout

Hunter Gordon

Matt Gordon (Additional Assistance)

Character Sheet

Patrick Murphy

Playtesters

Joel Benford

Stephen Herron

Jon Crocker

Constantine Thomas

Randy McDonald

Mark Siefert

Boris ("kafka47") Cibic

Jonathan Pearson

Michael Brinkhues

Commando

Kaladorn

Duran_goodyear

Roger Calver

Bill Seney

GJD

Jeff Hopper

Kevin LaRoche

Aramis

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TRAVELLER20 (T20) TRAVELLER'S HANDBOOK
(THB) IN ORDER TO PLAY.**

Table of Contents

Chapter 1: Introduction

Space Travel.....	4
Nations And Politics.....	4
Colonies.....	4
Aliens.....	5
Stutterwarp.....	5
Adventures.....	5
2320AD And 2300AD.....	6
2320AD And Traveller.....	6
2320AD And Twilight: 2000.....	6
The Near Star List And Star Map.....	6

Chapter 2: Background

The Twilight War.....	7
The Age Of Recovery (21 st Century).....	7
Major Wars.....	8
The Second Age Of Exploration (22 nd Century).....	8
The Second Age Of Commerce (23 rd Century).....	9
An Unsettled Time: 2300 – Present.....	11
The Flight Of The Bayern.....	11
The Kafer War.....	11
Aftermath.....	15
Wars On Earth.....	15
Traditional Rivalries.....	15
Traditional Cooperations.....	16

Chapter 3: Characters

Quick Character Generation System.....	17
Initial Steps.....	17
Ability Scores.....	17
Homeworld.....	17
Gravity Type.....	18
Body Type.....	18
Homeworld Skills And Feats.....	18
Homeworld Feats.....	18
Tech Level.....	19
Quick Character Generation.....	19
Mustering Out.....	20
Turning Point Benefits.....	21
Aging.....	21
Skills And Feats.....	21
Skills.....	21
Feats.....	22
Classes.....	24
Colonist (Core Class).....	24
Journalist (Core Class).....	25
Prior History Tables.....	26
Colonist (Core Class).....	26
Journalist (Core Class).....	27
Character Classes.....	27
Prestige Classes.....	29
Troubleshooter.....	29
Special Forces.....	30
Alien Cultural And Technologies Expert.....	32
Prestige Class Master Skill List.....	33
Character Generation Example.....	34
Stats.....	34
Homeworld.....	34
Starting Skills And Feats.....	34

First Turning Point.....	34
Second Turning Point.....	34
Third Turning Point.....	34

Chapter 4: Rules Additions

Personal Combat.....	36
Personal Armor.....	36
Hit Locations And Wound Effects.....	36
Vehicle Combat.....	36
Missiles.....	38
Torpedoes.....	40

Chapter 5: Foundations

The Major Foundations.....	41
Astronomischen Rechen-institut.....	41
The Life Foundation.....	42
North American Research League.....	42
Zapamoga.....	43
Transnational Corporations.....	43
Rebco Sar.....	43
Trilon.....	43
Americo.....	44
Terrorist Groups.....	44
Provolution.....	45
Coyfederacy.....	45

Chapter 6: Core Worlds

Earth/sol.....	47
The Solar System.....	48
Earth.....	49
Tier 1.....	53
Tier 2.....	54
Tier 3.....	57
Tier 4.....	63
Sea Floor Development.....	69
Antarctica.....	69
Orbital Space.....	69
Beyond Orbit.....	70
Tirane, Alpha Centauri A.....	71
System Data.....	71
Planetary Data.....	72
Colonies And Nations.....	74

Chapter 7: Frontier Worlds

Colonies.....	80
The American Arm.....	83
King/dm+2 3312.....	85
Hermes/mu Herculis.....	87
Ellis/ac +48 1595-89.....	88
Botany Bay/dm+33 2277.....	91
Kingsland/zeta Herculis A.....	92
Avalon/dm -34 11626 A.....	94
French Arm.....	96
Nibelungen/neubayern.....	96
Beowulf/queen Alice's Star (Dm+46 1797).....	99
Kimanjano/dm+34 2342.....	101
Kie-yuma/xi Ursae Majoris.....	105
Beta Canum Venaticorum.....	108
Joi/61 Ursae Majoris.....	111
Crater/henry's Star (Dm+38 2285).....	115
Adlerhorst/vogelheim.....	117
Nous Voilà/beta Comae Berenices.....	119
Dunkelheim/dm+36 2393.....	122
Hochbaden/dm+2296.....	124
Aurore Eta Bootis.....	125
Freiland.....	128

- The Chinese Arm 130
 - Cold Mountain/delta Pavonis 131
 - Daikoku/beta Hydri 135
 - Haifeng/I 1159-16 137
 - Syuhlahm/zeta Tucanae 139
 - Heidelsheimat/rho Eridani 141
 - Chengdu/epsilon Indi 144
 - Kanata/dm+20 5046 (Doris) 146
 - Eriksson/ac +17 534-105 147
 - Kwantung Tau Ceti 149
 - Dukou/epsilon Eridani 151
 - Montana/omicron 2 Eridani 153
 - Austin's World/dm-3 1123 155
 - Paulo/procyon 158

Chapter 8: Alien Space

- The Pentapod Finger 161
 - Notable Systems 161
- The Bayern Corridor 161
 - Notable Systems 162
- Beta Aquilae Cluster 162
 - Notable Systems 163
- The Kafer Sphere 164
 - Notable Systems 164
- Ylii Space 165
 - Notable Systems 165
- The Back Door Route 166
 - Notable Systems 166

Chapter 9: Orbital Facilities

- Orbital Facilities, Outposts And Enclaves 167
 - Human Enclaves 168
 - Stark 169
 - Gamma Serpentis Iii 169
 - Alien Enclaves 170
 - The Pentapod Enclaves 170
 - Sung Enclaves 170

Chapter 10: Aliens Of 2320

- The Ebers 172
 - First Encounter 172
 - Homeworld 172
 - The Ebers 173
 - Generating Eber Characters 175
 - Typical Eber Npcs 176
- The Kafers 177
- The Klaxun 182
- The Little Guys 185
 - First Contact 185
 - Physical Description 185
 - Little Guy Character Generation 186
- The Pentapods 187
 - First Encounter 187
- The Sung 192
 - First Encounter 192
 - Physical Description 193
 - Generating Sung Characters 194
- The Xiang 195
 - First Encounter 195
 - Xiang Character Generation 197
- The Ylii 197
 - First Contact 197
 - Character Generation 201
- Other Aliens 203

- The Aquilans 203
 - Physical Description 203
- Beta Aquila Space 203
 - The Medusae And The Enemy 203
 - First Contact 204
 - Physical Description 204
 - Medusa And Enemy Artifacts 204
 - The Agra Intelligence 204
 - Physical Description 204

Chapter 11: Technology

- The Biological Sciences 205
- Computers And Information Security 206
 - Computer Programming 207
 - The Link Network 207
 - User Interfaces 207
 - Robots And Drones 207
- Materials Science 208
 - Transportation 208

Chapter 12: Equipment

- Wilderness Survival Gear 210
- Tools 212
- Special Equipment 213
- Sensors 214
- Scientific Equipment 214
- Medical Equipment 215
- Communicators 215
- Satellites 216
- Computers 217
- Personal Power 218
- Industrial Equipment 219
- Explosives 219
- Miscellaneous 219
- Robots And Drones 221
- Pentapod Equipment 224
 - Weapons 226
 - Firearms 226
 - Plasma Guns, Man-portable (Pgmps) 234
 - Non-lethal Weapons 235
 - Rocket Launchers And Mortars 236
 - Grenade Launchers 237
 - Hand Grenades 237
 - Guided Ordnance 238
 - Personal Armor 239
 - Armor Materials 240
 - Helmet Add-ons 241

Chapter 13: Cybernetics

- Surgery 244
 - Surgical Modifications 244
 - Chemical Modifications 246
 - Cybernetic/prosthetic Modifications 246
- Dna Modification 251
- King Massive Wordler Modification 251
- Zero-g Space Adaptation Modification 252
- Thinair 252

Chapter 14: Vehicles

- Land Vehicles 254
 - Civilian Vehicles 254
 - Cargo Handling Equipment 260
- Aircraft 261
- Watercraft 265
- Rail Transportation 266

Military Vehicles.....	268	Starship Components	316
Military Watercraft.....	270	Sensors.....	316
Military Aircraft	272	Targeting Systems.....	317
Combat Walkers.....	275	Defenses	317
Vehicle Ordnance.....	278	Weapons.....	317
Missiles.....	278	Powerplants	317
Torpedoes.....	279	Thrusters	318
Bombs.....	280	Roton.....	318
Rocket Pods.....	281	Solid Fuel Rockets.....	318
Vehicular Weapons.....	281	Liquid-fuel Rockets.....	318
Combat Walker Weapons.....	281	Interface Vessels	320
Chapter 15: Alien Technology		Commercial Starships	327
Eber	283	Survey Vessels.....	330
Eber Weapons	283	System Ships.....	333
Kafers.....	284	Tugs	334
Kafer Equipment	284	Military Vessels	336
Kafer Weapons.....	285	Fighters	337
Kafer Vehicles.....	286	Warships	338
Kafer Spacecraft.....	286	Missiles And Drones.....	340
Pentapod.....	289	Missiles.....	340
Pentapod Equipment.....	289	Sensor Drones.....	340
Pentapod Weapons	289	Other Drones.....	340
Pentapod Servitors (Biots).....	290	Space Stations	342
Pentapod Vehicles	290	Modular Space Station	342
Pentapod Ships.....	291	Station Examples	345
Sung.....	294	Chapter 18: Starship Encounters	
Weapons	294	Core Encounters.....	346
Vehicles.....	294	Outer System Encounters.....	346
Spacecraft	294	Inner System Encounters.....	346
Ylii	297	Frontier Encounters.....	348
Equipment.....	297	System Encounters	348
Ylii Weapons	297	Chapter 19: Animals And Npcs	
Aquilan Technology	300	Non-player Characters	351
Little Guys	301	Section 1: Civilians.....	351
Modern Little Guy Technology.....	301	Section 2: Starship Crews	353
Medusan Artifacts	301	Section 3: Military.....	355
Enemy Artifacts	302	Animals.....	357
Chapter 16: Space Travel		Chapter 20: Gm Guide	
Interface Travel	303	Campaign Types	361
Beanstalk Operations.....	303	Exploration And Alien Contact.....	361
Spaceplane Operations.....	303	Ground Combat.....	362
Roton Operations	304	Space Combat.....	362
Rocket Operations.....	304	Troubleshooting Campaign.....	363
Catapult Operations	305	Trade And Commerce.....	363
Time To Orbit	305	Counterterrorist.....	364
Reentry And Landing.....	305	Character Goals And Motivations	364
Travel Time	305	Sources Of Conflict In 2320AD	364
System Ships.....	306	Goals And Motivations	365
Zero-gravity.....	306	2320AD Alternatives.....	366
Artificial Gravity/Spin Habitats.....	306	Technology.....	366
Radiation.....	307	Other Rules	366
Stutterwarp	307	Modifications To D20m/d20f Skills And Feats.....	367
Starship Operating Costs.....	310	2300ad To 2320AD Conversions.....	367
Charter Rates	311	Bibliography	370
Passengers	311	Character Sheet	373
Interface Costs	311	Open Game License	375
Star Travel.....	311		
Comfort Level.....	312		
Starship Combat.....	312		
Changes To Basic Starship Combat	312		
Chapter 17: Starships And Spacecraft			

INTRODUCTION

In the year 2320, humanity is attempting to claim the stars as his own. Despite nearly destroying himself in the Twilight War, despite all the wars since, including a war for survival against a genocidal alien race, humanity has held on, and kept the dream alive. **2320AD** is the story of that dream, as humanity, though still retrenching after the long years of the Kafer War, reaches back out to the stars.

In **2320AD**, humanity has settled 33 inhabitable worlds, and has outposts on many more. Human space is divided into three Arms: French, American, and Chinese (named for the dominant nation exploring it). The shape of these Arms is dictated by the limitations inherent in stutterwarp travel: the 7.7 light year range, and travel between the worlds at the center and the worlds of the edge can take weeks, or even months.

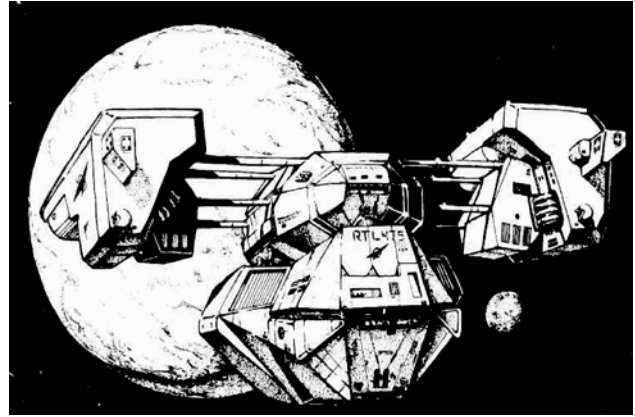
At the center of Human space are the Core Worlds of Earth and Tirane. Tirane is the habitable planet of Alpha Centauri, and is a near twin to Earth in climate, gravity and atmosphere. These two worlds together have nearly 90% of the Human population, with 90% of that total residing on Earth. For most people living out in the Frontier, the worlds of the Core are as distant and strange as any alien homeworld.

2320AD games range from interstellar exploration and interstellar war, down to the gritty streets and the mega-cities of the human Core. This is a game about people, and their rise to the stars. Aliens are a part of the **2320AD** milieu, and can be used as Player Characters if desired, but the focus of the game is on Humans.

2320AD strives to obey the laws of the universe as we know them. The stutterwarp drive, the technology that allows humanity to travel faster than light, is the sole departure from this. Some of the other technologies bend the laws a little, but that's from the standpoint of here-and-now. Three hundred years in the future is a long time. There are no blasters or laser swords in **2320AD**, no magic anti-gravity or artificial gravity – just guns and helicopters, spin habitats and spaceplanes. At the same time, though, **2320AD** is a game, not a hard-and-fast technical simulation.

SPACE TRAVEL

For over 150 years, humanity has had the freedom of the stars, but the hardest part remains getting into space. Stutterwarp drives are used to cross the vast gulf between stars, as it allows FTL (faster-than-light) travel at speeds up to



5 light years or more per day. For travel within a star system only, so-called system ships use low-power variants of the standard stutterwarp drive, which still provide very high effective speeds within a system.

NATIONS AND POLITICS

In **2320AD**, national interests continue to dominate politics, though the influence of transnational corporations (TransNats) and the Foundations is pronounced as well. Many of the nations of today are still recognizable in this future world, including America, Britain, France, Germany, Canada and Australia, along with many others. Foundations are non-government organizations, usually self-funded, that pursue their own agendas, usually in support of science, colonization, humanitarian, or environmental causes, while the TransNats pursue more mundane goals of profit and power.

COLONIES

Humanity has 52 colonies on 33 worlds, along with scattered outposts, enclaves, mining camps and science stations. The off-world population is a significant fraction of the Earth-bound population, and for some nations (France, Britain, Germany, Australia) the off-world population is actually greater. These colonies exist for a number of reasons, but one of the most important is national pride – only major nations have colonies. Colonies are also used to provide raw materials for home nation industries, and markets for the products of those industries, and also serve as a safety valve for the massive population of Earth. For those who can no longer stand the surveillance and control applied to such large populations, the colonies offer a haven, free from the ever-present cameras and constant monitoring.

ALIENS: The table below provides a quick overview of the alien races in **2320AD**

Race	Description	Notes
Eber	Big, with long arms, very ceremonial	Destroyed their interstellar civilization in a war.
Sung	Short, reptilian flyers, almost on par with humanity in terms of technology.	Lost a brief war with Humans over the Xiang.
Xiang	Artistic and very alien spider-like creatures.	Enslaved by the Sung until freed by Humans.
Kafers	Big and strong, with complicated, frightening-looking mouths and a turtle-like carapace.	Violent and hostile. Star-faring. Get smart when threatened or hurt.
Klaxuns	Intelligent, near-sighted plants.	Nearly destroyed by Kafers. Primitive.
Little Guys	Short, furry dog-faced humanoids with four arms.	Nearly destroyed themselves in system-wide war.
Pentapods	Short, vaguely resemble a 5-limbed octopus.	Masters of biotechnology. Even their starships are organic. Star-faring.
Ylii	Race is actually several separate species that live and work together.	Advanced and pacifistic. Have lost many worlds to the Kafers. Star-faring.
AGRA	Extra-dimensional entity of unknown, but high, power.	Rearranging the Pleiades for some unknown project.
Aquilans	Vanished race of unknown appearance.	Interstellar civilization seemingly abandoned, but filled with traps.
Medusae	Small, somewhat resemble a 10-limbed flea.	Advanced technology, vanished
Enemy	Appearance unknown.	Advanced technology, vanished. Enemy of Medusae

ALIENS

In 200 years of star travel, humanity has encountered eight sentient races, with archeological evidence for at least three more. Humanity has gone to war with two of these races. The first war, versus the Sung, was an absolute victory for the humans, lasting only a few weeks with minimal casualties on both sides. The second, against the aggressive and horrifically violent Kafers, lasted for fifteen years and devastated an entire arm of Human space. Though humanity eventually triumphed, the enemy waits, held at bay but still dangerous.

STUTTERWARP

The faster-than-light stutterwarp drive is further detailed in **Chapter 16: Space Travel**, but here are a few brief facts:

Stutterwarp become ineffective at about 0.11G, or approximately geosynchronous orbit, and are not suitable for interface operations. Attempting to operate within this range risks destroying the ship. The stutterwarp drive requires tantalum, one of the rarest elements in known space, though each drive only requires small amounts.

Stutterwarp vessels build up a charge while the drive is operating and moving in unstressed space. The buildup of this charge limits the range of stutterwarp vessels to 7.7 light years. Exceeding this range can cause the tantalum coil at the heart of the drive to decay and emit deadly amounts of radiation, usually killing the crew.

Until relatively recently, stutterwarp drives could only be calibrated and brought online in stressed space, that is, regions of space within the 0.0011 G limit of a planet or star. The drive calibrator changed that, allowing drives to be brought online in deep space. However, the first generation

of these calibrators was far too large for convenient use. In 2299, the second generation drive calibrator was developed, allowing the creation of the first usable stutterwarp tugs.

Stutterwarp tug technology is designed to subvert the normal range limitation. To do this, one vessel, the carried vessel, must take its stutterwarp drive offline. The other vessel, the tug, then grapples to it. The tug carries the vessel out to a maximum of 3.85 light years, half the tug's range. The tug then brings the carried vessels drives online using the drive calibrator, and returns. The carried vessel can then travel another 7.7 light years, for a maximum range of 11.55 light years. Note that to return there must be a tug on the other end. If the carried vessel's drives are not offline, it will build up a charge as it is carried along by the tug, and suffer a drive breakdown and irradiation of the ship as it passes the 7.7 light year limit.

ADVENTURES

2320AD is an adventure-oriented game. Players can take on a number of roles, from freelance security experts to hotshot smugglers. While the organizations outlined in **Chapter 5: Foundations, Corporations and Terrorists** can certainly play a large role, characters do not need to be beholden to them. A small gang of freelance investigators, or a group of friends haring off into the wilds on a treasure search, is just as viable as a group of troubleshooters contracted by a TransNat who go from world to world solving problems, and getting into trouble on the side. The emphasis of these adventures is up to each group to decide. **2320AD** can be home to high adventure, with lots of gun-fights, desperate chases and swinging over ravines on ropes, as well as more cerebral pursuits such as researching Eber ruins or hacking databases.

2320AD AND 2300 AD

2320AD is an adaptation of the **2300 AD** game, originally published by Game Designers' Workshop in 1988. **2320AD** is a sourcebook for use with **Traveller D20**, and requires the **Traveller's Guidebook** or the **Traveller's Handbook**. The character generation system uses most of the Classes, Skills, and Feats outlined in the **Traveller's Guidebook**.

2320AD AND TRAVELLER

Despite making use of the **Traveller D20** rules, **2320AD** is not **Traveller**. It is set in a universe of its own, without any relation to the Official **Traveller** Universe (OTU). **2320AD** is much smaller in scope as well, dealing with a "mere" 33 settled worlds, compared to the 11,000 of the OTU. The levels and types of technology are likewise different, in particular the method of faster-than-light travel, as well as computers and vehicles. There are similarities, however. Both are about people in far-future settings, where star travel is ubiquitous, both focus on the people involved, rather than their equipment, and both strive to maintain a realistic worldview, taking into account their histories and technologies.

2320AD is grittier than **T20**, with more of an emphasis on "realistic" technology. The starships also tend to be a lot smaller. Instead of 50,000 dton cruisers so common in **T20**, **2320AD** has 900 dton cruisers, with the absolute largest ships being around 20,000 dtons.

2320AD AND TWILIGHT: 2000

2320AD is the future of **Twilight: 2000**. **2320AD** glosses over the timeline of the Twilight War, so the war could still be in our future, or the universe of **Twilight: 2000** and **2320AD** could be an alternate one (the approach taken in the later revisions of **Twilight: 2000** itself). **Twilight: 2000** is one of the reasons for the apparently slow pace of technological advancement in the **2320AD** game, as much energy was spent on rebuilding Earth after the War, and then that energy went into developing and perfecting the stutter-warp drive. Colonial efforts also took a great deal of energy, time and resources, with most scientific advances coming in the venue of space travel and the trials of living and working in hostile environments. We have deliberately left it up to the players and GMs to choose the timing of the Twilight War, whether it occurs in 1995-2000, as in the original version, or 2005, or 2020, or whenever. However, the Twilight War did happen, and its effects are important to the history and character of **2320AD**.

THE NEAR STAR LIST AND STAR MAP

One of the more interesting (and occasionally contentious) parts of the game is the Near Star List (NSL). This comprehensive list of stars within a 50 light year radius of Earth was based on the 1969 Gliese stellar survey, which at the time the original game of **2300 AD** was published, was the most accurate star list ever produced for a game. Most of the stars are named by their catalogue number, names like DM+4 123. The citizens of the stars circling these worlds usually give the star another name, but few governments recognize these.

The list is used to generate a 3-D star map. All stellar coordinates in **2320AD** are given in the format x,y,z, with the Sol system being at 0,0,0.

2320AD still uses the old 1969 Gliese catalog, rather than the newer Gliese II, Hipparcos or RECONS catalogs. This was done to ensure compatibility with the background and history of the game.



BACKGROUND

THE TWILIGHT WAR

The Twilight War started over 300 years ago, and remained conventional for about two years. Then the missiles and suicide nukes started to strike. Within another three years nearly half the population of Earth lay dead or dying from a combination of nuclear war and its brethren of panic, disease and starvation. The national governments in most cases collapsed, or underwent schisms. Many military units found themselves cut off and on their own. Some rebelled, some tried their best to obey their last orders, some merely tried to get home. Few nations retained any sort of central control. France was one of the few that did, and this would be one of the most important political factors for the next 300 years of human development.

THE AGE OF RECOVERY (21ST CENTURY)

The destruction of the Twilight War encompassed the entire globe, and did not end when the bombs stopped falling. The downward slide continued for two decades after the war ended. Though the physical destruction was largely limited to the war zone (North America, Europe, the Indian subcontinent, and China), the effects were felt world-wide. Just as destructive as the bombs was the collapse of the world's economy, and the global transportation and distribution network. Ocean shipping was vulnerable to naval action throughout the war, and neutrally-flagged ships were no exception. The loss of much of the world's industrial capacity prevented maritime shipping from being rebuilt, even after the end of the war. Only Japan retained a vestige of a merchant fleet, and it dominated what was left of world trade in the immediate postwar years.

The 21st century was marked by three important events: the Fuel Crisis (and the end of dependence on fossil fuels), the French Peace, and the Melbourne Accords.

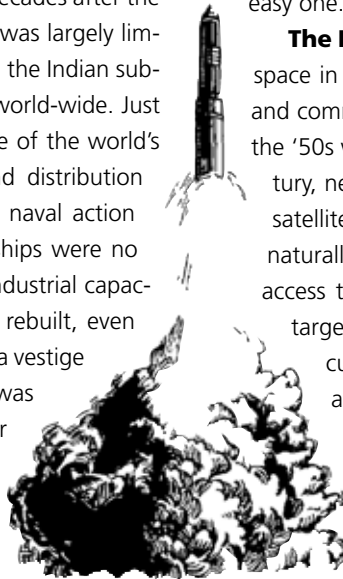
The Fuel Crisis: World War III destroyed the world's oil refineries and oil fields, but its greatest effect was the destruction of the world's oil distribution network. Once World War III was over, the oil distribution networks were gradually reestablished, but great progress toward alternative fuels had been made in the interim. The value of petroleum

as a chemical feedstock was too great by the middle of the century to contemplate simply burning it. The decline in oil reserves, coupled with the need for petrochemical feedstock, pushed the adaptation of alternative fuels. Rationing of oil and restrictions on its use were required during the transition period, but by 2090, most of the world's industrialized nations had established their own hydrogen distribution networks, and most of the world's industrial power was supplied by solar power satellites orbiting the Earth.

The French Peace: Into the power vacuum which followed World War III stepped the only European nation not devastated by the fighting: France, which had withdrawn from NATO and sealed its borders at the start of the War. With its numerous and far-flung territories on the African continent and in the Pacific, France reestablished a commercial interest in peaceful world trade and calm international relations. French power was projected to resolve disputes among quarreling nations, but French national policy was not overtly imperialistic. By 2060, the French were politically involved in virtually every region in the world, and French military forces imposed peace in those regions, albeit sometimes a very uneasy one.

The Melbourne Accords: The world returned to space in the 2040s with limited surveillance, weather, and communication satellite launches, and followed in the '50s with manned missions. By the end of the century, near-Earth orbit was cluttered with solar power satellites and orbital factories. The conquest of space naturally produced disputes concerning territoriality, access to orbits, and the appropriateness of specific targets in conflicts. A continuing international discussion culminated in a series of treaties and agreements collectively known as the Melbourne Accords (first signed at Melbourne, Australia in 2099).

The Melbourne Accords had three major provisions: Certain orbits around Earth were demilitarized, power satellites properly operated and certified were classified as civilian targets (rather than as military targets), and other worlds (at that time the Moon, Mars, Mercury, and the Jovian satellites) were declared open to colonization by all nations, and placed limits on such colonization. The Melbourne Accords bound signatories to its provisions only with respect to other signatories. Many smaller nations signed immediately;



holdouts among the major powers included the ESA (France, Bavaria, Britain, and Azania, the successor to South Africa) and Canton. Canton signed in 2108 while the ESA did not sign until 2163.

MAJOR WARS

The wars of the century following the Twilight war were characterized by struggles for the resources needed to survive and recover. Mexico seized portions of the American southwest, including Texas, parts of New Mexico, Arizona and southern California, for their resources, both mineral and technological. America was too busy fighting a new civil war to intervene. The multi-national, French-led force that occupied Saudi Arabia provided another good example of this sort of war, short and intense, with a clear purpose. Likewise the war between Canton and Indochina 20 years later was over oil, and the ill-fated attempt by Russia to conquer Ukraine in 2065 was for the latter nation's resources. These wars were instrumental in deciding which nations would prosper, and which wouldn't.

THE SECOND AGE OF EXPLORATION (22ND CENTURY)

The conquest of space opened a new frontier to Earth, and, naturally, an age of exploration followed. Expeditions to Mars by France and, later, America were launched early in the century, along with expeditions to Mercury conducted by Manchuria. Later expeditions visited the asteroids and the moons of Jupiter, but the Second Age of Exploration would have died rather quickly if it had been confined to just the Solar System.

In 2086, the theoretical basis for a practical star drive was established, and by 2100, several research establishments were well on their way to demonstrating a prototype. The race for a star drive occupied the technological abilities of the major world powers for the first half of the 22nd Century.

During the race to perfect a working star drive, the major nations were gaining considerable expertise in space travel within the Solar System. It was during this time that the first true space habitats were established at the Earth-Moon Lagrange points of L4 and L5. These space habitats were to provide the model for the space-based interstellar outposts to come, while the settlements on the Moon and Mars gave the much-needed experience for building the ground-based outposts, and even colonies, that were to follow.

The first working starship was produced by the European Space Agency in 2136; its members (France, Bavaria,

THE TANTALUM WAR:

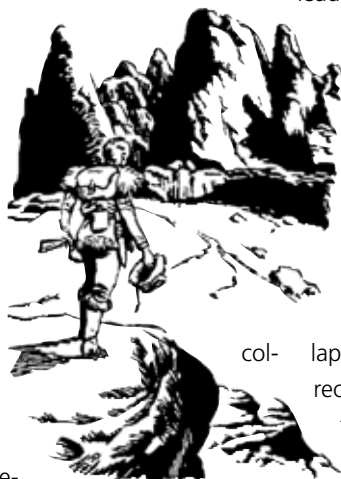
The Tantalum war of 2142 between Indonesia and Bengal wasn't just a struggle for the tantalum necessary to construct stutterwarp drives, but also a struggle to determine which nation would be able to go to the stars. Indonesia won the war, and though the tantalum find was not as rich as they had hoped, they used to build a merchant fleet that even today carries a considerable fraction of all freight moved in Human space.

Great Britain, and Azania) developed the technology and jointly operated the ship and its successors. The first expedition to Alpha Centauri discovered a garden planet, which was promptly claimed for the member nations of the ESA. Within short order, Argentina, China, and America built and launched their own starships on expeditions to Alpha Centauri, Barnard's Star, and Wolf 359.

The Eclipse of France: Under the French Peace, the nations of the world were able to recover and prosper. Inevitably, some came to resent French domination, and as they become more powerful, they competed for power and influence with France. At the same time, the burdens of world leadership proved very costly to France, already economically stretched in mounting interstellar exploration missions.

By 2150, French power in the world was decaying; other nations were quick to side against France in minor disputes. In the Alpha Centauri War, Argentina and its allies defeated the French-led ESA. This humiliation marked a low point in French prestige, and brought about a collapse in the French government, as well as reorientation of government policies. It was the end of the French Peace, and the beginning of a new era of global conflict.

Stellar Exploration: Expeditions over the rest of the century explored to



THE ALPHA CENTAURI WAR:

The Alpha Centauri War was about nothing less than the right of all nations to settle the new worlds being found beyond Earth's solar system. When the ESA discovered the garden world orbiting Alpha Centauri, the member nations immediately claimed it all. Argentina and its allies objected, and sent armed ships to the system. The war was a long, drawn-out affair, as each side anxiously awaited instructions from their governments. In the end, the ESA nations capitulated, and finally signed the Melbourne accords.

about twenty light-years from Earth, and settlements were established on about ten extra-solar worlds. Worlds close to Sol sprouted many national colonies; the diversity enabled colonies to concentrate on specific industries and trade with the others for their needs. But as nations explored farther from Earth, each was able to colonize whole worlds and exploit them without competition from other nations.

The opening of the stars to colonization moved much of Earth's conflict beyond the solar system. Conflicts between the major (that is, the star-faring) powers took place on colony and outpost worlds where they fought for rights to prime territories, access to markets, or proper treatment of their own nationals. War on Earth was either an extension of these extra-solar conflicts, or minor wars between non star-faring nations.

By 2199, the Second Age of Exploration was drawing to a close. Earth had explored parts of a sphere out to twenty light-years and established colonies dedicated to exploiting the resources of many virgin worlds.

THE SECOND AGE OF COMMERCE (23RD CENTURY)

Exploration breeds commerce; territorial discoveries naturally reveal products that can be marketed. Even with the high cost of interstellar travel, there are always some products, services, metals, and information that can still be carried at a profit. With the discovery and settlement of star systems beyond Earth, the 23rd century was an era of trade.

The star-faring nations built fleets to service their colonies. Even a self-sufficient colony is useless if it can't provide feedback, products, information, or resources to its parent. Hulls carrying colonists to the stars are most efficient when they carry products and raw materials on their return voyages.

Early in the 23rd century, France began to re-exert its power in selected regions where its interests were important: Africa, the Pacific, and the Mid-East. Avoiding direct confrontation with rivals such as Argentina, Mexico, and Manchuria, France was able to rebuild its military strength and reputation over the course of decades. When France fought battles, it won; when it negotiated, it also won. What it couldn't win, it scrupulously avoided. By 2250, France was nearly a superpower.

Developments on Earth, however, did not come to a standstill because of interstellar exploration. International rivalries, population pressures, and ideological disputes continued. The nations of Latin America struggled through three Rio Plata Wars as Argentina and Brazil fought for supremacy on their continent. Vietnam, a source of cheap labor early in the century, industrialized to the point that it was a prime

plum coveted by both Canton and Indonesia. The Canton-Indonesian War (2264 to 2268) turned Southeast Asia into a war zone and made the Indochina Peninsula a restive Cantonese puppet-state.

The Rio Plata Wars: Conflict on Earth during this century was dominated by a series of wars between Brazil and Argentina, though the conflict in the Central Asian Republic had far greater consequences. The Rio Plata wars were war for territory, and see-sawed between the two nations in three wars that collectively spanned over nine years and tensions that spanned over fifty. By the end of the Third War, Argentina was able to create the Incan Republic in an attempt to reduce Brazil's power in the northern part of South America. The terms of the final treaty saw Brazil lose the headwaters of the Amazon to the nascent nation, a calculated move designed to humiliate them.

Gene Protests: The development of the DNA modification technology late in the 22nd century was a triumph of biotechnology. However, as the full ramifications of the technology began to be understood by the general population, opposition to human applications began to grow. The King modification in particular aroused the ire of the population, as the new citizens of Kings were veritable supermen, and the drawbacks of the modification were not fully understood at the time. The Gene Protests grew into a world-wide movement, and resulted in virtual moratorium on further DNA modification projects. At least officially, all human DNA modification experiments ceased.

First Contacts: Given the number of inhabitable worlds, it was accepted as inevitable that humanity would meet other intelligences among the stars. During the second half of the 23rd century and early years of the 24th, Human explorers encountered at least seven intelligent species, four of them space-faring. Evidence was also found to suggest at least two or more alien races had inhabited the region in the past, with a real, if remote, possibility of their return. With these first contacts came increased cultural diversity into the increasing convergent human culture. Academic investigation of these alien cultures provided new insights into Earth's cultures, both past and present.

The Slaver War: The Slaver War was the first war fought by Humanity against an alien enemy. The Sung, first contacted in 2257, were a race that, much like humanity, was divided up into nations and special-interest groups. They were advanced, with extensive operations throughout their solar system. However, they lacked knowledge of the stutter-warp drive. The Akcheetoon nation was the most powerful of the Sung nation-states, and had a colony on the habitable moon of the system's large gas giant. This colony was primarily a mining colony using what were at first thought to be local animals for labor. It wasn't until further examination by a North American Research League undercover team that is



was learned that these “animals” were in fact an intelligent race, the Xiang.

This led to public outcry on Earth, and demands that the slaves be freed. Human requests, and then demands, upon the Sung to halt their activities on the garden moon were ignored, though the Sung remained friendly in all other discourses.

Finally, fleet elements from Canada and Manchuria moved in, and were met by Akcheetoon warships, who refused to surrender. Though the Human warships were not traveling at FTL velocities, they were still far enough out of the gas giant’s gravity well to be able to run rings around the Sung vessels. The small Human task force was able to destroy the massed alien fleet with no losses. Human infantry units were then landed on the moon to isolate and reduce Sung security forces, while diplomatic efforts on the Sung home-world resulted in the isolation and eventual capitulation of the Akcheetoon nation, and eventually the entire world, to Human forces.

Economic Stagnation: Among the colonial powers, the maturation of their colonies led to an economic crisis. The economies of many of the Tier 2 and Tier 3 nations (see p. 54) had been structured along mercantilist lines, where they purchased raw materials from the colonies and in return the colonies purchased finished goods from the home nations. By the middle of the 23rd century, however, many of the colonies on the American and French Arms were largely independent, or conducted their trade with other colonies. This disrupted the balance of trade, as the mother nations still purchased raw materials from the colonies, but the colonies for their part had less need of the finished goods the mother nation could provide. This economic slump accounts for the lack of colonial efforts by many of the established Tier 2 and Tier 3 powers during this period. Most of the colonization programs of the second half of the 23rd century were by emerging Tier 3 powers like Brazil and Canada.

The Decline of Nationalism: Easy travel on and off Earth enabled many people to maintain mobile life-styles without a permanent residence. Some people (explorers, starship crew, and orbital industrial workers) found themselves taxed on the basis of geography, but not receiving any real benefit from those taxes. Others found deference and status came with national citizenship rather than merit. Some interest groups created their own non-territorial “nations” to better protect their interests. Others rejected nationality completely.

At the same time, more people came to philosophically reject nationalism, finding more in common with ethnic, religious, ethical, or professional values. The proper national citizenship remained a convenience (a wrong one could be a hindrance), but many people had come to feel that there were higher values than mere geographic allegiance.

The Central Asian War: The Central Asian War (2283-2287) eventually involved France, Bavaria, Russia and Japan arrayed against the imperial armies of Manchuria. Manchuria lost the war, but French prestige was broken as they were forced to accept Japanese assistance to drive the Manchurian forces out of the Central Asian Republic.

War of German Reunification: France’s loss of prestige led directly to the War of German Reunification (2292-2293). The German province of Hanover, sensing French weakness, moved to reunite the scattered provinces of Germany, separate since the Twilight War, into one cohesive whole. France resisted, and German troops crossed the Rhine and moved on Paris. Only a quick surrender prevented the Germans from sailing their hovertanks under the **Arc de Triomphe**.

The French Empire: The costly French victory in the Central Asian War in 2287 produced well-grounded charges of poor support and supply for the army. In 2289, the army staged a coup which threw out the 12th Republic and established a system of monopolies in vital industries. These monopolies were profitable for the contractors, but inefficient sources of supply; and with typical military thinking, the junta printed money to pay national debts. The result was runaway inflation and tremendous social unrest. When the armed forces could not stop or win the War of German Unification or the Flemish War of Independence which followed in 2293, the army was forced to allow free elections, which were manipulated to bring Nicholas Ruffin, a prominent industrialist and free-market advocate, to power. Under his policies, the

THE RISE AND FALL OF THE GERMAN NATION:

For centuries, the German nations of Europe (Bavaria, Hanover, Westphalia, Saxony, and Brandenburg) were content to live in the shadow of France. French-dominated Bavaria enjoyed membership in ESA, flew starships under its own national colors, and colonized worlds under other suns. The other German states alternately allied with France and Bavaria, with other powers, or chose their own paths.

In the 2280s, with growing sentiment for reunification, all the German nations but Bavaria accepted a call by Hanover to unite. They then mobilized to bring Bavaria into the German nation. French objections produced the short War of German Reunification, in which France was defeated and forced to accept the creation of a new German state. That France was defeated only due to her heavy involvement across the globe and on her colonies is not often mentioned. Continued internal strife in the new German nation, in particular in the former Bavarian colonies, created schisms in German society that resulted in many of these colonies going off on their own.

French economy rebounded dramatically. Careful media handling in the years leading up to the 2298 election produced a French population receptive to the idea of establishing a new empire. Inclusion of the question in a plebiscite attached to the 2298 elections led to the formation of the Third Empire, with Ruffin as the Emperor, by late 2298.

The Kafer War: The other war fought against an alien race did not go nearly so well for humanity. The war started with an unprovoked attack on the Human research outpost orbiting the star Arcturus in 2297, and eventually encompassed most of what had been the richest, most populous colonies in Human space.

AN UNSETTLED TIME: 2300 – PRESENT

The war against the Kafers dominated the first two decades of the new century. Even with their partial defeat, the effects of their invasion and the subsequent devastation will continue to be felt for decades to come. The latter part of this period, however, is marked by increasing human exploration, both in scope and in speed. Part of this is due to a desire to find resources to repair the damage of the last war, and part is to make sure nothing else is out there sneaking up on humanity.

THE FLIGHT OF THE BAYERN

One of the most significant endeavors of Humanity was the flight of the **Bayern**, which opened a whole new region of space to human exploration, the so-called Bayern corridor, a twisted line of stars reaching over 200 light years into space from the Human worlds, though stopping well short of the Pleiades. The **Bayern** was the most advanced exploratory starship ever constructed, built by the **Astronomischen Rechen-Institut**, a Bavarian (now German) science foundation. The ship was designed to reach the Pleiades, a star cluster nearly 400 light years away from Earth, and employed multiple, disposable drives along with a massive drive tuner to bridge a gap near the start of its journey. The gap was 15.1 light years across, and required the vessel to dump a drive core and use another in deep space, using the drive tuner to bring it online.

At the beginning of its journey, the **Bayern** traveled through alien Pentapod space, getting the first Human glimpse of the Pentapod homeworld, and mapping out the small cluster of stars known as the Pentapod Finger. Along the way to the Pleiades, the **Bayern** encountered three alien races: the so-called “Little Guys”, the entity known as the AGRA Intelligence, and an unknown (and hostile) starship or space station in an otherwise uninhabited system along the way.

The 1-meter tall, four-armed “Little Guys” were survi-

STUTTERWARP TUGS:

Stutterwarp tugs are a method of bypassing the strict 7.7 light year limit on stutterwarp drive vessels. Further details can be found in Chapter 16: Space Travel.

vors of a system-wide civilization that had destroyed itself in a war that dwarfed even the Twilight War in scale. With the realization that Earth had only narrowly escaped a similar fate itself, the plight of the “Little Guys” generated a great deal of sympathy from Earth, even as the French Arm suffered increasing destruction. The discovery of a brown dwarf that provided a link across the 15.1 light year gap between the Pentapod Finger and the Bayern Corridor, coupled with stutterwarp tugs operated by the Trilon corporation, allowed the first relief expeditions through in the mid-2310s.

Though the “Little Guys” had very human concerns of survival, the entity known as the AGRA Intelligence was utterly unfathomable. The Pleiades star cluster appears to be the location of a vast engineering project for this being, or perhaps group of beings. The purpose of this project is unknown, but it involves moving and linking stars in some manner of multi-dimensional construct. The exact nature of AGRA is unknown, but it is thought to exist as a higher-level entity, an extra-dimensional being.

The last alien species, an unknown race of the Bayern corridor, dubbed Argyle 692 after the system they were encountered in, is further discussed in Chapter 8: Alien Space.

THE KAFER WAR

The Kafer War is generally acknowledged to have lasted from 2298 to 2313, and consisted of two main phases. The first began in 2298, when the Kafer leader (or Suzerain) known as Triumphant Destiny attacked the distant colony world of Aurore. The Human defenders in space were wiped out, and thousands of troops were landed. The Kafer fleet was eventually driven off, only to return in 2301 with reinforcements. From what information the Human intelligence services were able to obtain, it appears that Triumphant Destiny was able to recruit allies in the region now known as the Kafer Sphere, and returned in 2301. Kafer forces found a disorganized Humanity only barely prepared to face them, and enjoyed great success for the first six months or so of the war. One of the most devastating losses of this phase was the colony world of Hochbaden, a world of domed cities and space habitats. Before the Kafer attacks, Hochbaden had over 4 million people. Afterwards, not a single survivor could be found.

The Kafer fleets were eventually stopped at Queen Alice’s Star in 2302 by the Terran Reserve Fleet, consisting of warships from America, Britain, France, Germany, Australia, Canada, Argentina, Azania, and Japan. Triumphant Destiny



was killed in the battle, and the remaining Kafer forces were scattered. For a time, Humanity thought the war was over.

Contact with the alien race known as the Ylii eventually provided more intelligence about the Kafers, and Human planners realized that the war was far from over. Very few of the Kafer leaders had been involved in the attack led by *Triumphant Destiny*. Those who remained were bound to be frightened by the results. The fleet led by *Triumphant Destiny* had been the largest fleet under one leader assembled by any Kafer, and it had been defeated. Armed with this realization, the Kafer Over-Suzerain (Human intelligence was never able to learn its name) was able to get fleet and troop commitments from almost every other Suzerain. None of them committed their full strength, however, too wary of each other to strip their holdings bare.

The Kafer fleet, consisting of over 150 capital-class vessels, invaded Human space in 2305. This fleet overwhelmed the picket ships at Arcturus, then moved on to DM +18 2776, bypassing Eta Bootis and her determined defenders. This would eventually prove to be a costly mistake for the Kafers, as the ships at *Aurore* were able to raid the Kafer rear for the next five years of the war. The tactics of the Over-Suzerain were much more conservative than those of *Triumphant Destiny*, and the progress of the Kafer fleet was slow. Progress was further hampered by the rate of mutiny on the Kafer warships, which would go off on independent raids when their crews got bored. Though they were often a problem for the Kafer High Command, these independent raids did keep the Human defenders off-balance.

One of the priorities for the Over-Suzerain was to control any world encountered that was suitable for Kafer habitation. This usually had a large part of the fleet remaining in orbit around the world to provide support while troops were landed. The remainder of the fleet would conduct reconnaissance-in-force of the surrounding systems. A typical landing

saw 15,000 troops and their equipment go down, with even more on worlds such as *Nous Voila*, *Beta Canum*, and *Kimanjano*.

These tactics were slow, however, and gave the Human defenders time to regroup. The Human fleet was split, with elements at Earth, *Queen Alice's Star*, and *Aurore*. *Sans Souci* would later play a role as a staging area for French forces.

Humanity was forced to play a waiting game against the Kafer forces, and hope that internal strife in the Kafer fleet, combined with the difficulties of maintaining an extremely long and tenuous supply line would give Humanity the opportunity they needed.

Kafer reconnaissance forces went into each new system with the twin goals of surveying all deployed defenses, and also of causing as much damage to those defenses as possible. Often they were forced to flee Human main fleet elements, but the Human forces were unable to follow, due to the overwhelming nature of the main Kafer fleet. These recon forces often were able to orbit the colony world, and used the time to land scouting forces and bombard important targets.

The most interesting tactic employed by the Kafers during the war was the use of so-called infiltrator forces. The infiltrators were a tactic not seen before, using a class of ship heretofore unknown. The crews of the infiltrator ships were all elite troops, and the small vessels landed on worlds weeks prior to invasion. The infiltrators made good use of Ylii environmental technologies to remain unseen as they gathered intelligence. The stealthy infiltrator vessels were also used to conduct deep-penetration raids, either to damage supplies and equipment, or simply to sow panic among Human forces and civilians.

Infiltrator raids were responsible for much of the refugee traffic to leave *Dunkelheim*, *Nous Voila*, *Vogelheim*, and *Beta Canum*, many of whom were trapped in the *Kimanjano*

system when the recon-in-force of early 2307 destroyed the world's orbital infrastructure, setting the stage for the later massed attack in mid-2307.

By 2309, the main Kafer fleet, much reduced in size, had bypassed Beowulf and was making a drive for Earth. Only the colony of Nibelungen stood in its way, along with the expanded Terran Reserve Fleet, led by Admiral of the Fleet Dame Samantha Warkington. In addition to those nations that had contributed vessels to the original Reserve Fleet, several more had contributed vessels, including Manchuria, Indonesia, Freihafen, and Wellon. The combined Human fleet stood at 94 main combatants, plus a host of fighters, drone fighters, and converted civilian missile carriers. Against this force were 72 capital ships of the Kafer fleet, with the rest scattered back to Kafer space to protect their supply lines from Human raiders.

At the end of the battle, the Over-Suzerain, along with two other Suzerains, was dead, along with nearly half of the Kafer vessels. Two Suzerains lived to flee the battlefield with the tattered remains of their forces. The Human forces had suffered almost 30% casualties, except for the converted civilian missile carriers, which had suffered close to 100% casualties. The latter vessels had been crammed with the new smart missiles, which required no Human controllers. Though many of these weapons simply failed, or missed, they provided an element of confusion for the Kafer vessels, allowing the more accurate remote-piloted missiles through. The converted missile carriers were able to maintain their fire for over an hour, until hunted and destroyed by Kafer fighters and infiltrators.

After the victory at Nibelungen, the Human forces then went on the counterattack, and moved to liberate the occupied colonies of the French Arm. The main Kafer fleet had broken, and offered little resistance to this effort. Only the infiltrator vessels put up any sort of fight, and continued to harass Human vessels even well after the end of the war.

The Kafer fleet broke and fled, carrying word of the defeat back to the worlds of the Kafer sphere. Several of the ships dropped their troops at Kimanjano and Dunkelheim on the way out, but most dropped their remaining troops off at Nous Voila, which had been earlier devastated by Kafer orbital strikes.

In late 2311, human invasion fleets crossed the Kafer frontier. The human fleets were aided greatly by the turmoil that had enveloped the Kafer sphere following the defeat of the Over-Suzerain's fleet at Nibelungen. That being's presumed death did much to foster the chaos, as the remaining rival Suzerain's vied for power.

The front-line Kafer worlds had owed fealty to Triumphant Destiny, the leader of the original Kafer invasion in 2297, and its death and the destruction of much of its fleet in 2303 had stripped the worlds of many of their defenses.

Orbital Drop Assaults:

A new tactic pioneered in the Kafer War with the advent of better control technology, the orbital drop assault provides a way to quickly insert combat groups up to company-sized anywhere on a planet, and then back them up with conventional assault landers later. Orbital drop assaults are conducted with drop capsules, each containing either a trooper and his weapons, a decoy, remote missiles, or a combat walker. Time from orbit to ground is less than 10 minutes, and gives the drop troopers an element of surprise in their attacks on Kafer defenses.

Infighting over its succession, and a prior conflict with the Over-Suzerain, left these frontline worlds largely bereft of their defensive fleets, while the more distant worlds ignored the defense of the Sphere in pursuit of their own goals.

Eschewing the slow tactics favored by the Kafers, the Human fleets made a dash for the home system of Gamma Serpentinis, which was a natural chokepoint between the rest of the Kafer Sphere and Human space.

In 2312, German **Konteradmiral** Wilhelm Lutke was charged with scouting out the loop of worlds just past Arcturus, off the main path of the human fleets. These worlds were once the fief of Triumphant Destiny, and, as noted previously, were largely stripped of their fleets. Following the instructions of the French Grand Admiral Georges Mont-Clair and Lord Admiral Warkington (the commanders of the human invasion fleet), Lutke landed troops to determine Kafer preparedness to ground invasion. The Kafers were very well prepared, and Lutke lost a great many of his troops in the initial landings. Enraged, and responding to intelligence reports that these worlds had once belonged to the being that had destroyed Hochbaden, Lutke used his ships to bomb the world flat, using nuclear and kinetic deadfall weapons to commit genocide. The extensive orbital habitats suffered much the same fate, as Lutke reenacted the Massacre of Hochbaden upon the aliens. Lutke's flagship, the **Brandenburg**, was a new class of vessel, a planetary control cruiser, and was expressly designed for orbital bombardment and surface control. A French courier attached to Lutke's fleet fled back to the main fleet, bearing the news of the **Konteradmiral's** actions. The other habitable worlds in the loop were subjected to the same treatment, and Lutke ignored orders from Mont-Clair to stand down. The Kafers not killed in the initial attacks perished later from the combined effects of starvation, nuclear winter and disease. At least one of the worlds of the loop was suitable for Human colonization, but any settlement would have to wait until surface conditions stabilized. Once he was finished with the worlds of the Loop, Lutke rushed his squadron to join the attack on the Kafer home system.

At Gamma Serpentis, the Kafer home system, the Human invader's encountered very heavy resistance, though not as heavy as they feared. The other Kafer Suzerains did not provide any ships to aid in the home world's defense, and though the system's defenders fought fanatically, it was to no avail. If they had had support of the other Suzerains, they may have been able to repel the Human invaders. As it was, the other Suzerains were too busy fortifying themselves against the Humans or each other. Despite a 35% loss in ships, including Dame Samantha's **HMSS Hood**, the Human fleet gained orbital superiority over both inhabited worlds of the Kafer home system.

Lutke's squadron, with **Brandenburg** at the lead, arrived in orbit over the Kafer colony world of Gamma Serpentis IV as the main battle was joined over Gamma Serpentis III, the Kafer home world. The squadron quickly subdued the few orbital assets over the world, a colony of over 500,000 Kafers, and Lutke's fleet began a bombardment. Both the American and French commanders moved to intervene, and finally Lutke was put under arrest by the commander of the German contingent, Admiral Horst van Gubler. He was immediately shipped off to Earth for trial.

The puzzle of what to do about the Kafer worlds had long been gnawing at the minds of both military and civilian planners. One faction favored Lutke's approach – genocide. The other faction felt that the masses of Earth would not stand for a Human-created Twilight against an alien, intelligent race, even with the destruction wreaked upon the worlds of the French Arm.

In cooperation with a small group of French and British officers, the Pentapods provided a solution. By 2310, a Pen-

tapod/Human team of medical researchers had decoded the biochemical basis for the para-adrenal response, the means by which Kafers got "smart" when threatened or confronted with violence. By 2311 they had developed a means to inhibit the para-adrenal response. Their solution was a viral plague, which could be spread through the Kafer population. The Kafer lack of any real medical science further increased the odds of success. Armed with this Pentapod weapon, the Human officers developed a plan without the approval of their political leadership.

The first wave of the Human invasion of the Kafer homeworld appeared to be a scouting mission, and in a way it was. Some of the troops who went down were special forces, who remained behind to provide intelligence and support for the landing that would follow. Most of the troops, though, were volunteers, hailing from worlds like Aurore, Nous Voila, Beta Canum, Dunkelheim, and Kimanjano, worlds that had seen severe damage at Kafer hands throughout the war. A few of the volunteers secretly agreed to be infected with the Pentapod virus, which had no known effects on Humans. Most, however, knew nothing of the virus, or the purpose of the raid. A few of the assault boats, empty of living crews but carrying a cargo of the virus, "crashed" under automated control, all conveniently near the largest Kafer cities. The Human recon force landed near the largest city and the world's main spaceport. Within a month of the landing, most of the population of the Kafer homeworld had lost the ability to get "smart" and the most populous world in Kafer Space was plunged into chaos.

The next wave of landings was much larger, and much more successful. Humanity succeeded in establishing bases on the Kafer homeworld, while the world tore itself to pieces. Many Kafers were largely unaffected, being permanently smart, and a small number actually appeared to be immune, but they were not enough. They continue to harass the Human occupation troops, however, resulting in a steady trickle of casualties and corpses returning to Human space from the Kafer Sphere.

Word of what had happened on the homeworld filtered out to the remainder of the Kafer sphere. Fear of this "curse" served to keep the remaining Kafer ships and troops away from Gamma Serpentis, and an uneasy, undeclared truce exists. A few Kafer ships slip past the blockade at Gamma Serpentis, while occasional human raiders likewise go marauding in Kafer space, but neither side is currently willing to take the risks necessary to attempt all-out conquest. In addition, the loss of the Over-Suzerain, and the subsequent collapse of the Kafer homeworld, has plunged the remainder of the Kafer Sphere into conflict, as the remaining Suzerains struggle to attain the resources needed for survival.

It is readily apparent to most military analysts that Humanity could have won the war without Pentapod interven-

AGRA and the Kafers:

In the early years of the war, there was considerable pressure exerted by the public to "do something" about the Kafers. Genocide was openly discussed. Then over the course of five years, from about 2307 on, public opinion shifted to support of a policy of containment. In 2307, the Bayern returned from its voyage, and the existence of AGRA was made known to select national governments and Foundations. Several of the Foundations voiced concern that, now that Humans had the attention of AGRA, exterminating another intelligence species might be a bad idea. If nothing else, no one wanted to give the immensely powerful beings renovating the Pleiades any ideas. The Life Foundation, aided by the North American Research League and several others, began a campaign of "reprogramming" public opinion to favor containment rather than extermination. The success of this program has alarmed the nations that were also privy to the operation, as they race to duplicate the concept.

tion. Once the Human fleet controlled the orbital space of Gamma Serpentis III, the war was effectively won. What the Pentapod weapon gave humanity was time, as the remaining Kafers in the Sphere are too frightened of the weapon's effects to try and retake the homeworld, at least until they get their internal problems sorted out.

AFTERMATH

The Decline of France: The failure of the French Navy to adequately protect the French colony worlds, in particular after the invasion by the Kafer Over-Suzerain and its allies in 2306, challenged France's preeminent role in human affairs. France's Earth-bound power has diminished, though not in the way its off-world prestige has. Several French colonies have either attempted to declare their independence, or have been effectively destroyed by the war. French casualties in the war were severe, with more than 10 million dead, and millions more rendered homeless. This period also marks the beginning of the end of the French Peace, as France's inability to control its wayward colonies leads to its role on Earth being challenged. So far, the French response to these reversals has been increasing intolerance of dissent, with armed force increasingly likely to be used to quell civil unrest, and a militant hand in its dealings with the colonies.

Refugee Crises: The destruction of so much of the colonial infrastructure of the French Arm has led to a humanitarian crisis, as the ability of relief agencies like Zapamoga and the Red Star society to cope is limited. Many of the refugees have been resettled, particularly along the Chinese Arm of space, fostering resentment among both the original colonists and the refugees towards the terrestrial governments.

The Rise of America: The Kafer War was fought a great distance from American holdings, and at no time were American territories ever threatened by the war. Yet America took on the task of defending worlds not her own, and paid the price in ships and personnel. They also took up a leadership role in the war, alongside the British fleets, as the French and Germans seemed too concerned with establishing the chain of command to fight the war. It was the American battleship *Columbia*, the pride of her fleet, that turned the tide at Beowulf in 2303, and American ships that led the way past Arcturus into Kafer space in 2311. Casting aside the isolationist role it had played for the past three centuries, America is once again on the rise.

Colonial Dissent: The period of 2309 to 2320 has also seen an upsurge in independence movements among the colonies, in particular those long-settled, or those who believe that they were badly treated in the Kafer War and its aftermath. Following the war, Heidelberg officially declared its independence from Germany, as did the prosperous colony of Nibelungen. Germany did little to attempt to persuade the colonies to return, as the German national

conscience was still wrestling with the actions of Lutke and his fleet, along with the destruction of so much of the nation's colonial infrastructure.

Things went differently for France, however. The decline in French prestige following the Kafer War stung their notorious Gallic pride, and the attempts of a few colonies and outposts to secede stung further. France has reacted to any colonial dissent with force, and has so far thwarted rebellions at Serurier, Nyotekundu, Kimanjano and Aurore. These rebellions have served to strengthen the rising militarism in the French Empire, and fueled new expeditions to find new worlds. Of the three old-time European colonial powers, Britain has gone relatively unscathed by the recent upswing in colonial unrest, save for the colony at Crater, with its traitorous governor and an uprising among the miners.

WARS ON EARTH

Aside from the over-arching menace of the Kafer War, there were three further wars on Earth in this time.

Second Central Asian War: In 2309, with France's attention focused elsewhere, Manchuria again attempted to invade the Central Asian Republic. With France and Germany out of the picture, the Manchurian forces felt they could handle the forces of the CAR and any Russian allies they might bring to the fray. They were wrong, and the result was three bloody years of war before the Manchurian forces fell back into Tibet.

Second Mexican Civil War: Early in the new century, festering resentment in Mexico at the perceived excesses of the ruling military-industrial elite exploded into violence when security forces fired into crowds of food-shortage protesters in Mexico City and Los Angeles. This provided a flashpoint for the whole nation, and the riots became open rebellion. Contrary to expectations, the rebels won the war, and again contrary to expectations, actually delivered on their promise of free elections in 2316.

Fourth Rio Plata War: In 2319, the long-simmering resentment and hostility between Brazil and Argentina flared to life again. The Kafer War had diverted these two old antagonists, but the rivalry never went away. As of 2320, the two nations have turned northern Uruguay into a battlefield, and foreign observers are watching with great interest to see how the military lessons of the Kafer War play out in war between Human opponents.

TRADITIONAL RIVALRIES

History has created traditional rivalries between certain Human nations.

Franco-German Rivalry: Bavaria had, until recently, been an ally of France, helping her to restore world order, and participating in ESA programs. The War of German Reunification (from 2292 to 2293) changed all of this. The German

victory then caused the French to lose prestige and national pride, and neither nation is likely to soon forget.

Argentine-British Rivalry: With disputes dating back hundreds of years, the Argentine and British governments have often been at odds. Their rivalry solidified because of the Alpha Centauri War and the British denouncement of the Inca Republic (although the Republic has since become an embarrassment to its Argentine and Mexican patrons).

Argentine-Brazilian Rivalry: The Rio Plata Wars were fought for reasons ranging from a need for resources to a quest for economic and political supremacy in South America.

Manchurian-French Rivalry: When Manchurian intervention into Central Asia erupted in war, the French (as world peacekeepers) became their main adversaries. Many Manchurians living off Earth do not harbor resentment over this, but for Terran Manchurians, the French-solicited Japanese intervention was an insult they will not forget.

Manchurian-Japanese Rivalry: The two major powers of Asia have had a long-running history of hostility towards one another. The current friction between the two nations stems from Japanese action in the 1st Central Asian War, when their intervention halted the Manchurian advance, and eventually turned the war in the favor of France and her allies.

American-Mexican Rivalry: Mexican control of portions of what was once the American southwest created a strong dislike among Americans for Mexicans. Though it's been three hundred years, old dislikes die hard. The recent change of government and policies in Mexico has softened official dislike of the nation, but it is still far too early in the reform process to determine what will happen next.

TRADITIONAL COOPERATIONS

The events of history have also provided some long-lived friendships between nations that have traditionally worked together toward common goals.

American-Australian Cooperation: Since they were both among the latecomers to the extraterrestrial scene, America and Australia combined their space efforts from the onset. As a result, an entire exploratory arm is virtually dominated by their works, an accomplishment neither nation could or would have aspired to separately.

Canadian-British Cooperation: Britain and Canada have a long tradition of cooperation, and currently enjoy favorable trade relations and close cooperation between their militaries. This friendship was primarily an Earth-bound one until the Kafer War.

The ESA: The member nations of the European Space Agency, France, Great Britain, Bavaria (now Germany), and Azania have a tradition of cooperation in both terrestrial and extraterrestrial matters. Even the split between Germany and

France has done little to break this particular bond of friendship at least among each nation's off-world civilian population.

The French Empire: The French Empire binds together lands and peoples from all over the Earth. From Central Africa to South America to Europe, all subjects of the French Empire feel an elitist camaraderie which binds them together.



CHARACTERS

Character generation follows the **T20 Traveller's Handbook (THB)**, though with some important differences as outlined here.

Careers in **2320AD** are taken from the **THB**, and all careers are available, with the exception of the Noble, TAS Reporter and the Big Game Hunter. The Barbarian class is only available to the Eber Nomads and certain primitivist human cultures, both on Earth and on a few colony worlds. **2320AD** also adds two new Core classes, Colonist and Reporter, and three new Prestige classes (p. 29): the Troubleshooter, the Alien Cultural and Technologies Expert, and the Special Forces soldier. Many of the classes from **T20** have changes to reflect the **2320AD** setting, and these changes are outlined on p. 27.

Characters in **2320AD** do not usually start as raw 1st level characters. They will have some experience, and can be generated either with the Quick Character Generation system here, or with the Prior History Character Generation found in **T20**.

HUMAN BARBARIANS:

Certain Human cultures are advocates of combining traditional lifestyles with modern culture. Foremost among these are the native groups of America, Australia, Brazil, and Canada. These cultures thus allow their members to freely multiclass as Barbarians, representing those who willingly go back to living on the land, yet still remain connected to modern technological society.

QUICK CHARACTER GENERATION SYSTEM

1. Character Concept
2. Roll Ability Scores including Education and Social Standing
3. Choose a Homeworld and Gravity Type
 - 3.1 Choose Homeworld Skills
 - 3.2 Choose Homeworld Feats
4. Background Skills
5. Background Feats
6. Roll for turning points
7. Use the XP generated to create a character
8. Class Skills and Feats
9. Mustering Out and Retirement Benefits

INITIAL STEPS

The first step in creating a character is to come up with a character concept; a plan of how the player wants the character to end up. The random factor in the character generation process can change this, but it is a good starting point.

ABILITY SCORES

Ability scores are generated as normal for **T20**, with humans having a range of 3-18, modified by Body Type and Gravity. Titles of nobility arising from SOC are not generally used, though the general SOC level is still a valid indicator of one's place in society. Characters from societies that still possess a peerage may elect to use the appropriate title, with GM approval. These stats are generated as normal.

NATIONAL Nobility:

Very few societies still have titles of nobility in common use. The following list covers the major users:

Britain, Canton, Inca Republic, Manchuria, Netherlands, France, Spain, Wellon and Alicia (on Beowulf). Argentina's land-holding aristocracy does not use titles.

HOMEWORLD

After creating a character concept, the next step is to choose a homeworld and a Body Type. Homeworld type determines starting skills and feats, and the world's gravity type determines the range of available body types, which can further modify a character's stats.

Players can come from either a Frontier world or from the Core (Earth and Tirane). This selection helps determine starting Skills and Feats, along with Gravity Type. Within the selections of Frontier or Core a player can select normal gravity, low-gravity or zero-gravity. The high-gravity homeworld type is only available on the Frontier. All colony worlds are listed near the beginning of the Frontier chapter, along with

King:

King is a world with a crushing 3.08 Gs of gravity, and requires special rules for character generation. If a character elects to be from either the American or Australian colonies on King, their character must be modified as per the King-type DNA Modification (p. 251). Characters from King start with one alien level. This affects XP required to raise all further character and class levels.

the main colony's gravity and trade data. Players should select a homeworld, and use the listed gravity, or else select a gravity value and work with the GM to select a world.

GRAVITY TYPE

Mankind has settlements from the floors of oceans to the depths of space, with a multitude of worlds settled, from zero-gravity asteroid mines to the crushing gravity of King. The different gravity environments are reflected in the use of Gravity Type. High gravity is any world with a surface gravity of 1.4 G or higher. Normal gravity is the range from 0.8 to 1.4 G, while low gravity is 0.8 G down to 0.2 G. Zero-gravity is classified as anything less than 0.2. So an outpost on Earth's moon is classified as Zero-gravity, while a base on Mars is classified as Low-gravity.

On the character's homeworld, all stats are used as rolled. However, once off the homeworld they should apply the modifiers to Strength and Dexterity (STR/DEX) from the table below. Gravity Type modifications can increase a character's stats above 18, though not below 0. Any stat brought to 0 means that the character in question is unable to move effectively in that environment. This table is only used for characters that have undergone the Zero-Gee modification, which limits bone decalcification and muscle degeneration. Otherwise, all penalties for Low- and Zero-gravity are doubled.

Destination World	Gravity of Homeworld			
	Zero	Low	Norm	High
Zero-G	0/0	+2/-1	+4/-2	+6/-4
Low-G	-2/+1	0/0	+2/-1	+4/-2
Normal	-4/+2	-2/+1	0/0	+2/-1
High-G	-6/+4	-4/+2	-2/+1	0/0

BODY TYPE

Body type reflects the basic physical build of the character, and affects the character's Strength, Constitution and Dexterity. Normal body type is just that, normal, without any benefits or penalties. The Mesomorph is the classic body-builder-type, heavy, powerfully built, though perhaps not as flexible as some others. The Ectomorph is the dancer or gymnast body type, built slighter and more slender than normal, with greater flexibility. The Endomorph is epitomized by the short, heavy-set build, usually strong and tough, though with greater emphasis on the tough. They make good pilots, due to their shorter stature and acceleration tolerance. Body type modifiers can raise a character's stats above 18, and are cumulative with gravity type modifications.

Body Types	STR	DEX	CON	Base Height	Base Weight
Mesomorph	+4	-2	+2	150 cm	60 kg
Ectomorph	-3	+2	-2	150 cm	44 kg
Endomorph	+1	-1	+2	132 cm	60 kg

Normal	+0	+0	+0	140 cm	54 kg
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Body type also changes the starting heights and weights, from page 114 of the *THB*. These changes are reflected in the table above.

Female characters are, on average, 10 cm shorter, and 5 kg lighter, than their male counterparts.

The gravity of a character's homeworld is a limiting factor on body types, as shown in the table below:

Gravity Type	Body Types Available
Zero-G	Ectomorph and Normal
Low-G	Ectomorph, Mesomorph, and Normal
Normal	All
Heavy-G	Endomorph, Mesomorph, and Normal

RULES NOTE:

As the number of colonies is limited in *2320AD*, players do not need to randomly generate homeworlds as in *T20*, they pick one.

HOMEWORLD SKILLS AND FEATS

Homeworld Skills and Feats are selected according to whether the character is from the Frontier or the Core, and starting Feats are determined by gravity type. These Feats are largely gravity-adaptation Feats, save for the Normal Gravity character, who simply gets to choose a free General Feat.

For purposes of selecting these Skills and Feats, only the actual worlds of Earth and Tirane are considered Core. Other settlements within these systems can be considered either Frontier or Core, at the discretion of the GM. For example, the L-5 colonies in Earth orbit can definitely be considered Core, while the Martian settlements are more likely to be Frontier areas. At the same time, it would be possible to consider life at some of the more urbanized portions of some colony worlds to more closely resemble the Core rather than the Frontier. This is likewise at the discretion of the GM.

Humans receive 1 extra skill point per level (+4 at character level 1). Humans also receive an extra General Feat at character level 1.

Beginning Skills: All Human characters receive T/Computer and K/Homeworld at rank 0, regardless of whether they are from the Frontier or the Core. In addition, Characters from the Frontier receive T/Mechanical at rank 0, while characters from the Core receive Innuendo at Rank 0.

HOMEWORLD FEATS

Each character also receives Feats based on homeworld type and Tech level. As normal for *D20/T20*, human characters receive a General Feat of the player's choosing at charac-

ter level 1.

Feats by Homeworld Location

Homeworld	Feats
Core	Vessel/Ground (Choose), Hobby
Frontier	First Aid, Vessel/Ground (choose), Weapon Proficiency (Marksman)

Feats by Homeworld Gravity Type

Homeworld Gravity	Feats
Normal Gravity	Choose One
Low-Gravity	Low/Zero-Gee Adaptation
Zero-Gravity	Low/Zero-Gee Adaptation, Armor Proficiency (Vac Suit)
High Gravity	Heavy Gravity Adaptation

TECH LEVEL

Characters in **2320AD** do not modify their Education stat based on their homeworld Tech Level. Technology Level in **2320AD** is more about production capability than scientific knowledge, which is relatively even across most nations and colonies.

Therefore, a first level Human character from Earth (Core world, normal gravity) would start with five Feats: 3 Homeworld Feats (Vessel/Ground, Hobby, and 1 bonus Feat), 1 Bonus Feat for being Human, and another for first character level. A first level character from Aurore (Frontier world, low gravity) would start with six Feats: Four Homeworld Feats, (First Aid, Vessel/Ground, Weapon Proficiency (Marksman), Low-Gravity Adaptation), a Bonus Feat for being Human, and another for first level.

QUICK CHARACTER GENERATION

T20 uses Prior History to generate a character, and Players should feel free to use that system should they desire. It provides a detailed background on the character, though it is an involved process.

This section describes a quick character generation system for **2320AD**, which allows a player to generate a character and get started quickly by abstracting the prior history to a few rolls. The characters generated this way will likely be at a lower average level than the ones generated with **T20** Prior History. Characters do not die, get injured, suffer ability loss, or get imprisoned during Quick Character Generation, unlike Prior History, but they also do not pick up awards, promotions or medals. This is a tradeoff between the speed and ease-of-use of the Quick system, versus the detail and enhanced opportunities, and risks, of the Prior History method.

The **2320AD** quick character generation system gives characters an outline background in one or more notional "careers." Time in these "careers" gives them experience

points to spend on levels in suitable classes. **2320AD** careers are a somewhat nebulous concept. A character with a career as a Security Officer might end up with classes like Rogue, or Mercenary, or Law Enforcement – whatever matches the abilities he developed in that career.

Choice of Career is pretty much wide open, but some examples follow (with suitable classes). Note that classes are simply the way **2320AD** bundles up a character's Skills and Feats and other capabilities; they're not job descriptions like careers.

Career is used largely to provide a focus for character generation, and some background information. Note that the process for the Prior History Character Generation is different, and is explained further in the **T20** core rules.

Career	Some Applicable Classes
Ground Military	Army, Engineer, Flyer, Mercenary, Professional, Rogue
Security Guard	Law Enforcement, Mercenary, Professional, Rogue
Space Navy	Engineer, Flyer, Medic, Navy, Professional, Rogue
Scout	Engineer, Flyer, Professional, Rogue, Scout
Marines	Flyer, Professional, Marine, Medic

MERCHANT CORPORATIONS AND LIBERTINE TRADERS:

There are several large merchant and shipping corporations in Human space, including the Trilon Corporation, Maersk Shipping, and Mataglap Interstellar Freight and Finance. In addition, however, there are literally hundreds of Libertine traders, small trading ventures or family groups. Some equate them to the gypsies or tinkers of space, small, mobile, with their own code of honor. These Libertine families have names like the Singhs, the Shaugnessys and the O'Rourkes. Somewhat paranoid and suspicious of outsiders, they form a large part of the trade between colony worlds, though they rarely visit the overly-regulated worlds of the Core.

Quick character generation in **2320AD** revolves around turning points. Turning points are times in a person's life when they look back and reevaluate themselves and their lives up that point. Often this results in career changes and other life changes. After a player has determined statistics and starting (homeworld) Skills and Feats, they choose an initial career, and roll 1D6+4. This is the number of years until the first turning point. For each year in the career, the player gets 1250 XP. At the first turning point, a Wis Check is made vs. DC 6 to determine if the character can continue, or must muster-out into play. If the test is passed, the character can stay in the current career, or switch to a different one. If the test is failed, the character musters out into play. At this time, and after all further turning points, 1d10 is rolled to determine the numbers of years to the next turning point. A

MERCENARY ORGANIZATIONS:

The universe of **2320AD** is a turbulent place, and there are many mercenary organizations selling their services. They range in size from the 22-man "Snake-Eaters," a special forces outfit, up to the 2000- strong Tanstaaf Free Legion, originally formed to protect that colony from the alien Kafers, and now hiring itself out to independent worlds and corporations all across the French Arm. The American-Australian Volunteer force is another mercenary outfit, this one operating off on the alien Ylii worlds as a defense force to protect the pacifist Ylii from Kafer attacks. Other mercenary groups include (but are not limited to):

Name	Specialty	Size
Darkseid	Space defense and interdiction	5 ships, 422 personnel
McDonough's Highlanders	Ground forces training cadres	100 troops
Panzergruppen Trafft	Hovertanks and conventional armor	6 hover tanks, 3 tracked tanks, other vehicles
4th Albion Sappers	Civil and combat engineering	87 troops and specialists

further 1250 XP is earned for each year after the first turning point until the second turning point. This time, the Wis check is vs. DC 12. The target DC increases by two for each turning point, until the fifth turning point. Continuing past the fifth turning point is not possible. Each turning point passed also earns the character an additional 1000 XP.

Even if a character stays in the same career throughout character generation, they can freely multi-class into any applicable class. If they switch careers, the same applies. As previously stated, careers in the Quick Character generation are simply guidelines, unlike in Prior History, where they have an actual effect on the process.

After the last Turning Point is rolled, or when the player chooses, the character musters out into play. At that time, take the number of XP earned and used that to purchase levels in their Class or Classes, as desired. Players may freely decide how many XP to put in each class, if multi-classed.

Prestige Classes: Normally, a player cannot select a Prestige class during character generation. The final call on this is up to the GM. Ideally, Prestige classes should be closely tied to the overall theme of the game.

MUSTERING OUT

Mustering out is the process of bringing a character from background generation into actual play. The benefits below are for use with both the quick character generation system and prior history character generation system. Substitute Term for Turning Point when determining benefits for characters generated with the Prior History method.

After any Turning Point, by choice, or after failing the last Turning Point check, or in any event after the fifth turning point, a character musters out into play. Any character in a Service class must multi-class into a Core or Prestige class, which they start at first level. Core and Prestige characters remain in their current classes, unless the player wants to multi-class into a different class. If the game is service-based (like a military unit) then mustering out is not necessary. In those cases, the GM will often assign XP or levels based on

the requirements of the game.

Once a character musters out, they receive benefits that reflect their years of service and any possible savings they may have. For every 5 years of service they get one roll for Cash Benefits, and one roll for Material Benefits, on the table below.

Roll 1d6	Cash Benefit	Other Benefits
1	None	None
2	Lv1200	Weapon
3	Lv3200	+1 Intelligence
4	Lv6400	+2 Education
5	Lv13000	Middle (Economy) Passage
6	Lv26000	High (Luxury) Passage
7	Lv52000	+1 Social Standing

A NOTE REGARDING CURRENCY:

Despite its recent reversals, the French Empire is still one of the most, if not the most, powerful economy in human space. This economic clout has made the French Livre the most common currency of international trade. When converting values, 1 Livre (Lv1) in **2320AD** = Cr3 from **T20**.

Add + 1 to the roll on the Benefits Table if the character has passed their third Turning Point or finished their third term (if using Prior History).

Weapon: Weapon results in the character getting a weapon of their choice that would have been used by the career they just left. Weapons can be from up to two law levels lower than the character's homeworld. E.g. A character from Earth (Law 8) could choose a weapon from those available at Law Level 6, 7, or 8.

Middle (Economy) Passage: Middle Passage is an economy-class one-way ticket to anywhere in Human space. It can only be used once. As an alternative, the character can take this in cash, worth approximately Lv10,000. This ticket does not include interface travel.

High (Luxury) Passage: High Passage is a luxury-class one-way ticket to anywhere in Human space. It can only be

The Foundations:

There are a number of Foundations, usually dedicated to scientific pursuits, or colonial or environmental advocacy. They are detailed in a separate chapter, but the main ones are listed below:

Foundation	Nationality	Area of Interest
Astronomischen Rechen-Institut (ARI)	German	Space Exploration
Accademie del Lincei	Italian	Antiquities, Religion
North American Research League (NARL)	Canadian	Environmental Advocacy and Protection
Transhuman League	International	Directed Human Evolution
Institute des Études Exobiologique	French	Alien Biology
Life Foundation	International	Colonization and humanitarian operations

used once. As an alternative, the character can take this in cash, worth approximately Lv100,000. This ticket *does* include interface travel.

TURNING POINT BENEFITS

In addition, for each turning point passed, the character receives Lv5000 or 1 point towards the acquisition of a vehicle or ship.

Vehicle or Ship Type	Points	Notes
Ground Vehicle	1	Ground car or small hovercraft
Aircraft	2	Scout tilt-rotor, or small helicopter
Landing Craft	3	Medium-sized cargo lander or converted assault lander
Goliath-Class Frame	4	Stutterwarp capable frame, no inherent cargo capacity
Thorez-Class Courier	5	Basic courier with surface-to-space capabilities
Anjou-Class Cargo Carrier	6	Basic cargo vessel

Receipt of a ship does not grant outright ownership, but rather use of ship supplied by a Foundation, government or corporation. The characters have use of the vessel for their own purposes, subject to the needs of the owning organization. The characters are responsible for all regular upkeep on the vessel, along with any extraordinary costs

incurred when not on assignment. Note that it is not generally possible for a small, private group to own their own ship, but it may be possible for someone with a sufficiently high SOC. This call is up to the GM.

Characters may pool their points for the purchase of a ship. They should decide amongst themselves as to crew positions, including captain.

AGING

Add the number of years spent in background careers to the character's starting age of 18 to determine their age. Apply stat reductions as normal for **T20**.

SKILLS AND FEATS

The technological and cultural assumptions of **2320AD** and **T20** have some differences, and affect the Skills and Feats available to characters. Some other Skills and Feats are changed to reflect the **2320AD** universe.

These changes are detailed in the following pages.

SKILLS

The following skill is unavailable in **2320AD**:

T/Gravitics: **2320AD** does not have gravitic technologies.

The following skills are changed in **2320AD**:

Forward Observer: The Forward Observer skill also

AGING By RACE:

Race	Starting Age	Middle Age	Old Age	Venerable		Max Terms	Max Turning Points
				Age	Maximum Age		
Human	18	37-56 Years	57-89 Years	90+ Years	80+3d10 Years	7	5
Eber	60	120-200 Years	200-300 Years	300+ Years	300+10d10 Years	15	12
Kafer	6	12-24 Years	25-41 Years	42+ Years	36+2d10 Years	5	3
Klaxun	20	50-75 Years	76-111 Years	112+ Years	100+4d10 Years	8	6
Little Guy	12	29-48 Years	49-62 Years	63+ Years	55+3d10	6	4
Pentapod	40	80-120 Years	121-180 Years	181+	170+ 2d10	11	7
Sung	18	36-58 Years	59-91 Years	92+ Years	80+3d10 Years	7	5
Xiang	7	15-32 Years	33-44 Years	45+ Years	40+1d10 Years	5	3
Ylii (Alpha)	14	31-55 Years	56-85 Years	86+ Years	80+3d10 Years	7	5

allows the use of laser designators. Use the character's BAB, with Ranks in Forward Observer as a bonus to the roll. Note that laser designators are usually add-ons to existing weapons, and the character has to have a Weapon Proficiency in the weapon used. (e.g. If the designator is on an assault rifle, then the character must have Combat Rifleman, plus the Forward Observer skill, to use the laser designator).

Read/Write Languages: A character can only choose Human languages unless the Character is a member of the Alien Cultural and Technologies Expert Prestige Class. Human languages are found at the beginning of Chapter 5: Core Worlds.

Speak Languages: A character can only choose Human languages unless the Character is a member of the Alien Cultural and Technologies Expert Prestige Class. Human languages are found at the beginning of Chapter 5: Core Worlds.

Use Alien Devices: Becomes an exclusive skill for the Alien Culture and Technologies Expert. Each alien race has a separate penalty that is applied to the use of this skill.

Race	Penalty
Aquilan	-2
Eber	-2
Kafer	-3
Klaxun	-1
Medusan	-6
Pentapod	-4
Sung	-1
Xiang	-6
Ylii	-4

FEATS

The following Feats are unavailable in **2320AD**:

PSI Training: **2320AD** does not have psionics.

Tolerance: This Feat is specific to Aslan, an alien race not found in **2320AD**.

Vessel/Grav: **2320AD** does not have Gravitic technology.

Natural Talent: **2320AD** does not have psionics.

The Following Feats have been modified in **2320AD**:

Armor Proficiency (Battledress): This becomes Armor Proficiency (Combat Walker). The character is familiar with the use of humanoid combat walkers and the weapon systems normally associated with them.

Prerequisites: None

Benefit: Can work normally while wearing a Combat Walker, only suffering a -2 Penalty to Climb, Hide, Jump, Move Silently, Tumble, and Initiative. These penalties can be offset by the walker's Agility and Initiative scores.

Normal: Untrained characters are effectively unable to use a Combat Walker, and suffer a -4 penalty to ini-

tiative, along with being unable to Climb, Hide, Jump, Move Silently and Tumble, along with all combat rolls. Characters without this Feat also cannot make use of any Agility or Initiative bonuses of a Combat Walker, but are subject to any penalties.

Note: Non-humanoid Combat Walkers use the Vessel (Walker) Feat.

Weapon Proficiency (High Energy Weapons): The character is trained in the use of high-energy weapons, including plasma guns and plasma bazookas. **2320AD** does not have fusion weapons.

Prerequisite: Combat Rifleman Feat

Benefit: Characters make attack rolls with no penalties

Normal: An untrained character suffers a -4 penalty when attacking with a high-energy weapon.

Weapon Proficiency (Ship's Weaponry): The character is skilled in the operation of ship-mounted weaponry, including screens, lasers and particle accelerators. Missiles, as remote-piloted objects, require a different proficiency.

Benefit: Characters make attack rolls with no penalties

Normal: An untrained character is unable to use these systems

Special: If the character does not already have a skill rank of 1 in Gunnery, he or she automatically gains it (as a class skill) with a rank of 0.

NEW FEATS

Drop Trooper: This feat applies to personal re-entry in an assault drop capsule. It may be taken up to 3 times, giving a bonus (see below) on all DEX checks made during re-entry and to aim the capsule at the target point. The character must already possess the Armor Proficiency: Vac Suit feat to take this feat.

The Drop Trooper feat is available to Marines and Army Special Forces only. At the GM's discretion, any other character may take this feat if they are a participant in the hazardous sport of "Atmosphere Surfing" (also known as "Bum Surfing").

Prerequisite: Armor Proficiency (Vac Suit)

Benefit: Level 1: No penalty on DEX checks to make a controlled re-entry. Level 2: +1 on all DEX checks. 3rd level: +3 on all DEX checks (total).

Normal: Characters without this feat can attempt re-entry, but at a penalty of -4. Characters without the Vac Suit feat have no chance at successful re-entry. (This Feat is modified from its original form)

Vessel (Missiles and Drones): The character is skilled in the operation of Remote-Piloted spacecraft, including Missiles and Sensor Drones. This also covers targeting of

the Missile's weapon systems. Possession of this Feat also grants Pilot skill at rank 0 if the character does not already have it.

Prerequisite: None

Benefit: Character can operate Remote Objects with no penalty

Normal: An untrained character suffers a penalty of -4 when trying to pilot missiles and drones.

Vessel (Remote Objects): The character is skilled in the operation of Remote-Piloted vehicles, including drones, robots and ROVs. This does not cover targeting of the vehicle's weapon systems, which would require the appropriate weapons Feat. This Feat is intended for use with planet-based drones. Possession of this Feat also grants Drive skill at rank 0 if the character does not already have it.

Prerequisite: None

Benefit: Character can operate Remote Objects with no penalty

Normal: An untrained character suffers a penalty of -4 when trying to pilot remote objects.

MISSILES AND DRONES:

Missiles are defined as offensive weapons, and are remote-controlled spacecraft with a nuclear detonation laser warhead, or light energy weapon. Drones are typically not armed, and are used for reconnaissance or as decoys. Some do mount weapons for anti-missile (Point Defense) roles.



Core Class Master Skill List

Skill	Colonist	Journalist	Untrained	Key Ability
Alien Cultures	X	X	No	Wis
Animal Empathy	C	•	No	Cha
Appraise	C	C	Yes	Int
Balance	•	•	Yes	Dex*
Bluff	C	•	Yes	Cha
Bribery	•	•	Yes	Cha
Broker	•	•	No	Int
Climb	•	•	Yes	Str*
Combat Engineering	•	•	No	Int
Craft [cascade skill]	•	C	Yes	Int
Decipher Script	X	X	No	Int
Demolitions	•	•	No	Dex
Disguise	•	•	Yes	Cha
Driving	•	C	Yes	Dex
Entertain [cascade]	•	C	Yes	Cha
Forgery	•	•	Yes	Int/Dex
Forward Observer	•	•	No	Int
Gambling	C	C	Yes	Int
Gather Information	•	C	Yes	Cha
Gunnery	•	•	Yes	Wis
Handle Animal	C	•	No	Cha
Hide	•	•	Yes	Dex*
Innuendo	•	•	No	Wis
Intimidate	•	•	Yes	Cha
Intuit Direction	•	•	No	Wis
Jump	•	•	Yes	Str*
Knowledge [cascade]	C	C	No	Edu
Leader	•	•	Yes	Int/Cha
Liaison	•	•	No	Cha
Listen	•	•	Yes	Wis
Move Silently	•	•	Yes	Dex*
Navigation	•	•	No	Edu
Pilot	•	•	No	Int/Dex
Profession [cascade]	•	C	No	Wis
P/Administration	•	•	No	Wis
P/Prospecting	•	•	No	Wis
Read/Write Language	•	•	No	None
Recruiting	•	•	Yes	Edu
Ride	C	•	Yes	Dex
Search	•	•	Yes	Int
Sense Motive	•	C	Yes	Wis
Speak Language	•	C	No	None
Spot	C	•	Yes	Wis
Survival	C	•	Yes	Wis
Swim	•	•	Yes	Str
Technical [cascade]	C	C	No	Edu
T/Mechanical	C	•	No	Edu
Technosavvy	X	X	No	Int
Trader	•	•	Yes	Int
Tumble	•	•	No	Dex*
Use Alien Devices	X	X	No	Int

* Armor check penalty, if any, also applies.

C Class Skill

• Cross-Class Skill

X You can not buy this skill because it's exclusive to another class

CLASSES

In addition to the Core and Service classes presented in **T20**, **2320AD** has the Colonist and the Journalist Core Classes, along with three new Prestige Classes detailed later.

COLONIST (Core Class)

Colonists represent the people who live outside the urban centers on colony worlds. Just like a farmer used to have to be a Jack-of-All-Trades to make a living, so to does a colonist need a little of everything to carve out a life on the sometimes hostile colony worlds.

Characteristics: A colonist must be self-reliant, but a large pool of good neighbors and friends makes life a great deal easier. Though many have access to the latest technology, the upkeep cost seldom justifies their use. In many of the newer colonies, especially those founded since the end of the Kafer War, animal power is as much in use as machinery.

Background: Colonists come from two walks of life: either they were born into it, or else they are newcomers from one of the Core worlds, or perhaps even from another colony devastated by war, and hoping to pick up a new life.

Adventuring: Colonists tend to know something about everything, so long as the information has practical value. They are good with machinery, and natural survivors.

24

GAME RULE INFORMATION

Class Type: Core

Initial Requirements: For characters that start as Colonists, they must be from a Frontier world. Characters begin at age 14 rather than 18, and remain colonists until the first turning point (If using the Prior History rules, characters start at age 14, and must spend at least one term as a Colonist). Those becoming colonists later have no restrictions, but can only enter at or after the first turning point. (First Term if using prior history rules).

Multiclass Restrictions: You can multiclass freely into the colonist class

Abilities: Constitution, Wisdom

Stamina: 1d8 + Con modifier per level

Starting Funds: Lv100

Colonist

Level	Base Attack Bonus	Base Fort Bonus	Base Reflex Bonus	Base Will Bonus	Special
1 st	+0	+2	+0	+1	Starting Feats + Bonus Feat
2 nd	+1	+3	+0	+2	Bonus Feat
3 rd	+1	+3	+1	+2	
4 th	+2	+4	+1	+2	
5 th	+2	+4	+1	+3	Bonus Feat
6 th	+3	+5	+2	+3	
7 th	+3	+5	+2	+4	Bonus Feat
8 th	+4	+6	+2	+4	
9 th	+4	+6	+3	+4	
10 th	+5	+7	+3	+5	Bonus Feat
11 th	+5	+7	+3	+5	Bonus Feat
12 th	+6/+1	+8	+4	+6	
13 th	+6/+1	+8	+4	+6	Bonus Feat
14 th	+7/+2	+9	+4	+6	Bonus Feat
15 th	+7/+2	+9	+5	+7	
16 th	+8/+3	+10	+5	+7	
17 th	+8/+3	+10	+5	+8	Bonus Feat
18 th	+9/+4	+11	+6	+8	
19 th	+9/+4	+11	+6	+8	Bonus Feat
20 th	+10/+5	+12	+6	+9	

Class Skills

Class Skill	Key Ability
Animal Empathy	Cha
Appraise	Int
Gambling	Int
Handle Animal	Cha
K/Farming	Edu
T/Mechanical	Edu
Technical (Any)	Edu
Trader	Wis
Bluff	Cha
Survival	Wis
Ride	Dex
Spot	Wis
P/Prospecting	Wis

Starting Skill Points: (6 + Int modifier) x 4. If you are taking Colonist as a multiclass, you do not receive these starting skill points.

Skill Points per Level: 6 + Int modifier

Stating Money: Lv500

Colonizing Foundations:

Several Foundations are actively concerned with promoting colonization. They will often provide education and training to prospective colonists, and are a source of investment and support for the colonies themselves. Some notable colonizing Foundations include:

Name	Nation	Notes
Royal Society	Britain and Wellon	Colony Development
Zapamoga	Poland	Settlement assistance and support
Life Foundation	International	Colony and technical support
Alberta Farmer's Cooperative	Canada	Crop development
INAP	Mexico	Settlement assistance

CLASS FEATURES

All of the following are class features of the Colonist:

Starting Feats: The Colonist begins play with the following Feats:

- Armor Proficiency (Light)
- Weapon Proficiency (Marksman)
- Weapon Proficiency (Swordsman)
- Point Blank Shot
- Barter
- First Aid

Bonus Feats: At 1st, 2nd, 5th, 7th, 10th, 11th, 13th, 14th, 17th and 19th level the Colonist gains a Feat. These feats may be chosen from the list below. If the character already has all of the listed feats, they may select any other feat from the Feats chapter (pg. 100 of the THB) that they are qualified for.

- | | | |
|----------------|-------------|-------------------------|
| Tracker | Dumb Luck | Gearhead |
| Endurance | Brawling | Trustworthy |
| Jury Rig | Sniper | Miracle Worker |
| Self-Reliance* | Carousing | Skill Focus (K/Farming) |
| Far Shot | Sixth Sense | Vessel (Ground Vehicle) |

**Self-Reliance*: Treated as the Belter Feat of the same name.

JOURNALIST (CORE CLASS)

Journalists are a special type of professional whose job it is to go out, find, and report the truth.

Characteristics: Journalists are usually, bright, charismatic individuals who have a genuine interest in getting the truth, whether it's a small human interest story or an international scandal. Smart, sharp and focused are typical traits of the most successful journalists.

Background: Journalists tend to specialize in certain fields, and usually have some training and/or experience in that field. Of course, a journalist can be a young up-and-comer, fresh on the job, with a desire to shake the world. In any case, journalists are well-educated and very literate, often speaking several languages.

Adventuring: Many of the important, breaking stories have a considerable element of danger to them, and many journalists often find themselves in trouble. For an adventuring group, the journalist can either be along to chronicle what they are doing, or the group is there to support and protect the Journalist.

GAME RULE INFORMATION

Class Type: Core

Initial Requirements: Any starting character may become a Journalist.

Multiclass Restrictions: To multiclass into the Journalist class, a character must have at least 4 skill ranks in at

least one Craft, Professional, or Technical skill.

Abilities: Intelligence, Charisma

Stamina: 1d6 + Con modifier per level

Starting Funds: Lv800

THE JOURNALIST

	Base Attack Bonus	Base Fort Bonus	Base Reflex Bonus	Base Will Bonus	Special
1 st	+0	+0	+1	+2	Starting Feats + Bonus Feat
2 nd	+0	+0	+2	+3	Bonus Feat
3 rd	+0	+1	+2	+3	
4 th	+1	+1	+2	+4	
5 th	+1	+1	+3	+4	Bonus Feat
6 th	+1	+2	+3	+5	
7 th	+1	+2	+4	+5	Bonus Feat
8 th	+2	+2	+4	+6	
9 th	+2	+3	+4	+6	
10 th	+2	+3	+5	+7	Bonus Feat
11 th	+2	+3	+5	+7	Bonus Feat
12 th	+3	+4	+6	+8	
13 th	+3	+4	+6	+8	Bonus Feat
14 th	+3	+4	+6	+9	Bonus Feat
15 th	+3	+5	+7	+9	
16 th	+4	+5	+7	+10	
17 th	+4	+5	+8	+10	Bonus Feat
18 th	+4	+6	+8	+11	
19 th	+4	+6	+8	+11	Bonus Feat
20 th	+5	+6	+9	+12	

Class Skills

Class Skill	Key Ability
Appraise	Int
Driving	Dex
Gambling	Int
P/Journalist	Wis
Entertain (written)	Cha
Profession (any)	Wis
Technical (any)	Edu
Speak Language	None
Craft (any)	Int/Dex
Knowledge (any)	Edu
Liaison	Cha
Sense Motive	Wis
Survival	Wis
Trader	Wis
Read/Write Language	None
Gather Information	Cha

Starting Skill Points: (7 + Int modifier) x 4. If you are taking Journalist as a multiclass, you do not receive these starting skill points.

Skill Points per Level: 7 + Int modifier

Starting Money: Lv1200

CLASS FEATURES

All of the following are class features of the Journalist:

Starting

Feats: The Journalist Starts play with the following feats:

Armor Proficiency (Light)

Credibility

Bonus

Feats: At 1st, 2nd, 5th, 7th, 10th, 11th, 13th, 14th, 17th and 19th level the Journalist gains a bonus feat. These feats may be chosen from the list below. If the character already has all of the listed feats, they may select any other feat from the Feats chapter (pg. 100 of the THB) that they are qualified for.



- | | | |
|-------------|---------------|--------------------------------|
| Athletic | Fast Talk | Legal Eagle |
| Brawling | Gearhead | Research |
| Carousing | Hacker | Trustworthy |
| Connections | Hobby | Vessel (any but starship) |
| Credit Line | Interrogation | Weapon Proficiency (Swordsman) |
| | | Armor Proficiency (Vac Suit) |

Credibility: The Credibility special ability represents the public perception of the Journalist, whether they are someone to be trusted or someone to be ignored. This applies to members of the viewing public along with any people the Journalist is trying to see. It is used along with Bluff and other skills to provide a Synergy modifier to their use. Credibility is equal to the Journalist's Class level (not character level), modified as follows:

Location/Circumstance	Modifier
On Homeworld	+2
In Core	-4
Major (true) story in last 6 months	+2
Major (false) story in last 6 months	-2

Every three ranks (round up) in Credibility gives a character a +1 Synergy Bonus. So five ranks of Credibility would give a +2 Synergy bonus

This bonus affects the following skills: Bluff, Bribery, Gather Information, Innuendo, and Liaison. So a Level 5

Journalist, reporting from their homeworld (+2), with a true story in news in the past 6 months (+2), would have a credibility of 9, which translates to a +3 bonus for skills checks using the above listed skills.

Research: Research is the same as the TAS Field Reporter ability of the same name from the THB, page 183. It can only be taken once.

PRIOR HISTORY TABLES

COLONIST (CORE CLASS)

Continued Employment: DC8

Ranks: There are no ranks in the Colonist career.

Earned Benefits: N/A for 2320AD.

DUTY ASSIGNMENT

1d20	Assignment	Survive DC	Cash	XP
			Bonus DC	Bonus DC
1-4	Farm Hand	4	none	18
5-10	Contract Work	9	22	14
11-14	Hired Hand	12	20	10
15-17	Industrial Farm	13	18	10
18-19	Land Clearance	15	16	8
20	New Colony	16	14	10

Ability Modifier +1 per K/Farming term Skill Check None

Survival Mishaps

1D	Mishap
1	No further action.
2	Family needs you on the farm. Automatically serve another term.
3	Farm seized by bank and family turned off farm. Effectively dismissed from career.
4	Farm sold at a loss. Discharged with no benefit this term. Other terms' benefits are retained.
5	Conflict with other farm group turns ugly. Prosecuted and sent to prison for 4 years.
6	Farm machinery accident. Lose 1d6-3 (minimum 1 point) points from any one of: Str, Dex, Con, or Cha.

JOURNALIST (CORE CLASS)

Continued Employment: DC4

Ranks

E1	Cub Reporter
E2	–
E3	Beat Reporter
E4	–
E5	Foreign Correspondent
E6	–
O1	Junior Assistant
O2	Assistant
O3	Co-anchor
O4	Anchorman
O5	Producer
O6	News Director

Earned Benefits: N/A for 2320AD.

Duty Assignment

1d20	Survive Assignment	XP			
		Bonus DC	Comm DC	Promo DC	Rank DC
1-4	Local Reporter	3	9	12	(8)
5-10	Crime Beat	4	8	10	(6)
11-14	Consulting Firm	4	8	10	6
15-17	Investigative Reporter	5	7	8	8
18-19	Special Investigation	7	6	6	6
20	War Correspondent	9	5	6	8
Ability Modifier			Int	None	Soc

Survival Mishaps

1d6	Mishap
1	No further action.
2	Beat-up by celebrity. Lose 1 point from either CON or CHA.
3	Laid off with no call back date. Effectively discharged.
4	Declared surplus to the corporation. Effectively honorably discharged.
5	Indicted for libel/slander. Lose 2 points of Soc and spend 4 years in prison. Lose all benefits.
6	Serious on-the-job injury. Lose 1d6-3 points (minimum 1 point) from either Str or Con. Discharged.

FAMOUS Military ORGANIZATIONS:

The national militaries of 2320AD have a long and often colorful history. Many of these units have earned great renown, and are known for their professionalism and esprit de corps.

Unit	Nation	Known for
Special Air Service (SAS)	Britain, Australia	Anti-terrorist actions
Foreign Legion	Imperial France	Heavy-hitting assault troops
Marines	America	Orbital Assaults
Dragon warriors	Manchuria	Aerospace Assault Force

CHARACTER CLASSES

The following section contains any necessary revisions to the character classes. Classes marked with an asterisk (*) are from the **Traveller Guidebook**. All others are from the **T20 Traveller's Handbook (THB)**.

Academic: In the quick character generation system, there is no university. Therefore, characters multi-classing into the Academic profession do not require a Bachelor's degree.

Use Alien Devices is no longer a class skill for Academics.

Starting Money: Lv200

Army: This is the ground-based portion of a planet's local defense force. Maritime and aerospace forces have their own careers. All Colony and Core worlds are considered to be High Tech Armies.

Under Feats, substitute Armor Proficiency (Combat Walker) or Vessel (Walker) for Armor Proficiency (Battledress) (Player's choice). Substitute Vessel (Hover) or Vessel (Aircraft) for Vessel (Grav) (Player's choice). Also, add Vessel (Remote Objects) to the list of class Feats.

Starting Money: From mustering-out benefits only

***Athlete:** Professional athletics are an important part of the 2320AD world, especially in the Core. In the colonies, sports are usually amateur events, without the hype surrounding the sports stars and their teams in the Core.

Starting Money: Lv1000

Barbarian: This specialized class is only available to Nomadic Ebers, Klaxun or Tribal Nations and their colonies. The citizens of the Native American, Brazilian and Australian Tribal Nations cultures are permitted to multi-class into the Barbarian class, to reflect the emphasis in their cultures on the traditional lifestyle, alongside modern, technological living.

The Technosavvy skill is not available, nor required, for members of the Tribal Nations. It is, however, available for Nomadic Ebers and Klaxun.

Starting Money: Lv300

Belter: Only the Sol system has an extensive, well-organized Belter society, though individuals of the Belter class can be found throughout human space, operating out of a number of outposts and colony worlds.

Starting Money: Lv200

***Convict:** Sometimes people run afoul of the law, whether in the Frontier or the Core. This presents an interesting background choice for a character. Anyone can select this as part of their background, but one cannot start play in this class.

Starting Money: N/A

***Corsair:** This is a very rare class in **2320AD**. The volume of traffic is not really high enough to justify it, nor are there many ports where one can dispose of the swag. However, such activity does take place, especially near the Kafer Frontier, and the volume is growing. What is especially worrisome is that some of these corsairs appear to be trading with the Kafer themselves, though the mechanism of this is unknown.

Starting Money: Lv200

***Diplomat:** The many different human nations each have their own diplomatic corps, along with the specialists whose job it is to maintain contact with the various alien races. Some are even attempting talks with the Kafers, though so far to no avail.

Starting Money: Lv400

***Engineer:** The engineer is a professional problem solver and tool user, and very much in demand throughout human space.

Ignore the Prior History requirements for Initial Requirements if you are using the Quick Character Generation system.

Starting Money: Lv500

***Entertainer:** The Core worlds alone have over 8 billion people, all demanding, and often needing, entertainment and diversion.

Starting Money: Lv200 per level

***Flyer:** The Flyer is a service class. This branch of service is tasked with planetary defense, up to the limits of the atmosphere, or sometimes to close-orbital space. True spacecraft are the domain of the local Space Navy or Space Force. This

branch also provides support to ground-based operations.

Remove Vessel (Grav) from the list of bonus Feats.

Under Feats, add Vessel (Remote Objects)

Starting Money: From mustering out-benefits only

***Law Enforcement:** Law Enforcement is a common profession, found throughout human space, and beyond.

Under Feats, change Vessel (Grav) to Vessel (Aircraft), add Vessel (Remote Objects)

Starting Money: Lv800

***Martial Artist:** The martial artist is a very rare career. Martial-arts training at this level is carefully monitored in the Core, where this class's ability to deal unarmed violence is regarded with suspicion.

Starting Money: Lv100

Marines: Marines are ship-based assault troops and form any boarding parties, or ship-board defense, that may be needed. They are also used for spearhead attacks, and are considered to be elite troops. This fact is often disputed whenever Army and Marine soldiers meet off-duty, but is generally accepted by most people.

Under Feats, substitute Armor Proficiency (Combat Walker) for Armor Proficiency (Battledress), add Vessel (Remote Objects) to the list of class Feats, and substitute the Drop Trooper Feat for Weapon Focus (Cutlass).

Starting Money: Only from mustering-out benefits

***Medic:** The doctors, nurses and medics of human space are still extremely valuable, despite the prevalence of automeds and robotic expert systems. Human touch and intuition are still required.

Starting Money: Lv800

Mercenary: Mercenaries are fairly common in the **2320AD** universe, springing into being alongside the numerous colonial disputes and attempts at rebellion and secession. Many are veterans of the Kafer War, and can't seem to let go of the fighting.

Under multi-class restrictions, if using the Quick Character Generation system, a character must have made it to at least one Turning Point in the Army, Navy or Marines.

Under Feats, add Vessel (Remote Objects) to the list of class Feats.

Starting Money: Lv800

Merchants: Throughout Human space and beyond, there are individuals and groups moving goods back and forth, looking for deals, and trying to make it rich. Or at least stay flying. The merchants are the lifeblood of the interstellar economy, with the smaller groups and even individuals filling in the gaps around the big shipping concerns.

Starting Money: Lv300

Navy: Whether the American Space Force, the British Royal Space Navy, or the German *Sternen Kriegsmarine*, the Navy is the line of ships and people that serve to defend their nations and worlds from others, or project force to serve their

Top ENTERTAINMENT:

Total Immersion Theatre has been out for about 22 years now, and uses holographic projection and directed sound to place the members of the audience in the action, though usually only in passive roles, following along with the viewpoint of the hero or a companion. There are a few examples of games that take advantage of this technology as well, including the top game of 2319, "MindRaider."

NOTABLE COLONIAL POLICE AGENCIES:

Several police agencies are widely regarded as being the stand-out examples of law enforcement on the Frontier. Among these are the Tanstaaf Rural Police, who suffered severe casualties at the hands of Kafers in several attacks, the Texas Rangers, a paramilitary police force holding sway on Texas' three holdings, and the Royal Canadian Mounted Police, who maintained order on the Canadian colony of Kanata even when the government collapsed under corporate pressure.

nations' ends. The French and British Navies, in particular, bore the brunt of the fighting in the Kafer War.

Add the Feat of Weapon Proficiency (Missiles and Drones) to the list of Career Feats.

Starting Money: Only from mustering-out benefits

Professional: Like in **T20**, the career of Professional is highly skilled, highly technical, and these people are not afraid to get their hands dirty in the field.

Starting Money: Lv900

Rogue: The highly-regulated nature of life on the Core worlds provides opportunities to those who can slip through the cracks. For those in the colonies, the often wide-open nature of the extra-solar settlements provides more opportunities, though the rewards are typically smaller.

Starting Money: Lv900

***Sailor:** Sailors are the Wet Navy of **2320AD**, and comprise a significant fraction of local defense units, especially on the Core Worlds. Indeed, on the Core Worlds, the Wet Navy is often considered the senior service, though it is not looked at as being as glamorous as the space forces.

Starting Money: From mustering-out only

Scouts: The scouts are employed by a variety of agencies, from national governments to corporations such as Trilon, to Foundations like the AR-I.

In **2320AD**, Scouts are not considered a Service class, but instead are a Core class. They do not have the paramilitary trappings of the **T20** scouts. Feats such as Weapon Proficiency (Marksman) are solely for defensive and survival purposes. In addition, **2320AD** does not have the tradition found in **Traveller** that a scout never really retires. There are no detached-duty scouts in **2320AD**, nor can a scout in **2320AD** receive a small starship for his/her own personal use.

Under Feats, change Vessel (Grav) to Vessel (Aircraft).

Add the Feats of Vessel (Missile and Drones) and Vessel (Remote Objects) to the list of Career Feats.

Starting Money: Lv600

Traveler: The Traveler is an adventurer, bent on exploring on his or her own terms. They often wander from place to place and job to job, never really caring so long as they keep travelling. This has caused others, especially those in

the employ of corporations or foundations, to label them as bums or ne'e'r-do-wells.

Starting Money: Lv400

USING PRIOR HISTORY IN CHARACTER GENERATION

The Prior History method of producing characters is very powerful, and produces characters with a detailed background. If the Director and the Players have the time and inclination, they are encouraged to use the Prior History method. When using it to generate characters, some points should be kept in mind. The biggest is to not use the mustering out benefits found in each character section, but rather to use the mustering out table provided in **2320AD** on page 00. This setting has many changes from **T20**, and one of the major ones is the availability of ships. As well, **2320AD** has no equivalent to the Traveller's Aid Society or low passage.

Prior history for military character should keep in mind that the Kafer War ended seven years before the start of play, and most characters in the military at that time would likely have served in that war in some respect.

A NOTE REGARDING RETIREMENT AND MUSTERING OUT

It is not possible to retire or muster-out into a military service class. At the first level-up after retiring, the character must multi-class into another, non-military class. This class can be any that the character has the prerequisites for, and permits multi-classing. The character would start play as a first level member of that class.

PRESTIGE CLASSES

Prestige Classes are specialty classes, dedicated to more singular pursuits than most standard professions and careers. Prestige Classes can only be gained by experienced characters.

TROUBLESHOOTER (Prestige Class)

The Troubleshooter is an experienced professional who takes on the often hazardous task of investigating problems in the colonies at the behest of Core-based institutions. These institutions are usually large corporations or even governments, but can also include any organization or association. REBCo SAR, found in the Organizations Chapter is a typical troubleshooting organization that often hires out troubleshooters for corporations or agencies that don't have their own.

Characteristics: The Troubleshooter often works alone or as part of an ad hoc team, thrown together for their skills for a particular jobs. These are rarely long-term associations, but sometimes these teams will just click, and will form permanent groups. They are typically very loyal to their

parent organization, and are amongst the most trusted employees that organization may have.

Background: The Troubleshooter can come from a variety of backgrounds, whether they are a corporate professional, an armchair researcher flung into field-work, or some military professional looking to take a step back from the violence of their former career. All share a love of problem-solving, and no fear of action.

Adventuring: The Troubleshooter is a character who is always poking her nose into places where it does not belong. This trait makes for natural adventures. Troubleshooters are not, typically, bureaucrats, but rather are hands-on problem-solvers.

Requirements: To become a Troubleshooter, a character must meet the following requirements:

Attributes: Strength 10+, Constitution 10+, Intelligence 12+, Wisdom 12+, Charisma 10+

BAB: +3

Skills: Profession 5+ ranks, Gather Information 4+ ranks, Sense Motive 3+ ranks

Feats: Alertness, Weapon Proficiency (Marksman), Connections, Armor Proficiency (Vac Suit)

Class Features:

Stamina Dice: d6 + Con modifier per level

TROUBLESHOOTER

Level	Base Attack Bonus	Base Fort Bonus	Base Reflex Bonus	Base Will Bonus	Special
1 st	+0	+0	+2	+1	Expense Account
2 nd	+1	+0	+3	+2	Connections +1
3 rd	+1	+1	+3	+2	Bonus Feat
4 th	+2	+1	+4	+2	Research +1
5 th	+2	+1	+4	+3	Bonus Feat
6 th	+3	+2	+5	+3	Connections +2
7 th	+3	+2	+5	+4	Bonus Feat
8 th	+4	+2	+6	+4	Research +2
9 th	+4	+3	+6	+4	Bonus Feat
10 th	+5	+3	+7	+5	Connections +3

BONUS FEATS

At 3rd, 5th, 7th, and 9th Level, the Troubleshooter can choose a Feat from the following list. If they already have all the Feats listed, they can instead choose any other Feat that they are eligible for.

Feats: Armor Proficiency (Light), Armor Proficiency (Medium), Weapon Proficiency (Combat Rifleman), Jack of All Trades, Hacker, Obscure Knowledge, Override Ship's Security System, Negotiator, Interrogation, Weapon Proficiency (Lasers), Vessel (Aircraft), Stealthy Abilities

Expense Account: This represents the Troubleshooter's ability to call upon the financial resources of the company that hired her. The Troubleshooter has access to Lv1000,

per week, per class level, to cover expenses and any unusual purchases. All expenses must be tracked and accounted for. Any equipment purchased will revert to the company at the completion of the job it is needed for.

Connections: Beginning at 2nd level and at every fourth level after that (6th, 10th) you develop an increasing range of contacts and informants in your personal news and information-gathering network. Add +1 per Connection bonus to any Gather Information checks when utilizing these contacts.

Research: The character is skilled at sifting and analyzing data and information from various sources for the clues and evidence needed to put a report together. This Feat allows the synergetic use of Knowledge or another information-related skill together with Gather Information skill. Beginning at 4th level and again at 7th level, the character earns a +1 Research bonus.

Circumstances	Gather Knowledge Roll Adjustment
Multiple Sources	+1 per Knowledge or other skill used, if more than one is involved.
Per Research bonus	+1
Per Successful Source	+5
Skill Check (DC15)	

Class Skill	Key Ability
P/Administration	Wis
Bribery	Cha
T/Computer	Edu
Gather Information	Cha
Knowledge/Any	Edu
Profession	Wis
Sense Motive	Wis
Bluff	Cha
T/Communications	Edu
Liaison	Cha
Intimidate	Cha
Listen	Wis
Read/Write Language	None
Speak Language	None

Skill points: (4+Int Bonus) per level

SPECIAL FORCES (PRESTIGE CLASS)

The Special Forces Prestige class is used to cover elite light troops, whether army, marine or mercenary. They are typically adept at deep-insertion missions and covert assaults. They

are not line troops, however, and should not be expected to perform as such. Special Forces units were the first to land on Gamma Serpentis III, the Kafer homeworld, in preparation for the invasion of 2311. They provided intelligence and scouted landing zones for the assault forces which followed.

Characteristics: Special Forces troopers work best alone or, more typically, as part of a small, closely-knit team. Smart, tough and self-reliant, they also tend to be introspective and restrained.

Background: Special Forces characters are usually the veteran of a government military, usually Army, but sometimes Marines. A few exceptional mercenary units may also have true Special Forces teams, though this is quite rare.

Adventuring: The Special Forces trooper is often thought to be a one-man army, but the truth is somewhat less than that. They are ideally suited for small engagements, particularly those requiring stealth and/or long-range, deep-insertion tactics. They are not trained as stand-up-and-fight troops, but attack-and-fade sort of troops.

Requirements: To enter Special Forces, a character must meet the following requirements:

Attributes: Strength 12+, Dexterity 12+, Constitution 14+, Intelligence 10+, Wisdom 10+

BAB: +3

Skills: Demolitions 2+ ranks, Survival 3+ ranks, Move Silently 1+ ranks

Feats: Endurance, Weapon Proficiency (Combat Rifleman), Weapon Proficiency (Marksmen), Weapon Proficiency (Swordsman), Tactics

Other: Must have passed one turning point for Army, Marines or Mercenary, or 1 term if using Prior History character generation.

Class Features: Special Forces Troopers have the following features.

Stamina Dice: d10 + Con modifier per level

Level	Base Attack Bonus	Base Fort Bonus	Base Reflex Bonus	Base Will Bonus	Special
1 st	+0	+1	+1	+1	Feat (Toughness)
2 nd	+1	+1	+1	+1	Feat (Alertness)
3 rd	+2	+2	+2	+2	Specialization
4 th	+3	+2	+2	+2	Bonus Feat
5 th	+3	+3	+3	+3	Defensive Roll
6 th	+4	+3	+3	+3	Bonus Feat
7 th	+5	+4	+4	+4	Specialization Cross-training
8 th	+5	+4	+4	+4	Personalized equipment
9 th	+6	+5	+5	+5	Bonus Feat
10 th	+7	+5	+5	+5	Specialization Cross-training

Abilities

Specialization/Specialization Cross-training:

Many Special Forces troops learn specialized skills useful in their mission, and cross-train with those in their team. The Special Forces trooper receives a Feat or Ability dependant upon his specialization (must have required prerequisites). The same specialty may not be selected twice.

Choose from the following list:

Specialization	Effect
Demolitions	Amount of damage to breach or destroy and object (see THB page 156) is reduced by 20%.
Forward Observer	+2 to Forward Observer and T/Comms skill rolls (must have Forward Observer skill)
Point Man	Spot Trouble - The same as the Rogue class ability of the same name (must have Spot skill)
Rifleman	Rapid Shot Feat
Sniper	Sniper Feat
Deadly Strike	Improved Critical Feat
Assassin	Assassin Feat
Team Leader	Tactics Feat (must have Leader skill)

Defensive Roll: The same as the Mercenary class ability of the same name

Bonus Feat: Choose from the following list. If all Feats from the list are already possessed by the character, he may choose freely from all available Feats.

Armor Proficiency (Combat Walker), Armor Proficiency (Light Armor), Armor Proficiency (Medium Armor), Armor Proficiency (Heavy Armor), Drop Trooper, Weapon Proficiency (Lasers), Weapon Proficiency (High-Energy Weapons), Weapon Proficiency (Marksman), Vessel Proficiency (Remote Piloted Vehicle)

Class Skills	Key Ability
Climb	Str
Combat Engineering	Int
Demolitions	Int
Driving	Dex
Forward Observer	Int
Hide	Dex
Intimidate	Cha
Intuit Direction	Wis
Jump	Str
Leader	Int/Cha
Listen	Wis
Move Silently	Dex
Navigation	Edu
Spot	Wis
Survival	Wis
Swim	Str
Technical (Communications, Computers, Medical, or Sensors)	Edu

Skill points: (3+Int Bonus) per level.

NOTES FOR USE IN PRIOR HISTORY CHARACTER GENERATION

If any levels of this Prestige Class are taken in Prior History increase all Survival DCs in the following term by 2 and decrease all XP bonus and Decoration DCs by 1.

The Prestige Class may only be taken while serving as a special forces trooper with a military or mercenary unit. Further levels may be taken only when special forces activities or training are being undertaken regularly.

ALIEN CULTURAL AND TECHNOLOGIES EXPERT (ACTE) (PRESTIGE CLASS)

Characteristics: The alien technologies expert is a field scientist, traveling beyond the lab and the library to observe alien races and their tools in their natural environment, from the biological wonders of the Pentapods and the soaring towers of the Sung, to the squalor of the Kafer homeworld and the trap-laden ruins of the Beta Aquilae cluster.

Background: Alien Technologies Experts come from a range of backgrounds, from academic to military. They are often well-traveled; their curiosity about aliens whetted by chance encounters, and often the fortunes of war. Their background not only determines what extra skills they bring to the job, but also their approach. Most are intelligent and well-educated, approaching their subjects with the courtesy and respect they deserve. There are also some real morons out there, crashing their way around looking for the answer (and treasure) after seeing a documentary on the Beta Aquilae ruins.

Adventuring: Approaching aliens looking for answers into their culture and technology is an adventure all by itself. The ACTE may also need to finance his expeditions, and most have a large array of skills, not to mention exotic tools, that they can bring to bear on a problem.

GAME RULE INFORMATION

Class Type: Prestige Class

Requirements: To become an Alien Cultural and Technologies Expert, a character must possess the following skills and feats:

Skills: K/Aliens 5+ ranks, Gather Information 5+ ranks

Feats: Research/Aliens

Multiclass Restrictions: An Alien Cultural and Technologies Expert may multiclass freely

Abilities: Education 10+, Intelligence 12+, Wisdom 12+

Class Features: The Following are features of the Alien Technologies and Contact Expert

Stamina: 1D6 + Con modifier per level

Starting Funds: Cr500

THE ALIEN CULTURAL AND TECHNOLOGY EXPERT

Level	Base Attack Bonus	Base Fort Bonus	Base Reflex Bonus	Base Will Bonus	Special
1 st	+0	+1	+0	+2	Xeno-empathy
2 nd	+0	+2	+0	+3	Tech breakthrough
3 rd	+0	+2	+1	+3	Bonus Feat
4 th	+1	+2	+1	+4	Xeno-empathy
5 th	+1	+3	+1	+4	Tech breakthrough
6 th	+1	+3	+2	+5	Bonus Feat
7 th	+1	+4	+2	+5	Xeno-empathy
8 th	+2	+4	+2	+6	Tech breakthrough
9 th	+2	+4	+3	+6	Bonus Feat
10 th	+2	+5	+3	+7	Xeno-empathy

Class Skills

Class Skill	Key Ability
Gather Information	Cha
Knowledge (any)	Edu
P/Prospecting	Wis
Read/Write Language	None
Technical (any)	Edu
Intuit Direction	Wis
Navigation	Edu
P/Survey	Wis
Speak Language	None
Use Alien Devices*	Wis

* Exclusive Skill

Skill Points per Level: 6 + Int modifier

FEATS

Xeno-medicine, research, first aid, armor proficiency (light), armor proficiency (vac suit), Fast Talk, sixth sense, vessel (ground), vessel (water)

CLASS FEATURES

The following are class features of the Alien Cultural and Technology Expert:

Xeno-empathy: The character has a special "feel" for a specific alien race. This Feat must be chosen separately for each alien race. This Feat allows skills such as First Aid, Innuendo, Sense Motive, Bluff and Liaison to be used with no penalty. It also gives an automatic bonus of +2 to all spoken and written language checks for the specific alien race chosen.

Tech Breakthrough: This specialized Feat must be chosen separately for each race, and allows the character to ignore up to a -3 penalty in Use Alien Devices for that race's equipment only.

Special Skills

Decipher Script and **Use Alien Devices** are standard **T20** skills, useable only by the Alien Cultural and Technologies Expert.

Alien Cultures: This skill must be selected separately for each alien race, and allows the character to use the skill to figure out, or remember, aspects of the alien's society based on available information and his or her own special insight. For example, upon being confronted with an unusual situation deep in the bowels (so to speak) of a Pentapod enclave, a character could use this skill to remember that Pentapod corridors always spiral up and to the left, allowing the character a chance to figure out which way to go in order to escape.

Guidelines for using the Alien Cultures Skill

Even with extensive knowledge and background on them, it is more difficult with some races than other to intuit information. Use the following table for modifiers to the Alien Cultures Skill, based on race.

Alien Race	DC Modifier
Aquilans	+4
Ebers	0
Enemy	+8
Kafers	+2
Klaxun	-1
Little Guys	+2
Medusa	+7
Pentapods	+4
Sung	0
Xiang	+3
Ylii	+4

DCs should be determined based on how esoteric the information needed is. The above example on Pentapod Architecture would have a DC of 10, +4 for being Pentapod, and so relatively easy to figure out.

PRESTIGE CLASS MASTER SKILL LIST

Skill	Trouble-shooter	Special Forces	ACTE	Un-trained	Key Ability
Alien Cultures	X	X	C	No	Wis
Animal Empathy	X	•	X	No	Cha
Appraise	•	•	C	Yes	Int
Balance	•	•	•	Yes	Dex*
Bluff	•	•	•	Yes	Cha
Bribery	•	•	•	Yes	Cha
Broker	•	•	•	No	Int
Climb	•	•	•	Yes	Str*
Combat Engineering	•	•	•	No	Int
Craft [cascade]	C	•	•	Yes	Int
Decipher Script	X	X	C	No	Int
Demolitions	•	•	•	No	Dex
Disguise	•	•	•	Yes	Cha
Driving	C	•	•	Yes	Dex
Entertain [cascade]	•	•	•	Yes	Cha
Forgery	•	•	•	Yes	Int/Dex
Forward Observer	•	•	•	No	Int
Gambling	•	•	•	Yes	Int
Gather Information	C	•	•	Yes	Cha
Gunnery	•	•	•	Yes	Wis
Handle Animal	•	•	•	No	Cha
Hide	•	•	•	Yes	Dex*
Innuendo	•	•	•	No	Wis
Intimidate	•	•	•	Yes	Cha
Intuit Direction	•	•	•	No	Wis
Jump	•	•	•	Yes	Str*
Knowledge [cascade]	C	•	•	No	Edu
Leader	C	•	•	Yes	Int/Cha
Liaison	C	•	•	No	Cha
Listen	•	•	•	Yes	Wis
Move Silently	•	C	•	Yes	Dex*
Navigation	C	•	C	No	Edu
Pilot	•	•	C	No	Int/Dex
Profession [cascade]	•	•	•	No	Wis
P/Administration	C	•	•	No	Wis
P/Prospecting	•	•	C	No	Wis
Read/Write Language	C	•	•	No	None
Recruiting	•	•	•	Yes	Edu
Ride	•	C	•	Yes	Dex
Search	•	•	C	Yes	Int
Sense Motive	•	•	•	Yes	Wis
Speak Language	C	•	•	No	None
Spot	•	C	•	Yes	Wis
Survival	C	C	•	Yes	Wis
Swim	•	C	•	Yes	Str
Technical [cascade]	C	•	C	No	Edu
T/Mechanical	C	C	C	No	Edu
Technosavvy	X	X	X	No	Int
Trader	•	•	•	Yes	Int
Tumble	•	C	•	No	Dex*
Use Alien Devices	X	X	C	No	Int

* Armor check penalty, if any, also applies.

C Class Skill

• Cross-Class Skill

X You can't buy this skill because it's exclusive to another class

CHARACTER GENERATION EXAMPLE

Earl decides that he wants to create a Journalist character, with the intention of specializing in Alien cultures.

STATS

After rolling and arranging his stats, he gets the following: STR 12 DEX 17 CON 14 INT 12 WIS 13 CHA 11 EDU 12 SOC 10. He decides on a Body Type of Ectomorph, and so gets -3 To STR, -2 to CON and +2 to DEX, for totals of 9 STR, 12 CON and 19 DEX.

HOMEWORLD

For his homeworld, he chooses Chengdu, a normal-gravity frontier world along the Chinese Arm. (From the table near the beginning of **Chapter 7: Frontier Worlds**).

STARTING SKILLS AND FEATS

For starting skills, like all Humans Earl gets K/Homeworld and T/Computer at rank 0, plus T/Mechanical at rank 0 since he is from the Frontier rather than the Core. He starts out with Speak Language and Read/Write Language in his native language (English) and with his Intelligence Modifier of +1 he gets Speak Language in an additional language, which he chooses as Mandarin.

As a native of Chengdu (Normal Gravity Frontier World), Earl gets the following Homeworld Feats: First Aid, Vessel/Ground (he chooses Wheeled), and Weapon Proficiency (Marksman). For a Homeworld Gravity of Normal, he also receives a extra Feat, for which he chooses Trustworthy.

He also gets the Human Bonus Feat, and another for his first character level. He chooses these two bonus Feats as Weapon Proficiency (Swordsman), and Connections (Government Officials).

FIRST TURNING POINT

Earl rolls 1d6+4 to find the number of years until his first turning point. He rolls a 5, giving him 9 years, and 11,250 xp. His first turning point is a Wis check vs. DC 6. He rolls a 7, with his +1 Wis mod gives him an 8. He passed the turning point, and so gets another 1000xp.

SECOND TURNING POINT

This time Earl rolls 1d10 to find the number of years until his second turning point He rolls a 5, giving him 5 years, and another 6250 xp. He needs to roll a Wis check vs. DC 10 now to pass the second turning point. He rolls a 9, +1 for his Wis mod, for a total of 10, and just barely makes it. He gets another 1000xp for passing the turning point.

THIRD TURNING POINT

Earl rolls another 1d10 to determine the number of years until his third turning point. This time he rolls a 3, only three years, and 3750xp. The roll to pass the turning point is now a 12, and Earl rolls a 17, +1 for his Wis bonus, and easily passes. He receives another 1000xp.

At this point, Earl decides to end the background part of character generation, and use his accumulated xp to buy levels and build a character.

He receives a total of 24,250 xp, and was in his career for a total of 17 years. Earl will begin play at age 35. At this age he does not receive any stat reductions due to aging.

Earl decides to be a 6th level Journalist and a 1st level Alien Cultural and Technology Expert. For his Journalist class, he can have a Maximum class skill rank of 9, and a cross-class skill rank of 4. He also receives 3 General Feats (for class levels, 1/3/6) which come from the general feat list in THB chapter 5 rather than his class Bonus Feat lists, and an Ability Increase at character level 4. However, he already used his level 1 General Feat, so only actually gets 2 General Feats.

He applies the Ability increase to his Intelligence, raising it to 13. For the General Feats, he chooses Research/Aliens and High-Gravity Adaptation.

For his time as a Journalist, Earl gets to 6th level. This gets him his starting Feats plus three Bonus Feats. For his starting Feats, he receives Armor Proficiency (light) and the special class ability of Credibility. For his Bonus Feats he consults the chart for Journalist and selects Credit Line, Carousing and Hacker.

As a Journalist, Earl will start with 36 skill points (7 + Int Mod of 1 = 8, 8 x 4 =32, +4 for being Human), and will receive another 45 skill points (7 + Int Mod of 1 =8 per level, plus 1 per level for being Human = 9, multiplied by 5 levels = 45) over the course of his career. He gets to spend 81 points on skills, with a maximum rank of 9.

He chooses the following class skills: P/Journalist +9 ranks, Entertain (written) +9 ranks, Speak Language (French), Speak Language (German), Read/write Language (French), Read/Write Language (German), Gather Information +9 ranks, Sense Motive +8 ranks, Driving +5 ranks, Survival +6 ranks, T/Computer +6 ranks, K/Aliens +9, Liaison +8, and Innuendo +4 ranks.

For his next career, Earl chooses the Alien Cultural and Technologies expert. He has only 1st level, though he does have 3250 XP towards the next.

From his 1 level as an ACTE, Earl receives the Xeno-empathy Feat, and he chooses the Ebers as the preferred race. Earl receives 8 skill points for being a 1st Level ACTE, and chooses the following: Speak Language (Eberese), Decipher Script (Eber) +2, Alien Cultures (Eber) +3, and another +1 to each of Gather Information and Liaison.

Earl's Life Blood is equal to his Constitution stat (12). He is Level 6 Reporter, Level 1 ACTE. His Stamina will be 6 for Character Level 1, +6d6 for his later levels (5d6 from Reporter, 1d6 from ACTE), +1 per level for his Constitution (12). He starts with 6, rolls 25 on 6d6, and adds 7 for Constitution bonus, giving a total of 38 Stamina.

Earl ends up looking like this:

STR 9 Mod -1
DEX 19 Mod +4
CON 12 Mod +1
INT 13 Mod +1
WIS 13 Mod +1
CHA 11 Mod 0
EDU 12 Mod +1
SOC 10 Mod 0

Homeworld: Chengdu (Frontier World, Normal Gravity)

Body Type: Ectomorph

Life Blood: 12

Stamina: 38

Feats: First Aid, Vessel/Ground (Wheeled), Weapon Proficiency (Marksman), Weapon Proficiency (Swordsman), Connections (Government Officials), Armor Proficiency (Light), Credibility, Credit Line, Carousing, Hacker, Research/Aliens, High-Gravity Adaptation, Trustworthy and Xeno-empathy

Skill Ranks: T/Mechanical +0, Ride (horses) +1, K/Homeworld +0, P/Journalist +9, Entertain (written) +9, Gather Information +10, Sense Motive +8, Driving +5, Survival +6, T/Computer +6, Liaison +9, Innuendo +4, K/Aliens +9, Speak Language (Eberese), Speak Language (English), Speak Language (Mandarin), Speak Language (French), Speak Language (German), Read/Write Language (English), Read/Write Language (French), Read/Write Language (German), Decipher Script (Eber) +2, Alien Cultures (Eber) +3.

To get Earl's final Skills, add his Ability Bonuses to his Skill Ranks:

Skills: T/Mechanical 1, Ride (horses) 5, K/Homeworld 1, P/Journalist 10, Entertain (written) 9, Gather Information 10, Sense Motive 9, Driving 9, Survival 7, T/Computer 7, Liaison 9, Innuendo 5, K/Aliens 10, Speak Language (Eberese), Speak Language (English), Speak Language (Mandarin), Speak Language (French), Speak Language (German), Read/Write Language (English), Read/Write Language (French), Read/Write Language (German), Decipher Script (Eber) 3, Alien Cultures (Eber) 4.

He will also be able to use any other skills that are usable untrained, adding his ability bonus to the implied skill rank of +0.



RULES ADDITIONS

PERSONAL COMBAT

PERSONAL ARMOR

The descriptions of armor in the Equipment Section assume the use of this rule.

Armor Class is equal to 10 plus the Armor Rating of the Torso, plus Dexterity, cover, and size mods, while Armor Rating can vary on a per location basis. Different locations can, and do, have different AR. Other than that, AR rules are the same as in T20.

ARMOR LAYERING

Armor can be layered, but there are restrictions. Only one layer of armor can be added on. The armor with the highest AR is the base armor, and to that add half the AR of the other armor. Armor check penalties are added together, while the Max Dex Bonus is the lowest of the two armors, with an additional -1 penalty. Vedette armor doesn't suffer this penalty, as it is designed to be worn over top of other armor.

Battlesuits and vacuum combat armor cannot be layered with anything, even the vedette half-plate. They are too bulky as it is.

ARMOR LAYERING EXAMPLE:

Mike wants his character to wear a rigid breastplate over his protective vest. The AR of the breastplate is 6, while the vest is only 2. Divide the AR of the vest by two, and add that to the AR for the breastplate, so he gets an AR of 7 in the entire Torso. However, the breastplate has a Max Dex Bonus of +4, and the Vest has a Max Dex Bonus of +8. Subtract one from the value of the breastplate to get the layered Max Dex Bonus, which would be +3. The vest has an armor check penalty of -1, while the breastplate has a -2, for a total of -3. So this combination has the same protective value as a battlesuit but for the torso only, with the same penalties.

HIT LOCATIONS AND WOUND EFFECTS

The variant armor rules above are combined with the hit location and damage table to provide a more realistic treatment of combat. All aliens and animals have a different hit location table. These are all located in Appendix 2: Hit Loca-

tions. The use of the Alien and Animal hit location templates is optional, as they do add a further level of complexity.

HUMAN HIT LOCATIONS

2d6 Roll	Location	Damage Effect
2	Foot	Half
3	Lower Leg	Half
4	Upper Leg	Half
5	Groin	Full
6	Torso	Full
7	Torso	Full
8	Torso	Full
9	Chest	Double
10	Upper Arm (and Shoulder)	Half
11	Lower Arm	Half
12	Head	Double

WOUND EFFECTS (OPTIONAL)

It is unrealistic to expect a character to remain unaffected by gunshot wounds until Lifeblood reaches 0, whereupon he collapses and starts to die. Instead, as Lifeblood and Stamina are reduced, apply the following wound effects.

WOUND EFFECTS- Lifeblood

Wound State	Condition	Effect
0-25%	-	No Effect
26%-50%	Flesh Wound	All actions at -1
51%-75%	Serious Wound	All actions at -2
76%-99%	Major Wound	All actions at -3
0 or below	Unconscious and dying	

WOUND EFFECTS – STAMINA

Wound State	Condition	Effect
0-25%	-	No Effect
26%-50%	Strained	All physical actions at -1
51%-75%	Winded	All actions at -1
76%-99%	Exhausted	All actions at -2
0 or below	Unconscious	

Wound Effects are cumulative between Stamina and Lifeblood, so if a character had a Serious Lifeblood wound, and was winded as well, then he would suffer -3 to all actions.

VEHICLE COMBAT

Armor and Facing: All military vehicles have different armor ratings for each facing. This reflects the fact that

military vehicles concentrate their armor on the front of their hulls, where the majority of incoming fire will hit, leaving the sides and rear less defended. Naval vessels like-wise have the bulk of their armor in their hulls, with any superstructure substantially less-protected. While the D20 rules do not normally consider facing, they are required for vehicular combat in 2320AD. Spacecraft, combat walkers, and submarines do not have varying Armor Ratings by location, however.

If a grid or similar system is not being used, then represent facing by modifying the AC of any area to represent how difficult it is to hit.

Vehicle	AC Modifier	Surface Ship	AC Modifier
Front	+0	Hull	0
Hull Side	+0	Superstructure	+2
Rear	+2		
Top	+4	Aircraft	AC Modifier
Turret Front	+2	Fuselage	0
Turret Other	+4	Control Surfaces	+2

The first control surface hit on an aircraft reduces Agility by 4 points. Negative results are possible. The second hit sends the aircraft out of control.

Damage (Optional): Much like a person, a vehicle can't keep simply taking damage with no ill effect until it hits an SI of 0. Therefore, if desired, the following rules apply to vehicle combat in 2320AD. Note that implementing these rules will slow combat down.

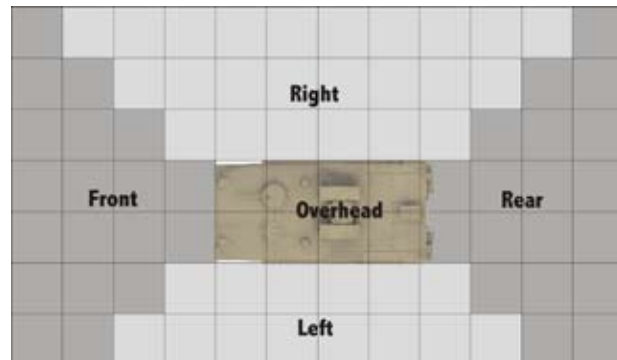
- 25% When a vehicle takes 25% of its SI in damage, reduce speed by 10% and Agility and Initiative by 1 point (negative Agility and Initiative is possible.)
- 50% When a vehicle takes 50% of its SI in damage, roll twice on the Vehicle Internal Hit Location, reduce speed by 50%, and reduce Agility and Initiative by 2 points.
- 75% When a vehicle takes 75% of its SI in damage, roll twice on the Vehicle Internal Hit Location, reduce speed by 75%, and reduce Agility and Initiative by 3 points.

COMBAT WALKERS

Humanoid combat walkers are laid out quite differently from standard vehicles, and so should use the normal character hit location table. Note that pod-type walkers use the standard Vehicle Internal Hit Location chart.

SIGNATURE

A vehicle's signature determines how hard it is to spot. The Signature rating is an abstraction of several different factors, including electronic emissions, noise, dust, and heat, and the effect of masking systems. Signature is used as a modifier on all rolls to spot a target, whether visually or elec-



tronically. Signature is a measure of how easy or difficult a vehicle is to Spot or Target compared to other vehicles in the same size category.

A vehicle's base signature is used as a modifier for spotting it, either visually or by electronic means. It is also used as a to hit modifier for smart missiles. Thus, a vehicle with a +2 Signature is +2 to be spotted, and +2 to be hit by a smart missile.

The vehicle's base signature is used when it is sitting still, not broadcasting or using weapons. If desired, signature can remain that way. Additional situational factors can change this base rating, and are offered here as an optional rule. Again, like most optional rules, they increase complexity and can slow things down.

A hover vehicle in Jump-jet mode adds 2 to its signature, while a supercavitating submarine or torpedo adds 8 to its signature.

MOVEMENT

Movement	Modifier
Sitting Still	0
Moving up to 10km/h	+1
Moving up to 100 km/h	+2
Moving up to 1000 km/h	+3
Moving up to 10000 km/h	+4

ELECTRONICS

Action	Modifier
Using Electronic System (Radio, Active +1 per system used Sensor, Targeting system)	

WEAPONS FIRE

Weapon	Modifier
Missiles and Rockets	+1
Stealth Torpedoes	-1
Standard Torpedoes	+2
Mass drivers	-1
Small Caliber Guns (20-40mm)	+1
Large Caliber Guns (40mm+)	+3
ETC Gun	+1
Artillery	+2
Mortars	+1
Lasers	-

MISSILES

Missile Guidance Systems

Missiles have four types of guidance systems.

Unguided: The first type is unguided, used in conventional short-range rocket launchers and supercavitating torpedoes. It suffers a -2 on all To Hit rolls.

Automatic After Gunner Lock-on: This is the second type of missile guidance. This missile type grants a To Hit bonus to the firer, and requires the Heavy Metal Feat to use. This missile type is considered a smart missile.

Automatic: The third type is Automatic, where the missile takes care of all targeting by itself. It grants a To Hit Bonus to the Firer, but does require the Heavy Metal Feat. Against targets that have not been downloaded into the missile's memory, this weapon loses the To Hit Bonus, and is treated as an unguided weapon (-2 To Hit). This missile type is considered a smart missile.

Laser-homing: These weapons home in on the reflected light of a laser designator. If the designator is still on the target when the missile comes into range, it will hit the target. Using the designator requires the operator to have the Forward Observer Feat, and Weapon Proficiency (Marksman). The roll is made as a normal attack, save that it ignores the target's AR when calculating AC. This missile is not considered a smart missile.

Missile Attack Angle

Missiles attack from two angles: Direct and Overhead.

Missiles using a Direct angle attack strike the facing presented to them when they are fired. This method is the fastest, and least vulnerable to Point Defense System fire.

Missiles fired using the Overhead angle attack will "pop-up" a moment before striking the target, and will attack the more typically more vulnerable Overhead facing, where the armor is generally weaker. Because of the "pop-up" at the end of their flight, these missiles are more vulnerable to PDS fire, and any vehicle equipped with a PDS system gains a +2 circumstance bonus to their AC versus this missile type. See the rules, above, on vehicle armor and facing.

Spoofing Missiles

Smart missiles can be spoofed by ECM/ECCM (Electronic Counter Measures/Electronic Counter Counter Measures) systems on-board vehicles. These systems require a skilled operator to function effectively, though automatic systems are available. Success on a spoofing roll throws the target-lock off, and the missile misses.

All ECM/ECCM systems have a signature rating, which is added to the vehicle's signature when the systems are in operation.

Spoofing a smart missile is a task, T/Sensors vs. a DC of 20 plus the missile's To Hit Bonus. It is not possible to Take 10 or Take 20 on this roll. Each failure of this task versus a specific type of missile results in a +1 circumstance bonus (cumulative, maximum bonus +3) to all subsequent T/Sensor skill checks to spoof the missile. However, if the opponent reprograms the missile (GM's discretion), this bonus is lost. This task requires ECM/ECCM equipment to be installed in the vehicle. Automatic systems use the skill rank listed in the chart below:

ECC/ECCM Systems	Range	Auto Skill	Sig
TL11	2 km	3	+2
TL12	3 km	5	+1
TL13	5 km	7	+0

POINT DEFENSE

Any auto-firing weapon with a RoF of 5 or more can be used in a point defense role. Such weapons add +1 to the vehicle's AC when used, but are considered to be firing at their maximum rate of fire. They can only be used against one incoming missile per combat round, and cannot be used to make any other attack in that round.

Dedicated point-defense weapon use their listed AC bonus against incoming missiles. Weapons can target any number of incoming missiles up to their Rate-of-Fire, but suffer a penalty on the AC bonus for multiple missiles targeted, as listed in the description.

Dedicated Point Defense Systems

As the modern battlefield becomes more deadly, a small hover jeep with a missile launcher can take out a modern battle tank. This was common throughout the ground portion of the Kafer War, where troops of both sides used hand-carried launchers to attack tanks, often from hidden ambush locations. Anti-missile systems help alleviate this threat, with the more advanced systems of the Humans allowing them an advantage on the battlefield.

Anti-missile systems have evolved to meet the threat, from the first ad-hoc linkages of a vehicle's anti-personnel charges to the fire-control radar, and on to more sophisticated designs, point defense has become a priority for modern machines of war.

Weapon	AC Bonus	Damage	Range	RoF (PD)	RoF (Normal)
Laser	+4/+2	0/1d4	200m/50m	8	5
Minigun	+3	1d6	100m	5	5
Explosive Flechette	+4	1d4	50m	N/A	N/A
BG PD Laser	+2	1d4	100m	2	1

Cost is per unit. RoF (PD) is the weapon's RoF in Point Defense Mode, while RoF (Normal) is the weapon's RoF when

engaging any other target.

Laser: The laser point defense system consists of a rapid-cycling free electron laser that fires through a universal ball-mounted mirror. The laser itself is safe behind armor. The mirror mount is able to rapidly engage targets, and the weapon has a range against missiles of nearly 1000 meters. The primary effect of the laser is to confuse the missile's targeting system, throwing off the lock. At close range (<100 meters) the laser is powerful enough to burn the missile down, but that takes longer, and so is only a consideration if there are a small number of targets. The first AC bonus is for the laser in blinding mode, while the second is for the laser in burn mode. Likewise in blind mode the laser causes no real damage to the missile, while in burn mode it causes 1d4 damage.

A laser system can engage as many targets as its RoF. Note that this is different from the standard Burst-Fire rules on page 151 of the THB. The listed AC bonus applies to all engaged targets, unlike the other systems. Note that dumb-fire missiles will not be thrown off by the laser system, but laser-homing and drone systems will. If the operator chooses instead to burn the targets down, the range goes down to the second value in the chart, and ROF is reduced by 4 for each target burned. In burn mode, the system has an AC bonus of only +1. Each missile hit receives 1d4 damage, which is enough to knock out any but the largest anti-vehicle missiles.

Minigun: The minigun is a radar-controlled 9mm, 7-barrelled binary Gatling gun that attempts to shoot down incoming missiles. Not quite as effective as the laser system, is it considerably cheaper, at least until you start factoring in ammunition costs. The minigun can also be disengaged from the radar fire control (1 full action) and used as an anti-infantry weapon. This is rarely done, as the point-defense role is considered far more important. Each point of ROF uses 100 rounds of ammunition.

A minigun can engage as many targets as its ROF. The system is automatic, and has an AC bonus of +4 vs. missiles and rockets. This bonus declines by 1 for each target engaged (first missile would be +4, second +3, third +2, etc). Each missile that misses is destroyed. The system typically only carries enough ammunition for a few bursts, however, as the extremely high rate of fire uses an enormous quantity of ammunition. Each full burst (ROF 5) takes up 5 vols of space.

Explosive Flechette: Developed from the anti-personnel charges that many modern tanks have to prevent close infantry assaults, the explosive flechette attempts to down missiles by spraying a large cloud of ceramic darts at the incoming missile, hopefully damaging it and/or confusing its sensors.

An explosive flechette system engages all targets in its firing arc. The system is detonated automatically when a mis-

Starships vs. Vehicles:

Due to the normal operating ranges and high power of starship weapons, when used at close planetary ranges, they are scaled up as normal for T20 (+5 Dice of damage) when attacking vehicles. They are also scaled up when attacking starships at these short ranges. However, vehicle weapons are NOT scaled down when attacking starships. Starships and spacecraft in 2320AD are notably more fragile than their T20 counterparts, and consequently suffer normal damage from vehicular weapons.

sile or other large object enters the defensive envelope of the system, which can be set for 5-50 meters. The explosive flechette PDS has a base AC bonus of +4, which is reduced by one for every two missiles in range. So if four missiles are fired, the AC bonus is only +2. Each missile hit is destroyed. The system works on both smart missiles and dumb-fire missiles. The AC bonus is permanently reduced by 1 for every 4 missiles intercepted, to represent the use of the flechette packs.

BG PD Laser: The Blue-Green Point Defense laser is a last ditch defense mechanism for submarines and surface ships, and is used to intercept torpedoes within a 500m engagement envelope around the vessel. The BG laser is a very powerful design, but even at that its range in water is sharply limited, and it thus only has 5 range increments, rather than 15. The BG PD laser Adds its AC bonus to all attacks, but can only engage as many targets as its RoF. Each torpedo that misses is detonated or destroyed, (1d6, 1-4 detonated, 5-6 destroyed). If the firing vessel is in the AoE of the torpedo, it can be damaged by the explosion of a detonating weapon.

COMBAT WALKER POINT DEFENSE

Missiles and rockets are the bane of any armor unit's existence, and the larger anti-missile defenses were developed for vehicles. The smaller size of a combat walker requires smaller and admittedly less-capable systems. Due to power constraints, there are only two types of anti-missile systems available for combat walkers: explosive flechette and minigun. Both systems provide a defense bonus vs. all incoming rocket, missile, and grenade attacks.

The minigun uses a 5mm 5-barrel Gatling gun, with enough ammo carried to defend the CW five times. The listed Defensive bonus is reduced by 1 for every two incoming rounds, and so is overwhelmed by firing four rounds at it.

The explosive flechette system uses a harness similar to the one used by anti-personnel mines, and links the flechette packs to a point-defense radar, which will detonate a pack

facing an incoming missile in the hopes of intercepting it. The Defensive bonus of the Flechette pack is degraded by 1 for every two weapons intercepted, to represent consumption of the packs.

Weapon	Def Bonus	Damage	Range	ROF
Minigun	+2	1d4	20m	5
Exp. Flechette	+3	1d4	10m	N/A

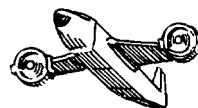
TORPEDOES

Jamming: Modern torpedoes are smart weapons, with nothing to jam. They are direct-fire, high-speed weapons, which will usually hit their targets on the round they are fired. The exceptions to this are the so-called stealth torpedoes, which approach their targets on the virtually silent MHD drive, and then go to a full-sprint supercav final approach, which is usually from within the target's "reaction envelope", the distance from the sub where its operators and automatic defense systems have enough time to react and engage an incoming torpedo. If the stealth torpedo is detected before it enters this envelope, it is possible to jam it. T/Sensors vs. a DC of 14 plus the torpedo's BAB.

Evading: Most modern torpedoes are supercavitating designs traveling at 800-1200 km/h. They are next-to-impossible to evade, unless the target sub is likewise a supercavitating design, and has its drive lit up. It takes several rounds to light up a supercav drive on a large vessel, and by then it is usually too late.

Interception: Torpedoes can be intercepted by either dedicated mini-torpedo interceptors, or by a blue-green laser carried by the target sub. The mini-torpedo is the most reliable method, as the blue-green laser has a very limited range. The mini-torpedo must roll vs. a DC of 16 plus the Attack Bonus of the attacking torpedo. The blue-green laser rolls against a DC of 18 plus the Attack Bonus of the attacking torpedo.

Decoys: Decoys are a combination of sonar decoy and bubble-maker that created an image of the target sub in an attempt to confuse the weapon operators on the attacking vessel. They add 2 to the carried vessel's AC.



FOUNDATIONS

The Foundations are not governments, yet they fulfill governmental responsibilities in some places. They are independent and well-financed, yet rely on public support and public opinion to perform their role. Foundations are rigorously administered to ensure that they perform their tasks properly, and their finances are a matter of public record. Public trust for the Foundations is high, as even those with agendas have obvious and popular ones.

Some Foundations support research, while other supports colonization efforts. Some are public service organizations, while others have clearly stated nationalist goals.

THE MAJOR FOUNDATIONS

Foundations and their activities cover the entire spectrum of human activity. The background, interests, and motivations of each foundation varies greatly.

ASTRONOMISCHEN RECHEN-INSTITUT

Headquarters: Heidelberg, Germany, Earth, Sol, Core.

Mission Statement: The pursuit of pure research into stars, planets and astronomical processes.

Products/services: Knowledge, colonial surveys, starship design.

Language(s): German, French, English.

Culture: Open, similar to a university.

Staff Levels: 42,000 + students and interns (50,000+).

Scope of Operations: Primarily the French Arm and the Bayern Corridor.

The Bavarian Astronomischen Rechen-Institut was originally part of the University of Heidelberg. Endowed by Azania with tantulum and funding to support a squadron of interstellar scouts, the ARI is a foundation pursuing pure research into the nature of stars and their planetary systems.

The ARI sponsors exploratory missions to strange star systems and phenomena. Most of these are directed at the immediate Frontier systems, but there are several expeditions operating beyond 50 light-years from Sol, some of which are not expected to return for more than a decade.

Missions for the Astronomischen Rechen-Institut will usually be purely exploratory. This might be anything from a voyage to an interesting stellar body to the search for, and

OTHER FOUNDATIONS:

Academia Del Lincei: Based out of Rome, the Academia is focused on the quest for antiquity, its artifacts, its ideals, and its knowledge, making it an almost totally Earth-centered foundation. It has a reputation for eccentricity.

AECA: The American Extrasolar Colonization Administration supports American exploration and colonization efforts throughout the American Arm and the Beta Aquilae sector. A well-meaning, but somewhat ponderous bureaucracy.

Alberta Farmers' Cooperative: Based out of Calgary, Canada, the AFC has a major role in the exploitation of newfound worlds along the Canadian branch of the Manchurian Arm, along with the provision of genetically-engineered seed stock and grain supplies to many worlds throughout Human space.

Foundation For Practical Knowledge: With its headquarters in the Wellon city of Swansea, on Tirane, the Foundation for Practical Knowledge focuses on pure research: anything from ground-based laboratory studies on genetics to the maintenance of a data collection facility in an asteroid belt.

L 'Institut Des Etudes Xenologiques: The IEX, an academic institution funded by the French government, is the foremost organization on Earth dedicated to studying the diversity of alien life forms, including intelligent life.

Instituto Nacional De Astronomia Practica: INAP is a joint venture by the governments of Argentina and Mexico, and its activities center mainly on the exploration of the Montana-Procyon branch of the Chinese Arm. There has been some strain inside INAP after Mexico's change of government, and Argentina's ongoing war introduced schisms along nationalistic lines.

The Pioneer Society: An independent organization whose goal is the exploration and exploitation of the Beta Aquilae Cluster, independent of any other group. Billionaire William Staunton, the society's founder, continues to direct its operations from his suite in a low-gravity orbital habitat in Earth's L-4 zone.

Paix Avec les Xenos: PAX is a pacifist organization that insists that all the problems humanity has had with the Kafers are simply the result of a misunderstanding, or even Human aggression. PAX is extremely unpopular on the French Arm, and sees most of its support from the Core, mostly Earth. There is anecdotal evidence to link PAX to the Coyfederacy terrorist group.

The Royal Society: Chief catalyst in British interstellar activities, the Royal Society has the Royal Family's blessing, the parliamentary government's tolerance, and endowments and popular support from all of Britain to promote all sorts of colonial and exploratory expeditions on the Frontier.

The Transhuman League: Just as the terrorist group ProVolution supports the cause of directed human evolution through violence and revolution, the Transhuman League advances it through political action and protest. The chief aim of the League is to restart research in DNA modifications, and to make the technology legally available everywhere.

There are numerous smaller, less well-known organizations performing similar functions to the listed Foundations and organizations.

exploration of, colonizable planets. First priority in these missions is the acquisition of new knowledge, though often with an eye to exploiting that knowledge for the benefit of the ARI.

THE LIFE FOUNDATION

Headquarters: Isle of Summer, Wellon, Tirane, Alpha Centauri, Core.

Mission Statement: To promote colonization efforts.

Products/services: Colony planning, infrastructure design, transportation.

Language(s): Esperanto, English, Spanish.

Culture: Open, forward-thinking, idealistic.

Staff Levels: 8000 at headquarters, another 17,000 throughout human space, plus personnel at the colony on Austin's World.

Scope of Operations: All of human space, but concentrated on the Latin Finger of the Chinese Arm.

Devoted to colonization, and increasingly to humanitarian efforts, the Life Foundation has its beginnings in the initial colonization efforts on Alpha Centauri. Grants are provided to willing and talented individuals who wish to colonize other worlds, but who might otherwise not have been able to do so due to national or economic considerations. In its beginning years, the Life Foundation was at the service of nations seeking particular individuals and skills which might have been in short supply. From that base, the Life Foundation has become its own entity, promoting throughout human space.

The Life Foundation's greatest achievement has been its colonization effort on DM-3 1123 (Austin's World) on the route from Montana (Omicron2 Eridani) to Procyon (far along the Chinese Arm) – an effort accomplished using solely the Foundation's assets.

Their current major project is the construction of two deep-space stations to effectively recreate stutterwarp tug ranges without requiring the proprietary technology. Built in cooperation with the governments of Texas and Brazil, these stations are being built with first generation stutterwarp tuning systems, allowing tug operations between Earth and the further reaches of the Chinese Arm. The stations, located between Earth and the outpost at Qingyuan (UV Ceti B) are expected to come online with the next two years, and could cut months off transit time from Earth to the Latin Finger, not to mention many other worlds deep in the Chinese Arm. This route is the most advantageous for all colonies along the Chinese Arm and so furthers the Foundation's goal most effectively. However, many outposts and the Manchurian colony at Cold Mountain stand to lose considerable trade if the shortcut proves viable.

Missions for the Life Foundation will focus on new colonization efforts. This does not always mean new worlds,

COPYRIGHT AND PATENT RIGHTS:

The Foundations and Corporations are vitally concerned with the issue of copyrights and patents, for this is what their fortunes are made on. Most governments enforce limits on copyrights and patents, however, with copyrights expiring after 20 years, and patents after 10. The government's reasoning is that these times are sufficient to accrue a reasonable profit and pay for development costs, without stifling further innovation. Some nations, like Indonesia and the Inca Republic, however, do not recognize international copyright and patent law at all.

however. Often, it is as difficult a job to begin a colony on a new continent as on a new planet.

NORTH AMERICAN RESEARCH LEAGUE

Headquarters: Vancouver, Canada, Earth, Sol, Core.

Mission Statement: To prevent the ravaging of any ecosystem, and to promote peaceful interactions between nations, cultures and species.

Products/services: Environmental assessment, alternative technologies.

Language(s): English, French, many others.

Culture: Open, but somewhat paranoid at the same time, very skeptical of government and, in particular, of large corporations.

Staff Levels: 10,000+ throughout human space, along with millions of supporters, mostly in the Core.

Scope of Operations: Throughout human space.

The name "North American" was derived from the chief source of charitable support for the organization at its conception. Today the League enjoys interstellar support of its activities to keep planetary ecologies safe from overexploitation, and the mediation of national disputes. Though sometimes employing unorthodox tactics, the League and its far-flung membership can be found pursuing peaceful solutions to critical situations in all corners of human space. Most of their support, however, comes from the Core Worlds, and it there that the Foundation's policies are decided. Their most notable operation until recently was their successful mobilization of world opinion to free the Xiang slaves from the Sung.

Their most difficult and contentious operation nowadays is their effort to observe the occupation of the Kafer homeworld to prevent further atrocities. For this reason they have lost a great deal of support on worlds along the French Arm, which suffered the brunt of atrocities during the Kafer War. However, they have retained their support in the Core, due in no small part to an extensive public relations and manipulation campaign.

Missions for NARL are usually begun by whatever local personnel discover the problem, augmented by hired troubleshooters. For this reason, the organization keeps a file of expert agents for hire who can be trusted to travel to the location and solve the problem in a manner approved by NARL headquarters. These agents often face personal danger, but they reap the rewards of travel to exotic places, as well as having large expense accounts.

ZAPAMOGA

Headquarters: Gdansk, Poland, Earth, Sol, Core.

Mission Statement: To provide opportunities for those who lack them to resettle on new worlds in an atmosphere of hope and prosperity.

Products/services: Colony planning and support, emergency services and aid.

Language(s): Polish, Russian, English, French, Chinese.

Culture: Dedicated, driven, orderly.

Staff Levels: 110,000 throughout human space.

Scope of Operations: Throughout Human space.

Zapamoga was formed in the chaos that followed the Twilight War, providing succor to refugees in and around Poland. Zapamoga's mission gradually changed as the organization transported Europeans to settlements in Africa, Asia, and South America, and later carried Earthers to colonies on distant worlds.

Zapamoga has been extremely busy since the end of Kafer War, relocating refugees all over human space, but largely to the Chinese Arm, and to a lesser extent, the American Arm. Though well-intentioned, this displacement of millions of people has started to generate a backlash, much of which is aimed at Zapamoga. Conditions at their resettlement camps seems to be the main issue.

Missions for Zapamoga will usually involve the transportation of people or goods to a colony site, especially refugees. Zapamoga is currently discretely hiring operatives to investigate the complaints against them, in an attempt to find a solution before they lose all their good-will.

TRANSNATIONAL CORPORATIONS

The Transnational Corporations, or Transnats, exist in a peculiar grey zone. They are nominally based out of one country, but the scope of their operations covers many worlds. In these situations, there is a delicate balance between loyalty to nation and loyalty to corporation. As the Transnats expand, and offer greater services and rewards to their employees, this loyalty shifts away from the nation. Some of the Transnats are powerful enough to have colonies, and Trilon has even laid claim to an entire world.

REBCO SAR

Headquarters: Lansdowne, Wellon, Tirane, Alpha Centauri, Core

Mission Statement: To provide the best and most appropriate human resource to tackle any problem, anywhere.

Products/services: Employment services, troubleshooting, security and mercenaries.

Language(s): English, Urdu, French.

Culture: Free-wheeling, but at the same time very cautious. All operations must be above-board.

Staff Levels: 125,000 throughout Human space, including contractors.

Scope of Operations: Human Space, Kafer homeworld.

In the year 2244, two financial institutions on Earth, the Rawal Pindi Trading Company of Pakistan and the National Express Bank of America, merged to become Rebco.

The majority of Rebco's business involved financial services on Earth, but in 2257, after developing a large internal security force, the corporation created a splinter group dedicated to providing short-term security forces to organizations on colony worlds. This began with uniformed guards for corporations, and over time ranged up to include mercenary troops for small colonial governments, and even rescue operations. Rebco located their new organization's offices to Wellon, on Tirane, and they called it "Rebco Search and Rescue," or, more succinctly, "Rebco SAR." Since then, Rebco SAR has expanded from providing security forces to matching persons seeking employment with employers looking for experienced personnel. RebCo even provides much of the support staff to the Human occupation forces on the Kafer homeworld, as the normal civilian contractors were not available on that alien world.

Missions for Rebco SAR can include anything which might be dreamed up. If there is money to be made, Rebco SAR will most likely be willing to get involved, although its coordinators pride themselves upon their honest reputation and will avoid overtly criminal activities.

Scandal:

Rebco SAR has always relied on its reputation. Late in 2319, however, that reputation became sullied when a group of freelancers hired out to AmeriCo turned on the beverage company. The reasons for the betrayal are unknown.

TRILON

Headquarters: Arnor, Kie Yuma, Xi Ursa Majoris, French Arm.

Mission Statement: Providing the best quality products and services, at a reasonable price, and with an appropriate rate of return.

Products/services: Consumer products, computers, starships.

Language: English.

Culture: Guarded, somewhat conservative, security-conscious.

Staff Levels: 720,000, mostly on Earth and Kie Yuma.

Scope of Operations: Core, American Arm, French Arm.

Founded in 2167 in the wake of the settlement of Alpha Centauri, Trilon has grown from a starship maintenance company to the largest private starship construction firm in Human space.

Trilon is now one of the largest corporations in Human space, with extensive Earthside and colonial holdings. In addition to its starship business, Trilon also has a large consumer product division, and Trilon products can be found in virtually every home.

Trilon was the first Transnational to break away from its national roots and go independent. Though Trilon still has strong ties with the American government, it is an independent nation in its own right, with its own colony world as the seat of its power.

AMERICO

Headquarters: New York, America, Earth, Sol, Core.

Mission Statement: Our mission is to be the premier consumer products company in Human Space, focused on convenient foods, beverages and personal grooming products. We seek to produce healthy financial rewards to investors as we provide opportunities for growth and enrichment to our employees, our business partners and the communities in which we operate.

Products/services: carbonated beverages, snack foods, personal grooming products, smuggling.

Language(s): English, Mandarin, French.

Culture: Profit is paramount.

Staff Levels: 650,000.

Scope of Operations: Core, American Arm.

AmeriCo began in America in the late 22nd century as a door-to-door operation selling health and beauty products. Over the years, AmeriCo spread into other markets, such as beverage bottling, light manufacturing, and other consumer goods. Eventually the corporation was established as an American tradition. As the colonization of the stars began, AmeriCo began to target the colonial market and soon it became a multi-world organization.

As AmeriCo's original members died, they left their cor-

OTHER LARGE CORPORATIONS AND TRANSNATIONALS:

Aberdeen Mineral Exploitation Company (AMEC): Mining, investments.

Arno: Small Arms.

Aerotech SA: Aerospace Manufacturing.

Aquitaine Corporation: Sensor Drones.

Bridgeport-Swift: Vehicles.

British Exospace: Space drones, missiles, and small starships.

DunArmCo: Armament Systems.

Darlan Optophysique: Energy weapons and fusion systems.

General Service Transport: Large-scale transport.

Gorman Systems Ltd: Heavy industrial products.

Hundeman Industries: Sensor Drones.

Hyde Dynamics: Spacecraft, missiles, drones.

Kaskaskia Arms: Military small arms.

Leyland-Armstrong: Reaction-drive spacecraft.

Microtechnica Computers: Hardware and software.

Mineria Recursos de Argentina (MRA): Mining and mineral processing.

Momotaro Technologies: Japanese consumer electronics firm with military ties.

Niyazawa International Bank: One of the largest investment banks in Human space.

Sortech Enterprises: Robotics and Drones.

Sumatro-Fabrique: Heavy Industry, including weapons systems.

Tiranefabrik: Heavy industry, especially large vehicles and hovercraft.

Vannoccio: Luxury vehicles.

porate holdings to their descendants. One of these saw the opportunity to use AmeriCo's numerous, far-flung factories as fronts for smuggling operations. Today, it is estimated that nearly 30 percent of all AmeriCo manufacturing locations serve periodically as ports of entry for illegal goods.

This problem is the most severe on the American Arm, where AmeriCo has the majority of its holdings.

TERRORIST GROUPS

Terrorist groups often start out dedicated to a cause they feel is just, but end up descending into an endless circle of violence as the original cause becomes lost in rhetoric and cycles of revenge.

PROVOLUTION

Headquarters: Dispersed.

Mission Statement: The reigning social order must be removed in order for Humanity to realize its true destiny. Natural evolution is done, humanity must finish the job.

Products/services: Cybernetics, prosthetics, nihilistic terrorism.

Language(s): English, French, Mandarin, Russian.

Culture: Violent, secretive, will go to any lengths to accomplish a goal. Not overly subtle, however.

Staff Levels: Unknown, likely 500 or so core members, plus many affiliates

Scope of Operations: Core Worlds, and terrorist actions along the Chinese and French Arms.

Early in the 21st century, a small group of Russian and Chinese scientists decided that the communist revolution had lost its purity of vision. Rejecting the individualism of Western society, they believed that nothing mattered but the advancement of the human race. They saw in the sciences of cybernetics and genetic engineering the potential to increase the abilities of humans immeasurably. In order to achieve their goals, they plotted to seize political power. They never got the chance. Their plans were uncovered and the principals arrested. When news reached the West, a British journalist labeled it, "The Pro-Evolutionist Plot." In public parlance, the group became known as "Provolution."

Late in the 23rd century, Provolution took credit for a terrorist bombing on Tirane. At first it was dismissed as a hoax, but attacks along the Chinese Arm soon made it obvious that Provolution was in existence once again. The group stated its goal as "the destruction of Earth's power over the colony worlds to prepare for the next step in evolution, which is human-directed evolution."

Provolution genetically and mechanically enhances its agents, but, because of limited resources and unconcern for the individual, worries little about side effects. Provolution agents are often powerful, but they pay for it in terms of shortened life expectancy, constant pain, and/or mental instability. Also, it is believed that a few of society's missing persons end up as experiments on Provolution lab tables each year.

COYFEDERACY

Headquarters: Unknown, but thought to be somewhere on the French Arm.

Mission Statement: Human oppression of other intelligent races must end.

Products/services: Try to draw attention to human oppression of aliens, conduct attacks against human embassies.

Language(s): French, English, Mandarin, some alien languages.

Culture: Prefer statements to direct action, but employ multi-species strike teams when appropriate.

Staff Levels: Unknown, likely 500 or so core members, plus many affiliates.

Scope of Operations: Core Worlds, and terrorist actions largely aimed at human enclaves on alien worlds.

Starting in 2318, a string of what were assumed to be nuisance letters aimed at the Canadian Office of Sung Affairs spiraled into violence when a small explosive device went off in their Ottawa offices. Four people were killed, and several more were injured. The previously unknown group calling itself the "Coyfederacy" claimed responsibility. In their statement, they said the bombing was to draw attention to the Canadian failure to honor their agreements with the Sung, and that more would follow if action wasn't taken. The most worrisome part of the whole episode, however, was the discovery that the bomb used Kafer-made explosives. Further investigation revealed that the bomb had been planted by a couple of employees of another government office that shared the building, who had subsequently fled. The origin of the name "Coyfederacy" is unknown.

Coyfederacy attacks are currently small in scope, but quite troubling, as it appears that individuals of many different races, including Eber, Sung, Human, Pentapod and even Kafer are involved. How this is even possible is unknown.

CRIMINALS AND SMUGGLERS:

Many criminal organizations have made the leap to the stars. The Italian Mafia still maintains its reputation as the premier criminal organization, but it faces heavy competition from the Russian Organizatsiya, the Japanese Yakuza, the Franco-Corsican Union Corse, the Cantonese Triads, the Freihafen Blackhands, and many others. All of these groups have their hands in various pots, including the traditional vice operations and high-risk loans. They have also branched out into biologicals smuggling, refugee smuggling (and selling), and starship theft.



CORE WORLDS

The Core encompasses the worlds of Tirane and Earth, but can also be used to describe the lifestyle of any of the more advanced urban areas of certain long-settled colony worlds like Nibelungen or Beta Canum.

Life in the Core is generally seen by the rest of humanity as extremely hectic, dominated by endless work, endless traffic, endless commuting, and an overwhelming feeling of being watched. There is some truth in these stereotypes, but there is much more to life at the Core than that.

Most people in the Core, at least in the better developed nations, are knowledge workers, who work with their minds rather than their hands, with rare exceptions. Automated production has eliminated most factory labor, and resource extraction is largely automated or conducted in the extra-solar colonies.

World of Tiers:

The nations of Earth are divided into four Tiers, reflecting several factors, primarily economic strength, off-world colonies, and global political influence. Tier 1 is at the top, Tier 4 is down at the bottom.

Life in most of the Core nations is a luxurious one, but also carefully controlled. Watchdog systems monitor a citizen's every move, from transponders and GPS locaters in cars to the omnipresent video cameras on every corner. Phones and portacomps are likewise monitored, both for content and location. Visitors to the Core nations are often taken aback at the level of scrutiny the average citizen accepts. In return, however, the citizens expect security and convenience. If they get lost, they know they will be found. If their truck breaks down in a remote mountain location, help is already on the way. If a criminal should break into their home, chances are the police know who it is before the door is fully opened, and are already on their way.

This does place some constraints on the style of play in the Core nations. It doesn't mean that characters can't do anything, but that they have to be very careful, and thoughtful, of how they do it. As well, not all nations on Earth and Tirane properly fall into this category. Many, like the Central Asian Republic and Iran on Earth, and Santa Maria and Tundukubwa on Tirane, do not have developed enough infrastructures to have this level of surveillance. This lack of a link

infrastructure can be due to a lack of resources, as is the case for the CAR, or a disinclination on the part of the government to closely monitor its citizens, as in Tundukubwa.

CULTURE

Within the Core nations, culture varies greatly. Most nations identify themselves by their cultural heritage, and display the language, festivals and other trappings of that heritage proudly. At the same time, the global communications network has also forced a kind of uniformity. Everyone has seen the same shows, listened to the same music, read the same books, though the language may be different. Publishing and media conglomerates, aided by powerful translation software, purvey the same entertainment to everyone, though in their native tongue. Near real-time translation software provides instant translation for everyone, simply by putting on an earpiece and tapping into the local link network. This cultural homogeneity is one of the driving factors in the colonization movement, as those who wish to avoid assimilation move out to the stars.

The average Coreworlder spends approximately 20-30 hours a week at their job, and another 10-20 hours a week

Popular Foods:

The Foot-Long Hard-Boiled Egg: The signature product of Food-Extruder's (the ubiquitous fast food emporium) is still the extremely popular Foot-Long Hard-Boiled Egg. The corporate motto: "Say When!" has become a catch-phrase among urban youth. Lv1.5 for a 30cm length.

Perka-Cola: A combination energy drink/soft drink, this AmeriCo product enjoys brisk sales, thanks in part to its extensive advertising campaign aimed at commuters and students. Lv0.25 for 500 ml.

Curry Loaf: Another Food-Extruder's product, Curry Loaf is a loaf of bread with one of several different types of curry baked right inside. Choices include chicken, beef, goat, or vegetable. Lv2 for a 0.5kg serving.

Montana Dark Chocolate: Something in the soil of the colony world of Montana adds an extra richness and depth to the flavor of cocoa grown there. Truffles made with Montana chocolate go for more than Lv20/100 grams.

at various “leisure” occupations, like hobbies, sports, etc. However, there is a certain pressure to excel at these activities, which prevents them from being the release that they should be. Couple that with the ever-present competition for employment, and you have a recipe for a great deal of stress. Unemployment rates run at 25% or more for most Tier 2 and Tier 3 nations, a little higher for Tier 4, and a little lower in Tier 1.

Another thing that takes visitors to Earth aback is the level of advertising a person is subjected to as they walk down a street, or worse yet, in a shopping mall. Here, the omnipresent surveillance systems are turned towards commerce. Computers read the RFID tags in customers’ implants, or in their charge cards and credit cards, and bombard them with personalized advertising. Using directional sound systems and projected holograms, these ads are often inaudible to those even less than a meter away, and the imagery is blurred and out of focus. The computers access the potential customer’s purchase history and construct, on the fly, a pitch tailored to that person. The average store can usually handle up to twenty people at a time, bombarding them with five-second mini-commercials as they walk past. The ads are often targeted at those who can afford the services offered by the store, and ignore those who can’t. Visitors find this sensory bombardment bewildering and unnerving, but to a resident of the Core worlds, it’s just the way things are, and they take no further notice of it than a person of 20th century Earth would take of billboards.

SNAPS:

Despite the emphasis on shorter work-weeks and a more leisurely life-style, life on the Core Worlds can be very hectic and demanding. There is a strong pressure to succeed, and the shorter official work week just means less time to do more work. Add to this the ever-present buzz of the predominantly urban life, the pressures of directed advertising, and the constant feeling of being watched, and some people just can’t take it.

The official term is “stress-related psychosis” but the more common term for it is Snap. A word used to describe people who have essentially gone mad with the pressures of modern life. Often times, this manifests itself as random violence, though other manifestations are common as well, including catatonia and psychosis.

A powerful uniting influence on the Core Worlds, in particular on Earth, is a strong sense of environmentalism. Earth came close to destruction in the Twilight War, and the importance of the environment is central to public thinking on Earth. On Tirane, the inhabitants see their world as an

unspoiled gem, and aim to keep it that way.

That leads back to another hallmark of Core culture, especially on Earth. Everything, and everyone, is under the constant watchful eye of the various governments, security agencies and corporations. Cars, phones, computers and even watches all contain GPS locators, and often some sort of monitoring hardware or software. Many people elect to get RFID chip implants, which in addition to acting as keys, bank cards and ID, also act as short-range tracking devices. If a person ever gets into trouble, the authorities will almost always know where they are. Of course, the same holds true for anyone who causes trouble, and the constant watching means that the state will have the evidence it needs as well. Life is very regulated, and controlled. Most people accept it, and even appreciate it. Society is very safe and secure. Some choose to leave, however, and go to find a new life in the off-world colonies. Some are even encouraged to leave, through subtle pressures that can lead all the way to official harassment.

GOTTA GET AWAY:

Even in the face of this omnipresent monitoring, there are places on Earth where one can escape the ever-watching eyes. Wilderness areas have little in the way of monitoring, typically limited to portable GPS devices, which are also used as emergency locator beacons. There are still a few wilderness areas on Earth, and more on Tirane, but these are dwindling over time. Some older urban areas even contain areas, that, for one reason or another, or not monitored, where often even the Link network is cut off. Such urban areas, which are extremely rare are known as Blights to the authorities and Havens to other, less law-abiding, types

47

EARTH/SOL

The center of human space, Earth still has more people than all the other worlds combined, and boasts the best of everything. To many people from the Frontier, Earth’s society and culture is every bit as alien as that of the Sung or even the Pentapods.

SYSTEM DATA

Primary Name: Sol “the Sun”

Spectral Class: G2 V

Magnitude: 4.7

X, Y, Z Coordinates: 0, 0, 0

Number of Planets: 9 (Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune, Pluto)

Number of Asteroid Belts: 1

In addition to Earth itself, the Solar System boasts eight

other planets, many of which have some level of human habitation. None of these other worlds are particularly amenable to life, and were settled before the invention of the stutterwarp drive gave humanity the stars.

THE SOLAR SYSTEM

The return to space a few decades after World War III produced a succession of interplanetary expeditions. The Manchurians established a base on Mercury, the French placed one on Mars; several nations prospected the asteroids. Until the development of stutterwarp, the solar system was the only frontier available in space. The other planets were a haven for scientists and researchers looking for clues on the nature of the universe, but of little use to those looking to escape Earth for other worlds.

OQC:

The Orbital Quarantine Command is a quasi-military police force charged with protecting Earth from biological contamination. Any Human-compatible biosystem carries with it the risk of infection. OQC is organized to stop that, with a network of ships and boarding cutters, along with staff on every port-of-call station in Earth orbit. The OQC is supported by all Tier 1, 2, and 3 powers, along with Russia. They have the power to search any vessel, any cargo, and deal with any threat. Since the end of the Kafer War many colony worlds have instituted a service like the OQC, though typically not so large, powerful, or paranoid.

When stutterwarp opened up interstellar space, planets of the solar system became second-class locations. It was easier and cheaper to place colonists on garden planets around other stars than to exploit inhospitable planets such as Mars or Mercury. The American settlement on Mars and the Manchurian settlement on Mercury were originally established as colonies, but they are now simply commercial mines and bases, with their populations rotating in and out on a regular basis.

Travel between the worlds of the Solar System is generally accomplished with stutterwarp vessels for passengers, and reaction-drive vessels for cargo. Though the difference in travel time is considerable (hours vs. many days) few commodity cargos are required urgently enough to require shipping via stutterwarp.

As in most outpost-level facilities, firearms and other weapons are strictly forbidden in any of the planetary bases. The chances of catastrophe are just too high. Law Level in these installations is always at least 8, and can be higher.

Mercury: Manchurian commercial interests maintain

a consolidated base of about 12,000 people in the craters at the North Pole of Mercury, sending out expeditions onto the bright face of the slowly turning planet to exploit pools of liquid self-smelting metals. Expeditions into the dark face recover pockets of frozen water and gas which are used for life support and chemical synthesis. Organizations and other nations rent space at the consolidated base for scientific research or prospecting. Despite the sheltered location at the Mercurian poles, these bases are tunneled several hundred meters into the surrounding rock, primarily for protection from radiation and the occasional solar flare.

Venus: Venus sees little in the way of visitors, aside from the occasional manned lab floating high in this planet's corrosive atmosphere. These balloon labs are usually funded by one of the science-based foundations investigating the runaway greenhouse effect, and devising ways to avoid it in the ongoing terraforming efforts of distant worlds. Some have investigated using robots and drones to mine the surface, but only a discovery of tantalum would be worth the expense involved, and so far no evidence had been found of that particular metal.

Mars: The American base on Mars is primarily a scientific endeavor, with fewer than 12,000 people, most of them scientists, technicians and their families devoted to developing a greater understanding of desert worlds. It was scheduled to be abandoned in 2265, but the discovery of a small lode of tantalum near Olympus Mons prompted reconsideration, and America maintains the base in hopes of finding more. In 2309, the continued requests by the Pentapods to place an embassy on Earth led to the establishment of a Pentapod enclave on Mars. Though the Red Planet isn't very suitable for the amphibious aliens, they seem satisfied with the close access to Earth, and are busy transforming their domed settlements into a more suitable environment. The process is taking far less time than anyone anticipated, and some interested Terran corporations are said to be conducting talks with the Pentapods concerning commercial applications for the bubble-terraforming technology.

The Asteroids: Most space-faring nations maintain mining operations in the asteroid belt. Supported by com-

BELTERS:

The Belter community in the Sol system has been in decline for the past 50 years, as rich finds grow less frequent, and Earth's control grows heavier. Many feel the final straw was the Trilon Corporation building a honeymoon hotel on Vesta, with its tagline of "Love Below the Belt." Many Belters have abandoned the Earth system for other systems, looking for that elusive strike, and to get away from the encroachment of Earth's consumer culture.

mercial interests offering high rewards for rare finds, the Belt attracts rugged individuals interested in getting rich quickly. There is a substantial community of nearly 100,000 Belters in Sol's asteroid belt, despite the rarity of a lucrative strike here. This community is centered on Ceres, and maintains an active and dynamic culture. Extensive use is made of large habitat structures to house the populace. The first tests of the Zero-G DNAM were undertaken here, though with some protest from many in the Belter community. Long years of living in weightless and very-low gravity environments had rendered most Belters incapable of visiting Earth or any normal-gravity world, and even visiting Earth's moon meant time in a wheelchair. In that isolation, a new society had developed, different from that of Earth or any other settled world. With the OG DNAM, though, a Belter can travel practically anywhere, and the Belter's enforced isolation was ended. Many older Belters feel that the DNA modification robbed them of their special society, and are bitter about it.

Jupiter: France maintains a scientific base on Ganymede for the study of Jupiter and its accompanying moons, along with a research outpost under the ice of Europa. The outpost has made a few, very conservative, reports of possible life under Europa's ice, but nothing beyond primitive thermotropic microorganisms.

France also maintains a Foreign Legion base on Almalthea, using the other moons for hostile environment training. This Jovian satellite also houses a naval base, largely as a fighter training ground, but also as a system defense post. The French base is home to two squadrons of fighters, along with several heavier vessels, including a few destroyers and cruisers.

Saturn and Beyond: Various nations (America, France, Azania, Argentina, Japan, and Indonesia) have established temporary bases at Saturn, Neptune, and even Pluto.

It wasn't until 2312, in the midst of the Kafer War, that a permanent facility was established on Titan. This new settlement is owned by the Xenon Group, a medium-sized Indonesian Transnational Corporation. They are exploiting Titan's large sub-surface reservoirs of hydrocarbons to produce chemical feedstock for synthetic materials and industrial chemicals. With the war damage to the infrastructure of the frontier world of Kimanjano, which has previously produced a large fraction of these chemicals, Xenon has become one of the preeminent chemical feedstock suppliers to the industrial nations of Earth.

The Xenon installation consists of hundreds of drill and pump rigs and a large processing facility on the moon, which combined employ over 30,000 people, and has a catapult facility to move cargo into orbit. Once in orbit, further processing is performed at a large factory/habitat complex before the various chemicals are loaded on freighters bound for Earth. One of the advantages to the Xenon setup is their ability to

use slow system vessels. The chemicals are a bulk commodity, and do not require fast shipping. No one outside the solar system can come close to their shipping rates. Even the skymines of Bessieres can't come close to competing.

It is worth noting that Saturn is well outside the Sun's FTL shelf, and so the Xenon facilities are extremely vulnerable to attack. A hostile ship can make most of its approach to Titan at FTL speeds, and be gone before help could ever reach the moon from Earth, or anywhere else. For this reason, Xenon maintains a large defensive fleet, which does offset its profit margins somewhat. Technically, this defensive fleet is attached to the Indonesian military, but in practice it serves the Board of Directors of Xenon. The defense force consists of a pair of Indonesian-flagged Tunghu-class frigates, along with a squadron of fighters.

Beyond Saturn, there are no permanently-manned settlements. Indeed, the only installations of any note are the automated telescopes of the Euro-American Long Baseline Array, a large, synthetic-aperture telescope project just past the orbit of Neptune. It was the first observatory to note the growing discrepancies in the Pleiades, which led to the Bayern mission of 2301.

EARTH

The jewel of the solar system, and despite occasional claims to the contrary, still the most suitable world in known space for Human life.

PLANET DATA

Name: Earth (Terra)

Distance from Primary: 1 AU

Year Length: 365.25 days

Size: 12,756 km in diameter

Day Length: 24 hours

World Type: Garden

Surface Gravity: 1 G

Atmospheric Pressure: 1 atm

Average Temperature: Temperate

Water Presence: 74%

Atmospheric Composition: N₂ (78%) O₂ (21%) Ar (1%)

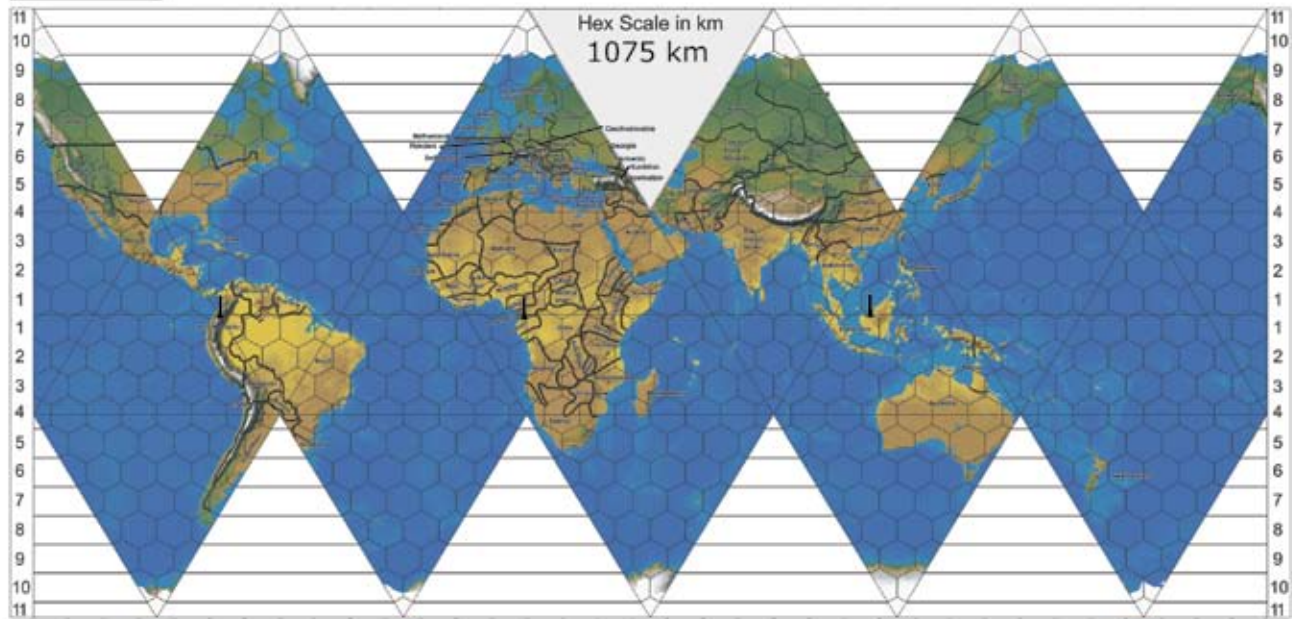
Biodiversity: Diverse

Natural Resources: 5

Satellites: 1 (Luna)

From the standpoint of the 20th century, Earth is much cleaner, and a little bit warmer. As fossil fuel use has been eliminated for at least 200 years, the cause of the global warming has been attributed to a slight increase in solar output. Sea levels are a little higher as well, either inundating coastal regions or forcing the construction of ever-growing seawalls and dikes to protect cities and farms. Little on Earth has escaped the touch of man.

Earth



Please note that details have been omitted from the Earth map for purposes of clarity.

Culture

Earth seems to be a chaotic jumble of cultures and languages, with 127 nations and over 7 billion people. At the same time, a certain set of common values seems to bind most people on Earth, at least those in the 1st to 3rd Tiers, commonly identified as the space-going nations. Most of these nations are liberal democracies (with a few notable exceptions), wealthy and prosperous. Most have free-market economies, and the average worker makes about Lv15,000 per year. Tier 4 nations tend to have somewhat lower standards of living, and are less likely to be part of the global culture that permeates the other nations.

The Tribal Nations:

With the collapse of central authority in United States, Australia, Brazil, and Canada, the native peoples in each country saw an ideal moment, and need, to reclaim some of their lost land and achieve a measure of self-reliance. This was accomplished with a minimum of violence, as most people in the affected regions were only too grateful to see some measure of control that they didn't particularly care where that control came from. When central authority renewed contact with the Tribal Nations, it was decided it would be much easier to allow them to keep their new lands and resources, and focus on rebuilding with them as partners. Nations within nations, the Tribals have successfully mixed their traditional values and living with the complexities of modern technology and urban life.

Law Level

Law Level determines what sort of weapons can be legally carried, and how much harassment one can expect from local law enforcement. Law Levels on Earth and Tirane are uniformly high, with private ownership of firearms largely illegal (Law Level 8). Typically only those who can prove a genuine need can own firearms.

Things to do on Earth:

Many of Earth's greatest architectural and cultural treasures managed to survive the Twilight War, and survive in such places as the Pyramids in the UAR, Machu Picchu in the Inca Republic, New Orleans in the United States, and Stonehenge in Britain. Earth also has the best museums and art galleries, the best live music, and probably the most vibrant night-life anywhere.

NATIONS AND LANGUAGES:

Nation	Language(s)
North America	
America	English
Canada	English, French
Mexico	Spanish
Texas	English, Spanish
South America	
Argentina	Spanish
Bolivia	Spanish
Brazil	Portuguese
Chile	Spanish
Inca Republic	Spanish
Paraguay	Spanish
Uruguay	Spanish
Venezuela	Spanish
Africa	
Angola	Portuguese
Azania	English
Biafra	English
Ethiopia	Amharic
Kenya	English
Madagascar	French
Malawi	English
Mali	French
Mozambique	Portuguese
Nigeria	English
Somalia	Somali
Tanzania	English
Ubangi Shari	Ubangi Shari
Zambia	English
Zimbabwe	English
North Africa	
Berbera	Arabic
Eritrea	French
Kanuri	Kanuri
Mauritania	French
Morocco	Arabic
Polisaria	Arabic
Tunisia	Arabic
UAR	Arabic
Middle East	
Arabia	Arabic
Armenia	Armenian
Baluchistan	Farsi
Iran	Farsi
Iraq	Arabic
Kurdistan	Kurdish
Palestine	Hebrew, Arabic
Syria	Arabic
Turkey	Turkish
Asia	
Azerbaijan	Azerbaijani
Burma	Burmese
Canton	Cantonese
Central Asian Rep	Russian
China	Mandarin
Far East Rep	Russian
Georgia	Georgian, Russian
Indochina	French
Indonesia	Bahasa Indonesian
Korea	Korean
Manchuria	Mandarin
Mongolia	Mongolian
Tibet	Mandarin

Nation	Language(s)
Europe	
Albania	Albanian
Austrovenia	German
Britain	English
Bulgaria	Bulgarian
Catalonia	Catalan
Croatia	Serbo-Croatian
Czechoslovakia	Czech
Flanders	Dutch, French, German
France	French
Germany	German
Greece	Greek
Hungary	Hungarian
Ireland	English, Gaelic
Italy	Italian
Latvia	Latvian
Netherlands	Dutch
Poland	Polish
Portugal	Portuguese
Romania	Romanian
Russia	Russian
Scandinavian Union	Scandinavian
Serbia	Serbo-Croatian
Spain	Spanish
Switzerland	French, German, Italian
Ukraine	Ukrainian
French Empire	
Algeria	French
Burkina Faso	French
Cameroon	French
Chad	French
Djibouti	French
French Polynesia	French
Gabon	French
Guinea Coast	French
Guyana	French
Katanga	French
Senegal	French
Zaire	French
Oceania	
Japan	Japanese
Nauru	English
New Zealand	English
Philippines	Filipino, English
Australia	
Australia	English
Papua	English
Tasmania	English
Indian States	
Afghanistan	Pashto, Dari
Bengal	English, Bengali
Bhutan	Dzongkha
Bihar	English, Hindi
Bombay	English, Marathi
India	English, Hindi
Madras	English, Tamil
Mysore	English, Malayam
Nepal	Nepali
Pakistan	Urdu
Punjab	English, Punjabi
Rajastan	English, Hindi
Sri Lanka	Sinhalese, Tamil

NATIONS OF EARTH

Description of TERMS

Tier Data

Each Tier shares many demographic and industrial characteristics, which are detailed at the beginning of each Tier section.

Life Expectancy: years life expectancy for someone born to that nation

Literacy: Average literacy rate of adult (18+) population

College Education: Average rate of college education for adult (18+) population

Resources: Farming, Mining, Heavy Industry, Orbital Industry: This indicates what sort of resources are available to the nation

Military Presence (Orbital Defense Installation, Military Base, Naval Base): Orbital Defense Installations are orbital forts, heavily-armed, but immobile. A Military base is an installation for ground-based forces, while Naval Base is for space naval forces, and is usually in orbit.

Interface Capability: Publicly available surface-to-orbit transportation. Some nations will have interface capability different from their peers, and this will be noted in the individual nation description.

INTERFACE CAPABILITY AND STARPORTS.

In most versions of Traveller, the first digit of the Universal World Profile (UWP) represents starport type. In 2320AD, the meaning of the first digit has been changed to reflect the type of interface transport publicly available. Each type assumes that all other lower grades of interface travel are available

- A Beanstalk
- B Catapult
- C Spaceplane
- D Roton
- E Cargo rocket
- X No publicly available interface transportation

Fusion Plant: Indicates the presence of a large fusion power plant

Solar Power Satellite: Indicates that the nation owns a solar power satellite

Rectenna: A receiver station for power from a solar power satellite. A nation does not have to have a Solar power satellite to have a rectenna, as it can share in another nation's solar power satellite array.

University: This is an institute of higher learning. If a nation lacks one, young people have to go abroad to study advanced subjects.

Powernet (%): Percentage of the claimed area of the

nation that has access to the local power distribution network

Road Net (%): Percentage of the claimed area of the nation that has access to the local road network

Rail Net (%): Percentage of the claimed area of the nation that has access to the local rail network

Link Network (%): Percentage of the claimed area of the nation that has access to a local data network

Airship Net: Indicates whether a nation has an airship transport network in place. Airship networks are flexible, so a percentage isn't needed

Weather Satellites: Indicates whether the nation has access to weather satellites

Communications Satellites: Indicates whether the nation has access to communications satellites. This is separate from the local link network.

Surveillance Satellites: Indicates whether the nation has access to surveillance satellites.

Orbital Terminal: Almost all nations of Tier 1 to 3 have an orbital terminal, where passengers and cargo can transship from starships to interface vessels.

Civilian Shipyard: Indicates whether the nation is capable of building civilian (TL10-11) starships and system ships

Military Shipyard: Indicates whether the nation is capable of building military (TL10-12) starships

SPACE-BASED WEAPONS:

The Melbourne Accords set Earth orbit aside as a demilitarized zone. All signatories recognized that limitation until 2304, when Manchuria, worried over possible Kafer incursions, decided to beef up its space navy with static defenses, citing the emergency clause of the Accords. Within five years, most other nations had followed suit as Kafer fleets drew closer and closer to Earth. Even after the Kafer War, most nations retained these defense stations, and some have even upgraded them.

NATIONAL DATA

Nation: Name of the individual nation

Colony Population: Total population

Major City(s): Names of cities or towns with highest populations

Currency: Type of money

Government Type: () General type of government plus the corresponding UWP Government Code

Tech Level: General Tech level corresponding to T20 levels

Trade Data: Trade data, for use with the commerce system and character generation.

Principal Trading Partners: Three countries or colonies that are the main trading partners

TIER 1

France is the only Tier 1 nation – the French Empire includes not just European France, but also French holdings throughout the globe.

Life Expectancy: 99 years

Literacy: 100%

College Education: 89%

Trade Data: Ri, In

Resources: Farming, Mining, Heavy Industry, Orbital Industry

Military Presence: Orbital Defense Installation (10), Military Base, Naval Base

Services: Solar Power Satellite, University, Powernet, Road Net (100%), Rail Net (100%), Link Network (100%), Surveillance Satellites, Weather Satellites, Communications Satellites, Orbital Terminal, Civilian Shipyard, Military Shipyard

FRANCE

Nation Name: France

Population: 109 million (European France)

Major City(s): Paris Metroplex (15 million), Rhine Metroplex (22 million), Marseilles (7 million)

Currency: Livre

Government Type: Charismatic Dictator (A)

Tech Level: (12)

Principle Trading Partners: French Empire, Britain, offworld colonies

Interface Capability: Beanstalk (in Imperial Territory), spaceplane, catapult (A)

Colonies: Nous Voila, Sans Souci, Kimanjano, Aurore, Tirane, Beowulf, Beta Canum

France managed to mostly keep out of the Twilight War, and so escaped with comparatively minor damage. While other nations were slowly rebuilding, France used that time to expand and grow stronger. The history of the 21st and 22nd centuries is very much the history of France.

French Empire holdings include territory across the globe, but are largely concentrated in Africa and the South Pacific. Imperial African holdings include the nation of Gabon, which is the location of the first Beanstalk built on Earth. Just the Beanstalk alone has provided a great deal of France's current prosperity, as cargos can be sent to and from orbit at vastly cheaper prices than conventional rockets, spaceplanes, or even catapults.

Culturally, France has tried to preserve its reputation for style and elegance, even as the 3-V plays French translations of Mexican soap operas. French wines and French fashions are still the standard by which others are judged, though France is starting to lose out to Freihafen in the wine department.

EMPEROR Nicholas Ruffin:

Proclaimed Emperor by the National Assembly in 2298 in its last act before dissolving itself, Ruffin currently rules the most powerful nation on Earth and in space. Ruffin himself is a man of modest, though elegant, taste. As a former industrialist and shrewd business man, he is a very careful head of state.

Though he has now ruled the Empire for 22 years, Ruffin does not appear to have aged a day. Rumors constantly make the rounds of French underground link houses that he is using illegal DNA modifications to stay young, but there has never been any proof. He himself credits his health to exercise, good food, and a glass of fine Bordeaux every day. As an individual, Ruffin is quite personable, though there is a very sharp mind at work behind that veneer of affability. He can be quite ruthless when need be, as witnessed by his handling of the Kimanjano secession attempt.

In 2299, France became an Empire, with Nicholas Ruffin, a noted industrialist, crowned Emperor. The Empire replaced a failing military junta, which had itself replaced a faltering civilian government. The Empire has held sway for 21 years now, and the search for a successor to the 78 year old Ruffin is on. There is growing dissatisfaction with the Empire, however, which has been partly countered by granting more power to the Chamber of Deputies, a democratically-elected legislature tasked with advising the Emperor.

Quality of life is very high for the average citizen of France, in particular European France, though it has been slipping somewhat since the end of the Kafer War, primarily due to the demands of rebuilding the colonial infrastructure.

THE FRENCH NAVY:

France still possesses the largest and most advanced space force, and demonstrates why France is still the pre-eminent world power.

French Space Force, 2320

- 2 Dreadnoughts
- 4 Battleships
- 2 Carriers
- 3 Planetary control cruisers
- 2 Aerospace carriers
- 5 Assault carriers
- 12 Battle cruisers
- 14 Missile cruisers
- 18 Destroyer/Destroyer Escorts
- 20 Light frigates
- 32 Line frigates
- Plus fighters and auxiliary vessels

TIER 2

At Tier 2 we find the largest colonial powers, those with the most colonies and the biggest fleets to defend them. Tier 2 nations have strong economies as well, fed by off-world resources and orbital factories.

Most Tier 2 nations are a little resentful of France, and its position as the preeminent nation in Human-controlled space. They tend to chafe at their "second-place" status, and constantly struggle to increase their status and prestige.

Life Expectancy: 100 years

Literacy: 100%

College Education: 88%

Trade Data: Ri, In

Resources: Farming, Mining, Heavy Industry, Orbital Industry

Military Presence: Orbital Defense Installation (10), Military Base, Naval Base

Interface Capability: Spaceplane, catapult (B)

Services: Solar Power Satellite, Fusion Plant, University, Powernet, Road Net (100%), Rail Net (100%), Link Network (100%), Surveillance Satellites, Weather Satellites, Communications Satellites, Orbital Terminal, Civilian Shipyard, Military Shipyard

54

AMERICA

Population: 235 million

Languages: English

Major City(s): "Megalopolis" Metroplex (70 million), San Francisco (2.2 million)

Currency: American Dollar

Government Type: Democratic Republic (4)

Tech Level: (12)

Principal Trading Partners: Australia, Canada, Britain, off-world colonies

Interface Capability: Spaceplane, shuttle, catapult (B)

Colonies: King, Ellis, Avalon, Hermes, Tirane

The United States of America (popularly known as America or the USA) in 2320AD is slowly coming out of a long isolationist period. The losses of the Twilight War, and the civil war that followed, served to make America a more introspective nation than when it was a super-power. The three-way civil war between the Military Government (MilGov), the remnants of the civilian government (CivGov) and a white supremacist militia calling itself New America created chaos and unrest for a long period of time. By the time the civil war ended, America was nearly a generation behind the rest of the world in its rebuilding efforts, and had lost Texas, and parts of New Mexico, Arizona and California to an opportunistic Mexico.

The loss of Texas, along with most of Arizona, New

Mexico and Southern California still seethes in the hearts of many Americans, but few are willing to risk war over events 300 years in the past. Texas is a strong friend and ally, and the United States still flies a flag with 50 stars. Granting statehood to Puerto Rico, Ellis, and a reorganized Arizona (incorporating the American remnants of New Mexico and Arizona) made up the loss. Hermes is likely to become the 51st state sometime in the next ten years, possibly necessitating a change in the design of the American flag for the first time in over 300 years.

With the end of the Kafer War, America is embarking on an aggressive expansionist phase, with the new colony on Avalon and the new outposts at Highland and Alighieri. These efforts are generally well-supported, though there has been some grumbling at the increased taxes to pay for this new expansion.

The unofficial metroplex known as "Megalopolis" consists of an almost solid urban and suburban belt connecting Boston with Norfolk, and extending through Pittsburgh and Detroit to Chicago and Milwaukee, with a slim branch from Chicago to Bettendorf and south along the Mississippi to St Louis. Although population density varies, there is nothing within the Megalopolis that can be considered rural by any reasonable definition.

NEW ORLEANS:

A side effect of the Twilight War was the temporary de-population of the cities on the Mississippi below Baton Rouge. The chaos and dislocation of the war caused the breakdown of the Mississippi's flood control system, and the river did what it has been trying to do since the 1920s: change course. The mouth of the Mississippi is now through what used to be known as the Atchafalaya, and the old river below Baton Rouge became sluggish, the surrounding land turned into salt marsh, and its cities (primarily New Orleans) became ghost towns due to a lack of fresh water. With the development of advanced desalination techniques, New Orleans has been reclaimed from the marsh and remains a popular tourist attraction, despite the rise in water levels that require a far more extensive system of dikes and levees than the city had previously.

BRITAIN

Population: 112 million

Languages: English

Major City(s): Thames/Birmingham Metroplex (28 million), Leeds (8 million), Edinburgh (4 million)

Currency: Pound

Government Type: Constitutional Monarchy, with elected lower house (4)

Tech Level: (12)

Principal Trading Partners: France, extra-solar colonies, Canada, America

Interface Capability: Shuttle, Spaceplane, Catapult (B)

Colonies: Beowulf, Beta Canum, Crater, Joi, Tirane

Britain (officially the United Kingdom of Great Britain, but commonly referred to as Britain or the UK) was hit hard by the Twilight War. Two things enabled Britain to recover: the indomitable spirit of the British people, and the personal example of Prince William, who survived the war and served as a rallying point for the nation during its darkest hour. After the Twilight War, Britain emerged as a major European power. Income from trade with its interstellar possessions, along with a continued emphasis on scientific research, has ensured that the British economy remains strong, and British technological expertise, particularly in aerospace, is still much in demand.

The current Monarch, King James III, has reigned for 11 years, since his mother, Queen Margaret, stepped down. He has spent much of his energy on trying to reinvigorate the nobility. When he came to the throne, he saw an upper class more concerned with privilege than with responsibility, and more focused on perquisites than duty. He has made some steps to improve the situation, but most of Britain's advancement is still at the hands of commoners, her engineers and industrialists. The new outpost at Gamma Virginis is the first step in expanding after the Kafer War.

The Kafer War saw the British people rise to the challenge, with Earth's defenses being led first by Admiral Sir Richard Graham, and then Admiral of the Fleet Dame Samantha Warkington, who would go on to lead the attacks that eventually led to the capture of the Kafer homeworld. Sadly, Dame Samantha perished in the final battle to destroy the last of the Kafer orbital forts.

In the years following the war, Britain has largely con-

cerned itself with rebuilding its former colonies. It is facing a growing problem on the French Arm from the large numbers of military men who have mustered out and "gone private," however. Many of them have gone so far as to organize privateer groups and raid shipping.

WHAT ARE THEY UP TO?:

British Exospace is the foremost designer of missile systems and small spacecraft in Britain, and one of the finest in Human space. At their facility on the Isle of Man, they are said to be testing, or at least designing, something new. There have even been rumors of aliens, perhaps Ylii from the description, being seen at the site, though this would be a serious breach of OQC protocol. What could they be up to?

GERMANY

Population: 106 million

Languages: German

Major City(s): Ruhr Metroplex (23 million), Berlin (7 million), Munchen (6 million)

Currency: Taler

Government Type: Representative Democracy (4)

Tech Level: 12

Principal Trading Partners: Britain, offworld colonies, America, Japan, Manchuria, European Community

Colonies: Joi, Dunkelheim, Beta Canum

Germany was divided for nearly three hundred years, and only became a nation again in 2293. Hanover, seeing an opportunity as France weakened and went through a stage of internal turmoil, opened talks with the other German nations, and succeeded in uniting them. Only Bavaria held out, with its strong off-world possessions and ties to France. With the other German nations behind it, Hanover exerted stronger pressure on the Bavarian government, resulting in a referendum on unification, which barely passed. France tried to intervene, and the War of German Reunification was the result. The united Germany won the war, but had to wrestle with many serious internal problems, along with the hesitancy of Bavaria's colonies to join the German fold.

Since that time, the new nation has undergone a great deal of soul-searching as to what kind of nation they should be. During the Kafer War, a militaristic faction became dominant, and as a result, Konteradmiral Lutke and his squadron used nuclear bombing to neutralize several Kafer worlds. Though public protest led to his arrest, the militaristic faction held sway for a few more years yet, before the general elections of 2314 turned them out. Since that time, Germany has been attempting to come to terms with its role in the genocidal attacks on several Kafer worlds, and many people are questioning Germany's whole role in space and defense. The

The British Commonwealth:

Along with the French Empire, the British Commonwealth is the only true international organization on Earth. The Commonwealth is largely an economic alliance, though there are political and sporting ties as well. The Commonwealth was revived in 2167 to commemorate the Tirane colonies, and as an invitation to other nations to join the effort.

Britain	Ireland	Canada
Australia	New Zealand	Vanuatu
Nauru	Kenya	Tanzania
Uganda	Mysore	Sri Lanka
Barbados	Jamaica	Bermuda
Papua	Tonga	Wellon

government, however, is seriously considering a new colonization program, in part to unite the nation behind a true German colony, incorporating settlers from all Germany's provinces.

NEW GROUND:

The ARI is quietly surveying several worlds in the French and American Arms looking for a suitable spot for a new colony. The main criteria is that is the world has to be capable of supporting life, and cannot have an indigenous intelligent race, or even any species that seem close. The new laws coming down from the newly-elected Bundestag (parliament) are very strict in this regard.

JAPAN

Population: 191 million

Languages: Japanese

Major City(s): Tokyo Metroplex (41 million), Yokohama (21 million), Osaka (9 million)

Currency: Yen

Government Type: Constitutional Monarchy (4)

Tech Level: (12)

Principal Trading Partners: America, France, Brazil

Colonies: Beta Hydri, Joi, Tirane

Japan was one of the few countries to survive the Twilight War with much of its infrastructure intact, though politically it was highly fragmented. Even more importantly, however, some of its merchant fleet survived. This allowed Japan to dominate trade during the rebuilding stage after the war, and to emerge as one of the most powerful economies on the globe. It absorbed many of the surrounding island nations through the course of the 21st century, but recently some of them, including the Philippines, have been granted limited autonomy. Japan still controls Philippine foreign policy and security, but beyond that the islands have free reign.

Though Japan is a multi-party republic, it is also a constitutional monarchy, and the current Emperor holds more than just symbolic power.

Despite its economic strength, Japan is not a colonial powerhouse. This is largely due to cultural and spiritual beliefs – post-Twilight Japan turned inwards and became more conservative. Shinto in particular emphasizes the link between people and the spirit world, and so off-world living wasn't seen by the traditionalists as being proper. In the years since, colonists have established their own spiritual connections on their adopted worlds, and the resistance to colonization is beginning to fade.

Japan played a large role in the Kafer War, providing extensive naval and ground support, including the elite Imperial marines and their sophisticated weapons and equipment. Many of their technological innovations found their way into

the hands of Japan's allies during the war.

Japan is currently investigating several worlds far up the Chinese Arm, but is waiting until the Life Foundation completes its tug stations before venturing to establish an outpost on the Arm controlled by its main rival, Manchuria.

DEEP BLUE SEA:

Along with Argentina, Japan is one of the nations most heavily involved in ocean utilization and resource exploitation. From the free-floating fish farms to the sprawling undersea settlement of Kaitel, Japan depends heavily on its oceanic resources. The North American Research League has always voiced its concern over the Japanese efforts, and heavily monitors the surface facilities, like the farms and power plants. There have recently been rumors of trouble at some of the deep-sea sites, however, and NARL is putting pressure on the Japanese government to allow closer monitoring.

MANCHURIA

Population: 890 million

Languages: Mandarin Chinese

Major City(s): Beijing (47 million), Shenyang (25 million), Taiyuan (17 million)

Currency: Manchurian Ruble

Government Type: Imperial Dynasty (10)

Tech Level: (11)

Principal Trading Partners: Russia, Far East Republic, Korea, Canada

Colonies: Cold Mountain, Syuhlahm, Chengdu, Kwantung, Dukou, Tirane, Haifeng

Of all the Tier 2 nations, Manchuria is the closest to achieving Tier 1 status. Some analysts maintain that Manchuria, not France, is the true Tier 1 power. This ignores the military differences, in particular the somewhat outmoded Imperial Navy. Manchuria's vessels are largely long-range patrol vessels and raiders, not battle-line combatants, and would fare badly in a one-on-one space conflict with France. Manchuria's large numbers of vessels would certainly help in any such conflict, however.

Though Manchuria is currently ruled by the Hsien Dynasty, it also has an elected lower assembly whose duty it is to advise the current Empress, Hsien Li. The Twilight War left an additional legacy in the form of the regional governors, often called warlords in the foreign press. They are tied to the central government by a complex web of loyalty, obligations, bribes and threats. These governors control most of the troops, but the Imperial House controls the best troops, and the Navy, along with its ground control vessels.

The reverses suffered in the Second Central Asian War have many Manchurian officials looking to the other Chinese

territories as the most viable target for expansion, and recent talk of “Chinese territorial integrity” has China and Canton casting worried looks at their neighbor to the north.

Manchuria sat out most of the Kafer War, but did contribute ships to the Terran Reserve Fleet for the Battle of Nibelungen.

Clay Soldiers:

During the Twilight War, many of the emergent warlords took advantage of the lack of central authority to loot cultural artifacts from historic sites. Since the establishment of the Hsien Dynasty in 2209, the government has been quietly tracking down these looted antiquities. It has recently learned that a cache of life-sized terra cotta soldiers from the grave of Qin Shi Huangdi (the first emperor of China), is located in a private museum in Mexico. Private overtures to purchase the collection back have been rebuffed, and now the Dynasty is prepared to take a more direct (albeit diplomatic) hand.

TIER 3

Tier 3 nations are the remainder of the colonial powers. They lack the ability to project much in the way of force over interstellar distances, and the bulk of their fleets are smaller craft. Their colonial holdings are often more a source of national pride rather than economic benefits. In terms of quality of life, however, they are the equal/near equal of Tier 1 and 2 nations.

All Tier 3 nations have the following characteristics, resources and services:

Life Expectancy: 100 years

Literacy: 100%

College Education: 85%

Trade Data: Ri, In

Resources: Farming, Mining, Heavy Industry

Military Presence: Military Base, Naval Base

Services: Solar Power Satellite, University, Pownet, Road Net (100%), Rail Net (100%), Link Network (100%), Surveillance Satellites, Weather Satellites, Communications Satellites, Orbital Terminal, Civilian Shipyard, Military Shipyard

Arabia

Population: 18 million

Languages: Arabic

Major City(s): Riyadh (2.8 million), Jeddah (2.3 million), Mecca (1.2 million)

Currency: Riyal

Government Type: Constitutional Monarchy (4)

Tech Level: (10)

Trade Data: Ri (Arabia has no heavy industrial capacity)

Principal Trading Partners: France, UAR, Japan

Interface Capability: Spaceplane (C)

Notes: Arabia lacks any shipbuilding capability, and has no military starships

Colonies: Beta Hydri (Dukou)

Arabia was a prime target during the Twilight War, and even after the war was over, French and British troops were able to occupy the nation’s oilfields during the chaos following the collapse of the Saudi government. The monarchy that arose in the place of the Saudis was more populist, and accepted a French-drafted constitution putting some limits on the absolute powers the Saudis had enjoyed.

As France, Britain and Japan provided security for the nation, the new government was able to take its resources and use them to diversify the economy, building new industries against the time when the oil would run out.

Arabia was able to accomplish this, and by the middle of the 23rd century the country was able to place its first extra-solar colony, with support from Japan. Arabia has no intrinsic starlift capability of its own, but it does have program working in that direction.

During the Kafer War, the small nation made troops available and provided logistics support. Since Arabia lacks any appreciable space forces, it was not able to provide any ships.

Exchange Rates:

As noted elsewhere, all prices are based on the French Livre, and it is the standard for all currency exchange. In general, the currency of Tier Two nations is worth about 75% of the Livre, while the currency of Tier Three nations is worth about 66%. Tier Four nations typically fare much worse, and have currency values of only about 50% of the Livre.

Specific Examples: American Dollar: 78% German Taler: 74% British Pound: 74% Nibelungen Mark: 71% Japanese Yen: 70% Manchurian Ruble: 69% Australian Dollar: 65% Canadian Dollar: 64%

ARGENTINA

Population: 74 million

Languages: Spanish

Major City(s): Buenos Ares (33 million), Córdoba (5.9 million), Rosario (5.5 million)

Currency: Peso

Government Type: Democratic Feudalism (4) (Only land-owners entitled to vote)

Tech Level: (12)

Principal Trading Partners: Mexico, Inca Republic, Venezuela

Interface Capability: Spaceplane, shuttle, catapult (B)

Notes: Argentina maintains four orbital defense sta-

tions, and has already lost a fifth in the current war. All the stations have an orbital bombardment capability.

Colonies: Montana, Tirane

Like most South American nations, Argentina came through the Twilight relatively intact, though the collapse of the worldwide economy did strike it hard. Argentina spent the next century building itself into an industrial powerhouse, with the goal of dominating the South American continent. However, Argentina lacked Brazil's immense reserves of manpower, and conflict between the two nations almost always resulted in a draw. Argentina focused a great deal of energy on resource exploitation in the South Atlantic as well, which often brought it into conflict with a resurgent Britain.

When the ESA announced plans to monopolize the newly discovered worlds of Alpha Centauri, it was Argentina that disputed the claims of sole ownership, and (in cooperation with its allies) built the first interstellar warships to blockade the new world until all nations were allowed to settle the planet.

Since then, though, Argentina has lagged behind other nations in the exploitation of space. It instead chose to concentrate on sea-floor exploitation. It was only really in the past century that Argentina has settled new worlds, all in the Chinese Arm. In the face of popular protest at home, Argentina contributed a squadron of warships to the Kafer War. They were primarily used in security roles at world close to the Core.

In late 2319, Argentina electrified the world when they revealed that they had independently developed the second-generation drive tuner that is the heart of stutterwarp tug technology. The Trilon Corporation and the Pioneer Society, developers of the original technology, filed suit in both Argentine and American courts, claiming industrial espionage and patent infringement. The cases have yet to be heard. Shortly after the announcement, Brazilian forces crossed into Uruguay, and the 4th Rio Plata War began.

GAUCHO REVOLUTION:

For many years the agricultural workers of the Pampas and the Patagonian highlands have been protesting the land-holder-only democracy of Argentina. Though the land-holders are supposed to take the concerns of their tenants to heart when voting, for the most part this doesn't happen, and as a result the 2 million workers and farmers of these regions are effectively disenfranchised. The recent revolution in Mexico, coupled with the onset of the 4th Rio Plata War, have given these disaffected workers the break they needed, and they are demonstrating for the universal right to vote. Violence has broken out in some areas, but the government is unwilling to move troops in, leaving the matter in hands of local police.

AUSTRALIA

Population: 29 million

Languages: English, Aboriginal languages

Major City(s): Sydney (3.9 million), Melbourne (3.1 million), Newcentre (2.9 million)

Currency: Australian Dollar

Government Type: Elected upper and lower chambers in Parliament (4)

Tech Level: (12)

Principal Trading Partners: America, Japan, France

Interface Capability: Spaceplane, shuttle, catapult (B)

Colonies: New Canberra, King, Kingsland, Botany Bay

Like most other nations, Australia was badly damaged by the Twilight War, and effectively ceased to exist as a unified nation for nearly forty years. Papua, along with much of the Northern Territory, went its own separate way during those long years of the collapse. After the re-establishment of central government, the nation saw over 100 years of unparalleled growth. Australian became a space-faring nation in the 2080s with the launch of a constellation of solar power satellites. From 2088, with the signing of the Melbourne Accords, Australia was often called upon to be a mediator and arbitrator in international disputes, a role that continues to this day.

Australia boasts four interstellar colonies, which is more than the average for a nation of her size. Australia has a history of exploring and conquering new territory, and continues that tradition to this day.

During the Kafer War, Australia supplied ships and troops, and her ship's captains became well-known for their aggressive tactics. Since the end of the war, the country has concentrated on improving their three colonies, and is preparing to launch a fourth at Highland (DM+38 3095), once a method of controlling the Rawvers (ravenous, armored predators that hunt in packs) can be found.

AZANIA

Population: 126 million

Languages: English, Afrikaans, Swazi, Zulu

Major Cities: Johannesburg (21.4 million), Cape Town (11.1 million), Durban (8.9 million)

Currency: Rand

Government Type: Representative Democracy (4)

Tech Level: (11)

Principal Trading Partners: France, Britain, Nigeria

Interface Capability: Spaceplane, shuttle, catapult (B)

Notes: Azania makes do without the surveillance satellites used by other nations.

Colonies: Tirane, Kimanjano, Joi

In the aftermath of the Twilight War, the social structure of South Africa collapsed. By the time the nation had rebuilt itself, whites were definitely second-class citizens. Over the decades and centuries since, however, the nation has worked at true integration, and skin color is largely irrelevant. Azania has the best-developed economy in Africa, and now has a long tradition of personal freedom and tolerance. Azania has become a bit of a haven for people seeking relief from the constant surveillance of most nations, and Azania is a popular tourist destination. The rebuilt game habitats are the most popular attractions, along with the casinos and cabarets of Johannesburg and Durban.

Azania traded on her reserves of tantalum to become a member of the ESA, and has remained a major partner ever since. ESA exploration teams are often at least half Azanian, many occupying planning and leadership roles.

Brazil

Population: 393 million

Languages: Portuguese

Major Cities: Sao Paulo (33.8 million), Rio do Janeiro (22.3 million), Belo Horizonte (7.3 million)

Currency: Brazilian Real

Government Type: Multi-party Republic (4)

Tech Level: (11)

Principle Trading Partners: Japan, French Africa, Britain

Interface Capability: Spaceplane, shuttle, catapult (B)

Notes: Brazil's three Orbital Defense Installations are though to be capable of orbital bombardment, though no one is completely sure.

Colonies: Tirane, Paulo

Like much of South America, Brazil weathered the storm of Twilight better than Europe and North America. Even so, the largest nation on the continent had its problems. Brazil's has always been somewhat isolated due to its Portuguese language and culture, and the events of Twilight did nothing to improve that situation. As a result, Brazil and the rest of the continent spent more time than many other nations in the rebuilding process. The series of Rio Plata Wars through the 23rd century did little to endear Brazil in the eyes of its Spanish neighbors, even when they weren't the aggressor.

Though Brazil has a couple of extra-solar holdings, colonial expansion has never been a priority for the nation. They prefer putting their energy in the colonies they already hold, in particular Paulo, than on creating new ones. Brazil itself has many resources still waiting to be developed, and the Brazilian government has placed a priority on doing so, while ensuring that a minimum of environmental damage is done. The resurgent Xavante natives, along with other native groups, keep careful watch on government and corporate

operations, and there is always some friction.

During the Kafer War, the Brazilian government sent a company of military police, more as a show of support than a real attempt at aiding the war effort. Tensions with Argentina were just too high to justify sending a larger force. That military police unit performed very well, however, drawing praise everywhere they were stationed.

In 2320, Brazil is a very modern nation, with a population and resources akin to the best of the Tier 3 powers, and even approaching Tier 2. However, the economy has been on a slow decline for decades. Rumors of a new tantalum find in Uruguay, along with the announcement by Argentina that they had developed the second generation drive tuner that makes a stutterwarp tug possible, finally sparked the long-feared war, and Brazil moved to take Uruguay's tantalum, and deny that resource to Argentina.

CANADA

Population: 34 million

Languages: English, French, various Native languages

Major Cities: Vancouver (3.1 million), Montreal (2.7 million), Toronto (2.2 million)

Currency: Canadian Dollar

Government Type: Representative Democracy (4)

Tech Level: (12)

Principal Trading Partners: America, Britain, Manchuria

Interface Capability: Spaceplane, shuttle, catapult (B)

Colonies: Kanata, Eriksson

Canada survived the Twilight War better than most, and was able to put its abundant natural resources to good use. Canada had always enjoyed close military ties with Britain, and in the devastation following the Twilight War was able to provide food and resources to assist in Britain's recovery.

After decades of careful study, Canada founded its first colony, at Kanata. Kanata, with the second colony (at Eriksson) are successful beyond all expectations. Canada provided support and escort ships during the Kafer War, and a sizable ground contingent.

CANADIAN EDUCATION:

Canada's universities are world-renowned for the quality of their research and the quality of their students. They are also famous for the level of student activism. Lately there has been an increase in pro-alien rights rallies, and some of the universities have experienced some violence. The Royal Canadian Mounted Police is concerned that some of the student organizations may be influenced or even controlled by the Coyfederacy.

CANTON**Population:** 522 million**Languages:** Cantonese**Major Cities:** Hong Kong (22.1 million), Shanghai (19.2 million), Canton (16.1 million)**Currency:** Yuan**Government Type:** Feudalism (7)**Tech Level:** (10)**Trade Data:** - (Canton is poor, and has no heavy industrial capability)**Principal Trading Partners:** Manchuria, Korea, Indochina**Interface Capability:** Spaceplane, shuttle (C)**Notes:** Though Tier 3, Canton has much lower rates of literacy and college education than is typical: Literacy: 85%, College Education: 33%. Its standard of living is closer to the bottom of Tier 4 than Tier 3.**Colonies:** Syuhlham

Like all Chinese nations, Canton suffered heavily in the Twilight War, and took an extremely long time to recover. Even today its government is partially based on the old warlord structure, and is very feudal in scope. Regional governors have almost complete autonomy, and are answerable to Canton only if they fall behind in their quotas, whether agricultural or manufactured goods.

Despite its strong manufacturing economy, Canton is barely a Tier 3 nation. The lack of human rights and poor living and working conditions holds this Manchurian rival back. Its law level is higher than the average, at 10 (A). The nation's sole colony is more of an exercise in politics rather than a true source of economic benefit or national pride.

Canton maintains China as a buffer state between it and heavily-industrialized, and militarized, Manchuria. Recent talk of reunification have the political class very worried, for there is little they could do to stop a determined Manchuria.

Inca Republic**Population:** 144 million**Languages:** Spanish**Major Cities:** Bogotá (14.1 million), Lima (7.4 million), Quito (4.1 million)**Currency:** Peso**Government Type:** Single Party Republic (8)**Tech Level:** (9)**Trade Data:** Ag (The Republic is not rich, nor does it have any heavy industry)**Principal Trading Partners:** Argentina, Venezuela, Mexico**Notes:** The Inca Republic is the most backward of the Tier 3 nations, and only possesses colonies due to the generosity of Texas and the support of Argentina. Literacy is only 81%,

while the rate of college education is a bare 44%. Average life expectancy is only 67 years.

Interface Capability: Spaceplane, beanstalk (under construction) (C)**Colonies:** Heidelbergmat, Austin's World

The Inca Republic was created by Argentina as a buffer to Brazil, and consists of the former nations of Chile, Peru and Columbia. Internal turmoil wracks this nation, and the areas outside the large cities see little in the way of formal control unless absolutely necessary. Law Level is much lower in the countryside, at only 4.

The nation has rich reserves of minerals and agriculture, most of which remain to be exploited.

Hoping to attract foreign investment, the government of the Inca Republic started the construction of a Beanstalk, using the altitude and equatorial position of the nation as major advantage. The beanstalk project has attracted investment from all over the Americas, and the elevator is now in its initial test phase. It is expected to open for business in 3-4 years.

When Brazil crossed the border into Uruguay, the Incan Republic was expected to declare support for its old ally, Argentina. They have failed to do so, simply because they have too much to lose, and are trying to stay neutral.

BEANSTALK SECURITY:

Since Brazil and Argentina went to war, there has been a marked increase in sabotage and sabotage attempts aimed at the new beanstalk being built outside of Quito. The Incan Republic takes these threats very seriously, and has contracted with REBCo SAR to provide additional security for both the ground station and the orbital facility.

Indonesia**Population:** 322 million**Languages:** Bahasa Indonesian, Malay**Major Cities:** Jakarta (23.1 million), Surabaya (6.1 million)**Currency:** Indonesian Rupiah**Government Type:** Multi-party Republic (4)**Tech Level:** (12)**Principal Trading Partners:** Australia, France, America**Interface Capability:** Spaceplane, catapult, beanstalk (A)**Colonies:** Titan

Indonesia, like all manufacturing nations, was hit hard by the Twilight War and the resultant collapse of the world's economy. The recovery process was stalled for a long time, and when it finally came it was slow. Indonesia tried to speed up the process by attempting to seize Indochina in the mid-

21st century, but found itself stymied by France, though Indonesia was able to take and hold Malaysia. This earned the nation British enmity above even the French, as Malaysia was a Commonwealth nation.

Further imperialist actions served Indonesia well, and garnered it the Andaman islands, along with their tantalum ores. This gave Indonesia access to the stars. Even so, Indonesia never established a national extra-solar colony. They built ships, though largely trade vessels, and made a reputation for fast, effective shipping and passenger service.

In 2307, at the height of the Kafer War, Indonesia established a long-term settlement on Titan, and began to harvest that moon's vast oceans of hydrocarbons. Though their actions initially drew protest, as Titan supports a simple biosphere, the Xenon Corporations vow to avoid the designated biosphere zone managed to calm most of the protesters.

A military coup in 2312 ended decades of rule by the corrupt People's Associative, and the military vows to hold free elections by late 2320. It's even possible that they will keep this promise. One of the goals of the military ruling council is to finally get Indonesia an extra-solar colony, and several leased survey vessels are currently scouting out systems on the American and French Arms.

Mexico

Population: 147 million

Languages: Spanish

Major Cities: Mexico City (31 million), Los Angeles (21 million), San Salvador (5 million)

Currency: Mexican Peso

Government Type: Representative Democracy (4)

Tech Level: (11)

Principal Trading Partners: Argentina, Incan Republic, France

Interface Capability: Spaceplane, shuttle, catapult (B)

Notes: Mexico possesses an orbital defense facility, which is rumored to have orbital bombardment capability.

Colonies: Montana, Kwantung

After the Twilight War, Mexico used the temporary collapse of the American government to seize Texas and large part of New Mexico, Arizona and southern California, along with much of Central America. Despite losing Texas at the end of the 21st century, Mexico managed to retain the other former American territories.

Mexico boasts a couple of extra-solar colonies, but colonization was never a priority for the succession of military-industrial juntas that ruled the nation until the early 2300's. In 2302, food rioting in Los Angeles and Mexico City turned violent, and eventually boiled over into all-out civil war. The conflict was between the isolated military leaders and industrialists and the extensive lower-class. Against expectations,

many military units sided with the lower-class rebels, and by 2312 the military government had been ousted, and a revolutionary council established in its place. Most expected the council to form a new dictatorship, but in 2315 the first multi-party free elections were held.

The war went largely unnoticed in the colonies, though most colonists privately sided with the civilian rebels. Relations with aristocratic Argentina have soured somewhat since the new government took control, but are still cordial.

Mexico provided little in the way of support for the embattled nations of the French Arm during the Kafer War due to its own civil war. However, many Mexicans volunteered on their own, including the famous Régiment de Mexique of the Foreign Legion, which fought nearly to the last man on Kimanjano.

Nigeria

Population: 101 million

Languages: English

Major Cities: Lagos (10 million), Abuja (7.3 million), Ibadan (3.6 million)

Currency: Naira

Government Type: Representative Democracy (4)

Tech Level: (11)

Principal Trading Partners: America, France, Azania

Interface Capability: Spaceplane, shuttle, catapult (B)

Colonies: Avalon

Africa survived the nuclear portion of the Twilight War, but was devastated by the loss of international trade and commerce. When the African nations emerged from the chaos, they had become largely self-sufficient, and have managed to put colonialism behind them and build something new. Nigeria was at the forefront of that drive. Nigeria now boasts the second most-developed economy in Africa, after Azania.

Though Nigeria has long been a space-faring nation, they had never established a full colony of their own. That had contributed to several, and Nigerian trade ships are quite common, but they had never made that leap to a full colony. When word reached them of the opening of Avalon, they approached America about putting in a colony on the newly-opened world. America agreed, and also offered to provide assistance if need be. Nigerian engineers and technicians arrived on the world in 2316, with the first settlers coming in 6 months later.

During the Kafer War, Nigeria provided starlift capacity, but little in the way of actual military assistance. Nigeria's constitution prohibits the establishment of a standing military force, and the nation relies on the police for all internal matters, and international goodwill for external issues.

SCANDINAVIAN UNION**Population:** 45.6 million**Languages:** Danish, Finnish, Icelandic, Norwegian, Swedish**Major Cities:** Oslo Metroplex (13.2 million), Stockholm (9.3 million), Helsinki (2.8 million), Copenhagen (5.4 million)**Currency:** Krona**Government Type:** Multi-party republic (4)**Tech Level:** (11)**Principal Trading Partners:** European community, Australia, Mexico**Interface Capability:** Spaceplane (C)**Colonies:** Eriksson

The Scandinavian Union is a confederation of five nations: Sweden, Denmark, Norway, Iceland, and Finland. Commonalities of experience and climate unite these nations as much as a shared language or culture.

The Scandinavian nations were heavily involved in the fighting of the Twilight War, with Norway and Denmark receiving the worst damage. Their recovery phase was quite lengthy.

Though prosperous by terrestrial standards, the Union lagged along as a Tier 4 nation until Canada approached it in 2312. Canada had to step up its colonial program for AC+17 534-105 (Eriksson) and needed partners. The Union leapt at the chance, though they had also been considering Avalon as a first step. However, Avalon being a water-world decided the case for them, as settlement would be too costly. The resultant boom in space industries has pushed the economy out of its moribund state, and the nation is experiencing its first real growth in several decades.

TEXAS**Population:** 13.2 million**Languages:** English, Spanish**Major Cities:** Houston (2.3 million), Dallas (2 million), Galveston (1.9 million)**Currency:** Texas Dollar**Government Type:** Multi-party parliamentary democracy (4)**Tech Level:** (11)**Principal Trading Partners:** America, Brazil, Ukraine**Interface Capability:** Spaceplane, shuttle, catapult (B)**Notes:** Texas boasts a constellation of five orbital defense installations, all of which are thought to have orbital bombardment capability**Colonies:** Austin's World, Kormoran, Beta Hydri, Heidelshemat

Texas was hit hard in the Twilight War. First the missiles

and bombs, and then the Mexican invasion. For nearly a century, Texas was a province of Mexico, until increasingly repressive treatment by the Mexican government of Texas citizens led to a revolt. America gave monetary and military support to the Texas uprising. After over a year of hard fighting, Texas was able to gain its independence. Though offered statehood by America, Texans in the end decided to walk their own path, and chose independence in a referendum in 2102.

Texas today is very similar in some ways to the Texas of the 20th century. Oil is still the foundation of the economy, as increasingly specialized methods are employed to completely drain each oil reservoir of every last scrap of petroleum. The law level in Texas is the same as most other nations on Earth, save in the area of firearms, where the level is much lower (4), which only prohibits light assault and military weapons, and even those can be owned with the proper permits.

Texas has two colonies, plus with their enclave on Kormoran (which a Texan will insist is a colony). These were done more out of national pride than any clearly stated economic reason. However, since the end of the Kafer War, they have become increasingly overextended trying to support the colonies and the enclave. Taxes have been raised twice since 2315, and there are rumors that taxes will have to go up again, or else the Kormoran enclave will have to be shut down. Neither option is particularly palatable to the Texan citizenry, however.

Oil and Plastics:

Though plastics can be synthesized from alcohol, the easiest way to make them is from petrochemicals. Earth imports most of its oil from off-world colonies, usually in unrefined form. Orbital refineries break the raw crude down into whatever is desired. Some companies use mobile refineries, where the crude is refined during the 1-2 months transit time from the outer worlds to Earth.

UNITED ARAB REPUBLIC (UAR)**Population:** 98 million**Languages:** Arabic**Major Cities:** Cairo (10.2 million), Tripoli (4.3 million), Khartoum (899,000)**Currency:** UAR Pound**Government Type:** Representative Democracy (4)**Tech Level:** (11)**Principal Trading Partners:** France, America, Argentina**Interface Capability:** Spaceplane, shuttle, catapult (B)**Notes:** The UAR lacks any sort of starship construction facilities, military or civilian

Colonies: 82 Eridani (Kormoran)

The UAR is a major power in Africa, with the third largest developed economy on the continent. The UAR has long lacked the resources for a successful space program, but they were successful in a completely different project. Using modern irrigation and weather control techniques, the UAR succeeded in reversing the spread of the Sahara desert, and has gone a long way in the struggle to reclaim the desert for agriculture. Their success has been dubbed "The Miracle of the Sahara" and is one of the primary factors in the current success of the UAR.

The UAR maintains an extra-solar presence on 82 Eridani, and there are plans afoot to found a full colony, along the same lines as what Arabia has accomplished on Beta Hydri. Manchuria offered Haifeng, but a world that is 99.6% covered by water was just too foreign for the UAR, and they rejected Manchuria's offer. They are currently in negotiations to construct a colony on Austin's World, with support from the Life Foundation.

Lacking significant space military forces beyond a couple of old frigates and with no native space transport capacity, the UAR largely stayed out of the Kafer war, contributing only a small amount of material and weapons.

ABANDONING KORMORAN:

The UAR still hasn't recovered from the debacle on Kormoran 20 years ago, when UAR agents tried to lead a native uprising against the Texan enclave. Since then they've been reducing their commitment to Kormoran in favor of eventually building a colony of their own. They are quietly auctioning off their trading rights on Kormoran, but will not sell to Texas or Texan allies.

UKRAINE

Population: 41 million

Languages: Ukrainian

Major Cities: Kiev (7.1 million), Odessa (4.9 million), Kharkov (2.6 million)

Currency: Hyvna

Government Type: Representative Democracy (4)

Tech Level: (11)

Interface Capability: Spaceplane, shuttle, catapult (B)

Notes: Ukraine possesses a pair of orbital defense satellites, but they are not thought to have orbital bombardment capacity

Colonies: Aurore

The Twilight War was hard on Ukraine, and the nation suffered heavily, both in the bombings and the famine and plagues that followed. However, freed from domination by Russia, Ukraine was able to restructure itself and start the rebuilding process decades ahead of its neighbors.

Ukraine has always had one of the richest agricultural regions in the world, and this agricultural wealth made the nation a close ally of France through the post-war period.

Today, Ukraine is a modern and progressive nation, with a colony on the fringes of Human space. A colony that was, and is, at the forefront of the fighting against the Kafers. It was a Ukrainian, Sergei Borodin, who provided the tactical genius behind the naval actions that drove into the Kafer sphere, and though he died defending Aurore in the early part of the second phase of the war, he is remembered as a national hero.

TIER 4

Tier 4 nations have little or no off-world interests, and are often typically somewhat backward compared to the spacefaring nations. The biggest exception to this is Iran, which up until now at least, has chosen to not pursue an off-world presence, but is a major player in the Middle-east and Asia on Earth. Tier 4 nations are the most independent of the Earth nations, and are often have truly unique cultures, separate from the other nations. Many Tier 4 nations seem resigned to their seemingly lowly status. For some of them, though, this contentment is starting to give way to a simmering resentment at being dealt out of humanity's most ambitious development, that of extra-solar colonization.

There are nearly one hundred Tier Four states, but only a few will be dealt with here.

THE INDIAN STATES

Population: 1.1 billion

Language: English, Hindi, Malayalam

Life Expectancy: 89 years

Literacy: 93%

College Education: 63%

Major Cities: New Delhi (21 million), Mumbai (12.6 million), Islamabad (6.4 million)

Currency: Mixed

Government Type: varied. Democratic forms predominate (4)

Tech Level: (10)

Trade Data: Ri

Interface Capability: Spaceplane (C)

Resources: Farming, Heavy Industry

Military Presence: Military Base

Services: Fusion Plant, University, Powernet, Road Net (100%), Rail Net (100%), Link Network (98%), Weather Satellites, Communications Satellites, Surveillance Satellites

Though made up of a number of nations (Afghanistan, Bengal, Bhutan, Bihar, Bombay, India, Madras, Mysore, Nepal, Pakistan, Punjab, Rajasthan, and Sri Lanka), the Indian States are often painted with the same brush by the international media. These states have spent the better part of the past

century embroiled in low-scale warfare, with alliances forming, breaking and shifting fluidly. In the past decade, however, Mysore has started to form some solid alliances, ones that seem intent on lasting. Should Mysore and its allies extend this loose alliance, patterned in much the same way as the Confederation of Palestine, then experts feels that peace and stability may very well visit this troubled land. Britain has already extended Commonwealth membership to Mysore and its allies.

IRAN

Population: 73 million

Life Expectancy: 94 years

Literacy: 93%

College Education: 87%

Major Cities: Tehran (7.2 million), Mashhad (2.7 million), Tabriz (1.4 million)

Currency: Rial

Government Type: Democratic Islamic Republic (4)

Tech Level: (11)

Trade Data: Ri, In

Principle Trading Partners: Central Asian Republic, Germany, Manchuria

Interface Capability: Spaceplane (D)

Resources: Farming, Mining, Heavy Industry

Military Presence: Military Base

Services: Fusion Plant, University, Pownet, Road Net (100%), Rail Net (72%), Link Network (89%), Weather Satellites, Communications Satellites, Surveillance Satellites

Iran is the wild-card on the world stage. It is a well-developed and prosperous nation, yet has no extra-terrestrial holdings, or any real space presence at all. In the Kafer War, they sent ground troops and support, more than any other Tier 4 nation, and almost as many troops as Germany, a Tier 2 nation. Iran's primary goal is to ensure that no "foreign" state gain control over any of Iran's neighbors or in particular over Iran itself. They have been accused of exporting revolution to neighboring states, but their goals are simpler: they simply desire to be left alone. Iran is a thoroughly modern state, and while largely secular the ayatollah's still have an important, if largely symbolic, role to play in this parliamentary state.

God of War:

Iran is quietly preparing a space program, concentrating on worlds of the solar system, and recently launched an expedition to Mars using a low-power stuterp vessel built in Iran and assembled in orbit. The small amounts of tantalum required came from internal Iranian sources, though they are known to not have much. The expedition is fitted out with a large number of mining and survey equipment, landers, and over fifty crew.

Russia

Population: 212 million

Languages: Russian

Life Expectancy: 96 years

Literacy: 99%

College Education: 98%

Major Cities: Moscow Metroplex (17.2 million), St. Petersburg (9.5 million), Gorkiy (7.1 million)

Currency: Russian Ruble

Government Type: Multiparty Republic (4)

Tech Level: (11)

Trade Data: Ri, Hi

Interface Capability: Spaceplane, shuttle, catapult (B)

Resources: Farming, Mining, Heavy Industry

Military Presence: Orbital Defense Installation, Military Base, Naval Base

Services: Solar Power Satellite, Rectenna, University, Pownet, Road Net (100%), Rail Net (100%), Link Network (98%), Airship Net, Weather Satellites, Communications Satellites, Surveillance Satellites, Orbital Terminal, Civilian Shipyard, Military Shipyard

Russia was the likely the most seriously damaged of all nations by Twilight, and had only barely managed to start the rebuilding process by the beginning of the 22nd century. Modern Russia is much reduced in size from its heyday before the Twilight War, but it is still larger than almost all nations on Earth, with abundant resources.

Russia lacks the tantalum resources to be a colonizing power, and seems to have its hands full with the ongoing development of their terrestrial holdings. Russia does seem intent on playing a role, though, and as a consequence is the second-largest contributor to the OQC after France. Many Russian vessels are purpose-built for the OQC role, and their ships are rotated in more often than those of other nations, who regard the OQC fleet as yet another tedious responsibility.

Russia's OQC contribution freed up warships from several nations for Kafer War duty, and at one point during the war, every single vessel under OQC control was Russian.

Russia is well-known for the quality of its computer programmers, even if their hardware is imported from the west. Unfortunately, they are best known for hacking, viral and data-tawar software, though 3 of the 5 most popular 3V games in the past year have also come out of Russia.

CONFEDERATION OF PALESTINE

Population: 21 million

Languages: English, Hebrew, Arabic

Life Expectancy: 95 years

Literacy: 93%

College Education: 71%

Major Cities: Amman (3.2 million), Beirut (3.1 million), Jerusalem (1.7 million)

Currency: Sheqel

Government Type: Multi-party republic (4)

Tech Level: (11)

Trade Data: Ri, Hi

Interface Capability: -

Resources: Farming, Mining, Heavy Industry

Military Presence: Military Base

Services: Solar Power Satellite, Rectenna, University, Powernet, Road Net (100%), Link Network (100%), Weather Satellites, Communications Satellites, Surveillance Satellites

In the wake of the Twilight War, Israel and the surrounding nations found that they had to band together in order to survive. Over time, they found much in common, and the Confederation came into being.

The Confederation of Palestine is formed from the nations of Israel, Palestine, Jordan and Lebanon. The government structure is unique, though the Indian States seem to be following a similar model. The four nations share a common physical territory, but every citizen belongs to one of the four nationalities, and lives by that nation's laws. There is no restriction on where they live or what they can do, however.

Palestine has no colonies, but the Knesset is discussing the possibility of putting in a colony at Haifeng, or possibly Avalon. Both worlds are largely covered by water, and would be a culture shock to the natives of this dry nation. They currently have small observer teams on both worlds, and are expected to announce a decision in the next two years.

FLANDERS

Population: 8 million

Languages: Dutch, French

Life Expectancy: 101 years

Literacy: 100%

College Education: 92%

Major City: Brussels (3.1 million)

Currency: Florin

Government Type: Representative democracy (4)

Tech Level: (11)

Trade Data: Ri, Hi

Interface Capability: Spaceplane (C)

Resources: Farming, Heavy Industry

Military Presence: Military Base

Services: Rectenna, University, Powernet, Road Net (100%), Rail Net (100%), Link Network (98%), Airship Net, Weather Satellites, Communications Satellites, Surveillance Satellites

Flanders is the newest nation on Earth, only 27 years old. It came into being during the closing days of the War of German Reunification, when a popular uprising led to the

expulsion of the French government officials and the creation of a new Flemish nation. The new nation of Germany instantly recognized Flanders' legitimacy, and forced France's hand into doing the same.

Despite the new nation's small size, it has been active on the world stage since its inception, and provided ground troops for the occupation of Gamma Serpentis III.

IRELAND

Population: 5.1 million

Languages: English, Gaelic

Life Expectancy: 99 years

Literacy: 100%

College Education: 67%

Major Cities: Dublin (810,000), Belfast (790,000), Londonderry (122,000)

Currency: Irish Pound

Government Type: Representative Democracy

Tech Level: (10)

Trade Data: Ri, Ag

Principal Trading Partners: Britain

Interface Capability: None (E)

Resources: Farming

Military Presence: Military Base

Services: Rectenna, University, Powernet, Road Net (100%), Rail Net (100%), Link Network (98%), Weather Satellites, Communications Satellites, Surveillance Satellites

It took the Twilight War to achieve a union between Northern Ireland and the Republic. The need for survival in the wake of a nuclear war pushed the two sides to unite.

Now, three centuries later, Ireland is a quietly prosperous nation. Irish citizens seeking a change typically emigrate to a British-controlled colony, as ties between the two nations are strong.

During the Kafer War, Ireland provided police units for recaptured colonies, the effectiveness of which gained Ireland great renown in political circles.

CENTRAL ASIAN REPUBLIC

Population: 220 million

Languages: Russian, Tajik, Uzbek, Kazak (all official)

Life Expectancy: 92 years

Literacy: 97%

College Education: 66%

Major Cities: Tashkent (17.5 million), Almaty (12.3 million), Dushanbe (9.2 million)

Currency: Ruble

Government Type: Single-party Republic (8)

Tech Level: (8)

Trade Data: Ri, Hi

Principal Trading Partners: Russia, France, Japan

Interface Capability: Rockets (D)

Resources: Farming, Mining

Military Presence: Military Base

Services: University, Powernet, Road Net (54%), Rail Net (16%), Link Network (12%), Airship Net, Weather Satellites

The Central Asian Republic is a now loosely-knit confederation of five nations which suddenly found themselves independent from the old USSR after the end of the Twilight War. The five countries, Kazakhstan, Turkmenistan, Tajikistan, Uzbekistan, and Kyrgyzstan, banded together against what they feared would be renewed Soviet imperialism after the USSR recovered from the effects of the Twilight War. The USSR never did, and Russia took a long time to rebuild to the state where they could attempt to get its former vassals to return to the fold. In 2280, that happened, and the largest-scale war on Earth since the Twilight War came to pass. The Central Asian War devastated the CAR's economy, and led to the coup which replaced the old federal government with a new one, centering on a cabal of generals and financiers. They, in turn, were driven out by another coup in 2304, one which nearly saw Russia drive for these territories once more. In 2309, a Manchurian provincial governor, emboldened by France's absence from the world stage during the Kafer War, made a drive for territory. The central Manchurian government was forced to back the errant warlord's play, but did so at the minimum possible level. Russian forces intervened, and proved themselves more capable than the last war. The war ended on a stalemate, with Manchurian forces driven from the country, but the nation itself fragmented into a looser confederation as a result of the conflict.

Now, the CAR and its limited space program are focused on exploration of the solar system in the hopes of finding deposits of tantalum and their ticket to the stars, and obtaining the resources to rebuild the war-ravaged nation.

IMPERIAL FRANCE

Population: 212 million

Languages: French, local languages

Life Expectancy: 91 years

Literacy: 90%

College Education: 80%

Major Cities: Libreville (22 million), Kinshasa (4.2 million), Algiers (2.7 million)

Currency: French Livre

Government Type: Imperial Department (6)

Tech Level: (11)

Interface Capability: Spaceplane, shuttle, catapult, beanstalk (A)

Resources: Farming, Mining, Heavy Industry

Military Presence: Military Bases

Services: Fusion Plant, Solar Power Satellite, Rectenna, University, Powernet, Road Net (100%), Rail Net (100%), Link

Network (98%), Airship Net, Weather Satellites, Communications Satellites, Surveillance Satellites, Orbital Terminal, Civilian Shipyard, Military Shipyard

The Imperial French nations do not fit into any category. By themselves, they are clearly Tier 4 nations. However, due to their association with France, they have the resources of a Tier 1 nation to draw upon as well. Most of the Imperial nations are in sub-Saharan Africa, save for a few in the Polynesian Islands. They are all considered departments of France, and all have representation in the Chamber of Deputies, the lower legislative branch of the French government.

Gabon, in particular attracts a great deal of international attention, due both to the Beanstalk and the celebrated corruption of the city that rests at the Beanstalk's roots, Libreville.

IMPERIAL FRENCH HOLDINGS ON EARTH:

Algeria, Burkina Faso, Cameroon, Chad, Djibouti, French Polynesia, Gabon, Guinea Coast, Guyana, Katinga, Senegal, Zaire

EUROPE

Population: 462 million

Life Expectancy: 99 years

Literacy: 100%

College Education: 83%

Major Cities: Madrid (5.1 million), Athens (4.2 million), Rome (3.5 million)

Currency: various

Government Type: Representative Democracy (4)

Tech Level: (11)

Trade Data: Ri, Hi

Principal Trading Partners: France, Germany, Britain

Interface Capability: Spaceplane (C)

Resources: Farming, Heavy Industry

Military Presence: Military Base

Services: Rectenna, University, Powernet, Road Net (100%), Rail Net (100%), Link Network (100%), Weather Satellites, Surveillance Satellites, Communications Satellites

Europe is something of an anomaly. Though most of the nations are Tier 4, and dominated by either France or Germany, they have lifestyles more in keeping with that enjoyed by Tier 3 nations. Europe is wealthy, and these nations maintain their wealth largely by not getting involved in colonization endeavors. However, this cuts them off from the resources that off-world colonies can make available, and so they are trapped. Most are not willing to accept the temporary drop in their standard of living that would be required to settle another world, but by not doing so they are unable to advance that standard of living, and are actually facing a slow

decline as resources get harder to find and more expensive to purchase. A few countries have participated in joint-venture colonies, the most notable of which was the Bavarian colony of Garten, now the independent nation of Freihafen.

There has been talk in some circles of putting in a colony on one of the war-ravaged worlds of the French Arm, in part to take advantage of French resettlement allowances. Greece, Italy and Spain are the most heavily involved in these talks, and are in the process of establishing an outpost on Kimanjano, as a precursor to colonization.

NATIONS OF EUROPE:

These nations comprise the rest of Europe, and have not been detailed: Albania, Austrovenia, Bulgaria, Catalonia, Croatia, Czechoslovakia, Greece, Hungary, Italy, Latvia, Netherlands, Poland, Portugal, Romania, Serbia, Spain, Switzerland

SOUTH AMERICA

Population: 276 million

Life Expectancy: 98 years

Literacy: 97%

College Education: 84%

Major City(s): Caracas (7.1 million), La Paz (5.1 million), Montevideo (3.2 million)

Currency: various

Government Type: Representative Democracy (4)

Tech Level: (10)

Trade Data: Ri, Hi

Principal Trading Partners: Brazil, Argentina, Mexico

Interface Capability: Spaceplane (C)

Resources: Farming, Mining

Military Presence: Military Base

Services: Rectenna, University, Powernet, Road Net (75%), Rail Net (80%), Link Network (85%), Weather Satellites, Surveillance Satellites, Communications Satellites

Aside from the three larger nations (Brazil, Argentina, and the Inca Republic), South America is composed solely of Tier 4 nations. The damage caused to many of these nations by the succession of Rio Plata wars is part of the reason for their status. Their economies are still primarily agricultural, and have not advanced to the point where they can consider investing in space and colonization. Venezuela, the richest of these nations, lacks the tantalum resources needed for interstellar settlement, and have only been able to purchase limited amounts to construct a small fleet of three vessels. These few vessels are involved in prospecting and mineral surveys in the solar system, looking for larger deposits of tantalum.

The current Rio Plata War is currently being fought in Uruguay but is already affecting all nations of South America, and is threatening to spill over to the rest of the continent.

NATIONS OF SOUTH AMERICA:

Aside from the Big 3, South America consists of Bolivia, Chile, Paraguay, Uruguay, and Venezuela

Asia

Population: 372 million

Life Expectancy: 99 years

Literacy: 92%

College Education: 78%

Major City(s): Rangoon (11 million), Hanoi (6.1 million), Tbilisi (3.1 million)

Currency: various

Government Type: Various

Tech Level: (10)

Trade Data: Ri, Hi

Principal Trading Partners: Brazil, Argentina, Mexico

Interface Capability: Spaceplane (C)

Resources: Farming, Mining

Military Presence: Military Base

Services: Rectenna, University, Powernet, Road Net (75%), Rail Net (80%), Link Network (85%), Weather Satellites, Surveillance Satellites, Communications Satellites

Outside of Manchuria and Japan, most of Asia is solidly Tier 4, with lifestyles that reflect this. Even Canton, technically a Tier 3 country by virtue of its sole colony, really has a standard of living more reflective of Tier 4. Most Asian nations lack the resources to colonize other worlds, whether that's economic resources, technological resources or sufficient quantities of tantalum. Though in 2320 no one is actually starving, the nations of Asia typically make do with much less than those on the other continents. Lacking access to orbital industry, the nation of Asia must deal with more pollutants than Europe or North America, though conditions are still a far cry from the smog-laden days of the 20th century. Korea is a virtual satellite of Manchuria, and is a center of advanced manufacturing.

NATIONS OF ASIA:

The following countries cover the remainder of the Asian nations: Azerbaijan, Burma, China, Far Eastern Republic, Georgia, Indochina, Korea, Mongolia, and Tibet

Africa

Population: 1.1 billion

Life Expectancy: 98 years

Literacy: 97%

College Education: 64%

Major Cities: Addis Ababa (9.2 million), Maputo (5.9 million), Freetown (4.4 million)

Currency: various

Government Type: various

Tech Level: (10)

Trade Data: Ri

Principal Trading Partners: Brazil, Argentina, Mexico

co

Interface Capability: Spaceplane (C)

Resources: Farming, Mining

Military Presence: Military Base

Services: Rectenna, University, Powernet, Road Net (75%), Rail Net (80%), Link Network (85%), Weather Satellites, Surveillance Satellites, Communications Satellites

Africa revolves around four major centers of influence, and most of the nations are dominated by these centers. Azania and its clients are the largest power bloc on the continent, and control the southern portion. Centrally, Nigeria vies with Imperial France for influence and control, while in northern Africa the UAR and France dominate the local nations. Life in Africa outside of the UAR, Nigeria and Azania is still fairly poor, with the economies concentrating on agriculture and mining. Nigeria and Azania provide the bulk of foreign investment in these nations, but it is not enough to give them a sound foundation for industrialization. Again, no one is really starving in 2320, as most of these nations are self-sufficient, at least in food production. They are not as well fed as most other nations, though.

NATIONS of Africa:

The other African nations are Angola, Berbera, Bifra, Eritrea, Ethiopia, Kanuri, Kenya, Madagascar, Malawi, Mali, Mauritania, Morocco, Mozambique, Polisaria, Somalia, Tanzania, Tunisia, Ubangi Shari, Zambia, and Zimbabwe

Middle East

Population: 117 million

Life Expectancy: 99 years

Literacy: 98%

College Education: 82%

Major Cities: Ankara (4.6 million), Baghdad (4.2 million), Damascus (2.3 million),

Currency: various

Government Type: Representative Democracy (4)

Tech Level: (10)

Trade Data: Ri

Principal Trading Partners: Brazil, Argentina, Mexico

co

Interface Capability: Spaceplane

Resources: Farming, Mining

Military Presence: Military Base

Services: Rectenna, University, Powernet, Road Net (68%), Rail Net (80%), Link Network (85%), Weather Satellites, Surveillance Satellites, Communications Satellites

lites, Surveillance Satellites, Communications Satellites

The Middle East suffered through a great deal of turmoil as a result of the Twilight war, and didn't start to recover until well after most other nations. By 2320, most of these nations are fairly prosperous through the continued sale of their dwindling reserves of petroleum. Most are in the process of diversifying their economies, with nations like Turkey and Syria now producing high-end consumer electronics, but at the moment most of these nations are still resource-dependent.

OCEANA

NATIONS of the Middle-East:

Armenia, Baluchistan, Iraq, Kurdistan, Syria, and Turkey.

Population: 115 million

Life Expectancy: 99 years

Literacy: 98%

College Education: 82%

Major Cities: Manila (9.7 million), Auckland (1.1 million), Darwin (800,000)

Currency: various

Government Type: various

Tech Level: (9)

Trade Data: Ri

Principal Trading Partners: France, Australia, America

Interface Capability: None (X)

Resources: Farming, Mining

Military Presence: Military Base

Services: Rectenna, University, Powernet, Road Net (75%), Rail Net (30%), Link Network (60%), Weather Satellites, Surveillance Satellites, Communications Satellites

Throughout the oceans of the world are small island nations, the bulk of which are in the South Pacific, though there are some in the Indian Ocean and the Caribbean Sea as well. Of these small nations, New Zealand stands out as the most developed, while the Philippines, a semi-autonomous Japanese client-state, are the most populous. Most of these nations weathered the Twilight War fairly well, as they weren't targets and were largely self-sufficient. Any of them that relied on international trade were effectively destroyed in the aftermath of the war, though. In 2320, most of these nations live life quietly, perhaps as tourist destinations, though most are simply subsistence cultures. These nations are near the bottom of Tier 4, though quality of life is usually rated high.

NATIONS of OCEANA:

Cuba, Bermuda, Nauru, New Zealand, Papua, Philippines, Polynesia, and Tonga.

SEA FLOOR DEVELOPMENT

Japan is the nation most heavily involved in undersea development, with several small cities entirely under water, and a couple of them are quite deep. These cities usually consist of a series of linked modules and domes, in many ways similar to the architecture of the lunar settlements. Subs flit around these undersea cities, from small utility boats to the behemoth transport subs. Dolphins are a common sight at many of these cities as well, as there are several places for them to catch a breath. These cities are the center of sea floor mining and surface aquaculture efforts, and are also popular tourist destinations.

Supercavitating drives are not permitted to operate within several kilometers of these cities, due the shock-waves they generate.

The Pacific 5000 Sub Race:

For the past 57 years, the Pacific 5000 has showcased the latest in civilian submarine design, with a variety of races, both short and long-endurance, for several types of subs. The Supercavitating designs are quite popular with the 3V viewers, as the effects of a rocket firing underwater are quite spectacular, and supercavitating subs can attain speeds close to 800km/h. Other races are more valuable for the designs, and the Marianas Endurance Run is one of the most important for proving deep-diving vessels.

ANTARCTICA

The original treaty commitments against settlement of Antarctica expired prior to World War III, but implied agreement and a lack of recoverable resources restrained most nations from mounting more than research colonies. These bases, located in one of the most hostile environments on Earth, would later play a role in the design of the first outposts on Mars, and later around other stars. In the late 21st Century, both Argentina and Australia attempted to extract petroleum from Antarctica, but costs and climate, along with international pressure, made the efforts unprofitable. Antarctica is still the site of many scientific outposts, usually understaffed and under-funded, with living conditions little better than first stage colonial outposts.

Discovery of tantalum, however, could change all that. For various reasons, geologists believe that the Antarctic continent should contain tantalum deposits, but extensive efforts over centuries have yet to uncover anything more than minute, unexploitable traces. Exploration is expensive and dangerous, but continues on a low level.

GREAT WHITE SOUTH:

Argentina has experimented with resource exploitation in Antarctica for over 100 years, but the difficulties have never been worth the expense. In the years leading up to the 4th Rio Plata War, Argentina once again tried its hand at winning resources out of this hostile continent. They even built a large inland facility adjoining an ice-shelf, and receive shipments via airship. Recently, however, British intelligence has become suspicious of this site, and is quietly trying to get a closer look.

ORBITAL SPACE

Earth orbit is a very busy place. Gateway and Mataglap Stations can see upwards of several hundred ships a day, and the volume of traffic is steadily getting worse. In addition to all the ship traffic, orbit is filled with hundreds of factory and lab stations, solar power satellites, weather satellites, observation satellites and even hotels.

Several thousand people call orbital space home, even if only for limited tours on a small station or factory, and thousands more visit monthly.

Low Earth Orbit (LEO) extends from 180 kilometers to 1500 kilometers above the Earth, and is occupied by a variety of transfer stations and factories. This is the most densely settled region of orbit, so dense that Orbital Traffic Control Regions (OrCons) had to be established. Each of the three OrCons is named for the space station they are centered on: Johnson, Mbele, and Qin. Low orbit is also the location for most weather and observation satellites.

TINKERS:

There are several small companies that do nothing but provide repair and maintenance services to the many small stations and labs in Low Earth Orbit. These tinkers, as they are often called, have their own small reaction-drive vessels, and live in these ships or in small stations scattered through the halo of satellites and debris in this orbital zone. They know where everything is, and are often overlooked by security forces. When not involved in maintenance contracts, they often turn to salvage operations, and sometimes fail to check if a satellite is truly salvage, or actually someone's property.

Geosynchronous Orbit (GEO): is at an altitude of just over 35,000 km above the Earth, and is the domain of communications satellites and the power stations. None of these smaller stations have permanent populations, but several of the larger ones do. GEO is relatively barren of manned stations, largely due to the cost in getting there. Even though this orbit is above the Van Allen radiation belts, increased

exposure to solar wind and radiation makes shielding very important. The only permanent stations in this region are the ESA-controlled Gateway, and the Indonesian station of Mataglap.

Gateway: Midway along the African Elevator sits Gateway Station, the commercial hub of Earth space, and home to over 7,000 people. This massive station has two habitation rings, each with three primary levels, and construction is underway on a third ring. Spreading out from the station's core are kilometers of docking bays, warehouse modules and temporary storage. Hundreds of ships a day call at Gateway, from small couriers to massive bulk freighters bearing ore from asteroid mines. Even the construction of the Indonesian Elevator has done little to stem the tide of commerce flowing through Gateway. It is expected that the Incan elevator currently under construction will drain some of the traffic from Gateway, as any trade destined for the Americas will likely filter through that route. Gateway is also the headquarters for the OQC, who share responsibility for the policing of the station.

Security on Gateway is extremely tight, and if anything is even more omnipresent than on the surface (Law Level 9). Nonetheless, not every corner of this huge station can be monitored, and there is a thriving black market in off-world goods, including drugs and biologicals.

Mataglap Station: Though not as large or well-developed as Gateway, Mataglap is quickly making a name for itself, providing easy access to the Asian markets, with lower storage, shipping and berthing costs than Gateway. OQC maintains a substantial contingent here as well.

Mataglap consists of one habitation ring, housing 2800 people in two primary levels. Construction is starting up on another ring, much larger than the initial habitat. Spreading out from the station core is a haphazard arrangement of hangers, warehouses, cargo modules and fuel tanks, all strung together with nanotube cable and drifting for many kilometers along the station's orbital path. There are persistent rumors of squatters living in the scattered cargo modules and warehouses, living off the scraps of the station. Control is much less rigorous at Mataglap than at Gateway, and much less monitoring occurs. Law Level at Mataglap is effectively 6, save for weapons, where it is 8.

BEYOND ORBIT

Farther out than the orbital stations lie the lunar settlements and the great habitats residing at the LaGrange Points leading and trailing the moon.

L-5

The European Space Agency selected the LaGrange point trailing Luna for its space settlement. The first module was thrust into place in 2061, and the original structure was completed in 2074. This old and immense structure is known by a simple name: L-5, and is the largest and most-heavily populated orbital structure in Human space. Indeed, only the abandoned habitats in Aquilan space are bigger.

L-5 is not so much a space station as a city -- a city of nearly 72,000 inhabitants from 39 nations, fully self-supporting, prosperous from trade and its own industries, and possessed of a unique culture and character.

Its appearance is spectacular. Four slender spindles, each five kilometers long, are joined by parrellogram-shaped platforms a kilometer and a half on a side. On each spindle turn four great wheels, each a kilometer in diameter. The wheels turn slowly but endlessly; the platforms jut with docking armatures, antennae, cranes, construction docks, and towers. Space for 100 kilometers around L-5 is crowded with ships, shuttles and solar collectors up to 100 hectares in area.

Upon its completion in 2317, the fourth expansion managed to generate some controversy. This expansion doubled the size of the connector plates, and added an additional spindle with four new habitats. Though they are ESA-controlled, they are not open to general migration from Earth. It seems that only the elite of the ESA nations are permitted to take up residence on the massive habitats. The official ESA explanation is that the high technical and professional requirements for the jobs available on the new habitats severely restricts the pool of suitable residents.

L-4

America placed the first space settlement at the LaGrange point preceding Luna. Soon Japan and Argentina placed their own settlements at L-4. Originally, America objected to neighbors at L-4, but the cross-fertilization of technicians and scientists in close proximity and the natural trade that arose between the neighbors soon turned that opinion around. Over the succeeding decades, many nations placed stations and platforms here, including many corporations. As a result, there is a veritable constellation of stations at the L-4 point, in contrast to the singularly massive constructs at L-5. The largest of the L-4 stations is the American settlement of Goddard Station, a Bernal-sphere-type habitat approximately 5 km in diameter housing nearly 50,000 people. Another 4 dozen or so stations, from many different nations and corporations,

complete the array of settlements in this zone, with a combined population of over 150,000.

The L-4 stations have long been a conduit for contraband to Earth. Beyond the jurisdiction of the OQC, many of the smaller stations are virtual havens for bio-smugglers and drug-runners. Every so often, America or one of the larger stations tries to do something about the situation, but they keep running into diplomatic hurdles. The OQC tries to keep a sharp eye of these smaller stations, but since most traffic is reaction drive rather than stutterwarp, comings and going from these stations are hard to track.

LUNA

The Moon was the site of extensive settlement prior to the discovery of the stutterwarp, and even now it has major cities and settlements, with a population close to 6 million. The major business of the Moon is mining, in particular the strip-mining of Helium-3, which is used as fuel for modern fusion reactors. He3 mining uses equipment that resembles a farmer's combine, and sifts through the top 3-5 m of dirt and dust to obtain the precious helium. Other valuable elements are also available from the lunar crust, including titanium, aluminum, and silicates, all industrially useful minerals, even in the age of synthetics.

Tycho City is the largest settlement on the moon, and has a population of over 800,000 people under its three primary domes. Most of the city is buried deep under the lunar regolith, but the three domes (Alpha, Beta, Gamma) house parks and commercial sectors. The largest tree in the solar system is housed in Alpha Dome, a birch tree 220 meters tall and 25 meters in diameter. Outside the domes are a confused complex of solar collectors, factories, warehouses and the array of catapults used to fling lunar materials into orbit.

Aside from the lower gravity, lunar culture is very similar to Earth. Anyone native to the moon is treated as if they came from a Zero-Gravity environment.

WORKIN' IN THE HELIUM MINES:

Aside from tantalum, one of the most strategically important resources in Human space is Helium-3, used to fuel the fusion reactors that provide the power for most large military starships. For Earth, the Moon has always been a large supplier. Recently, however, stored Helium-3 has started going missing, and the Lunar Authority is getting worried.

TIRANE, Alpha Centauri A

The first world out from Sol, Tirane is by far the single most important Human colony world. The oldest of the colonies, Tirane is a hub of commerce for virtually all other colonies and outposts.

SYSTEM DATA

STELLAR DATA

Primary Name: Alpha Centauri A

Spectral Class: G2 V

Magnitude: 4.35

X, Y, Z Coordinates: -1.7, -1.4, -3.9

Number of Planets: 3 (Tirane, Oikemenos, Neuerde)

Number of Asteroid Belts: 0

Star Name: Alpha Centauri B

Distance from Primary: 11.4-36 AU

Spectral Class: K0 V

Magnitude: 5.69

X, Y, Z Coordinates: -1.7, -1.4, -3.9

Number of Planets: 6 (Sheol, Hades, Limbes, Enfer,

Vorholle, Purgatoire)

Number of Asteroid Belts: 0

A relatively close companion to Alpha Centauri A.

Star Name: Proxima Centauri

Distance from Primary: 10,000 AU

Spectral Class: M5 V

Magnitude: 15.45

X, Y, Z Coordinates: -1.6, -1.2, -3.8

Number of Planets: 1

Number of Asteroid Belts: 0

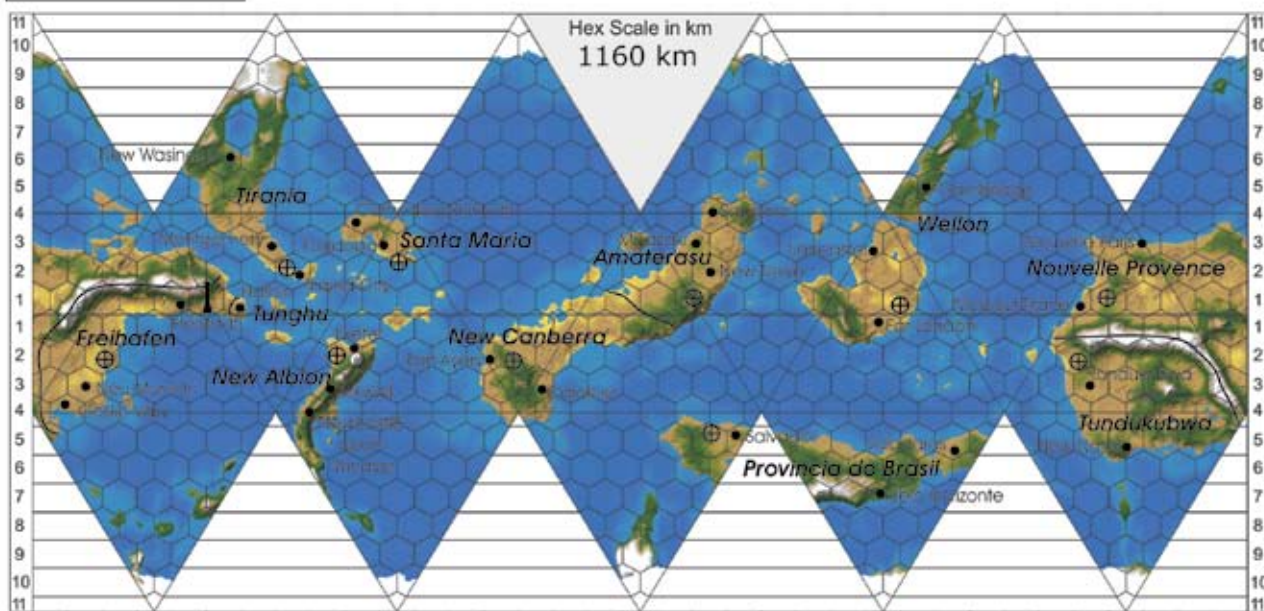
NOTABLE PLANETS (ORBITING B)

Limbes: Limbes is a former garden world sterilized by a runaway greenhouse effect, and it is of interest only to scientists and a few crackpots.

A joint ESA research station is maintained in orbit around the world, although its staff has been drastically reduced as the years have passed, and other, more interesting worlds have been discovered. Despite almost a century of study, no surviving life forms have been detected, but fossil evidence indicates a rich biosphere just under a billion years ago. Over 1800 separate genera have been described; although their exact relationships remain tentative since most of the remains are fragmentary.

Sheol: Sheol is a hothouse with fairly large mineral deposits, but the atmosphere and climate are particularly harsh, and the world remained unexploited because there were more economically exploitable deposits of the same miner-

Tirane



Legend

- Major City
- ⊕ Spaceport
- Catapult
- ! Beanstalk

Map Note: Special features omitted for clarity



Mining



Farming



Military Base



Fusion Plant



Solar Power Rectenna



Heavy Industry

72

als elsewhere in the system. Then in 2307, an Argentinean survey team found the first small quantities of tantalum, and the rush was on. The Mexican/Argentinean research station in orbit laid the first claim, and was best positioned to exploit the resources. Argentina's deep-sea mining experience paid off, as it could adapt many of the same techniques and technologies for use in the thick, hot atmosphere of Sheol. Other nations have made claims on Sheol since, but the Argentine/Mexican alliance has the best sites. The combined population is now over 9000, and continues to grow as the surface facilities are expanded. This has created considerable tensions, and there are reports of isolated incidents between various mining crews.

In late 2319, Argentina laid claim to a 3300 square kilometer area of Sheol, and within two weeks had placed a British prospecting team under arrest, along with seizing their vehicle and their data.

OTHER PLANETS (Orbiting both A and B)

6 (Gallia, Britannia, Italia, Germania, Hispania, Lusitania)

PLANETARY DATA

PLANET DATA

Name: Tirane

Distance from Primary: 0.97 AU

Year Length: 345 days

Size: 12,900 km in diameter

Day Length: 22.31 hours

World Type: Garden

Surface Gravity: 1.01 G

Atmospheric Pressure: 1.02 ATM

Climate: Temperate

Water Presence: 74%

Atmospheric Composition: N₂ (79%), O₂ (18%), Trace (3%)

Biodiversity: Diverse; usable

Resources: 7

Satellites: 2 (Esa and Europos)

The biosphere on Tirane is a mixture of native and off-world types. The primary introductions are from Earth, but a few other worlds have contributed lifeforms as well. The biochemistry of Tirane was similar enough to Earth's that little had to be done to adapt Terran life to the world. This was a blessing and a curse to the early colonists: they and their livestock could eat the local plant and animal life with minimal problems, but the reverse was also true. Careful survey work (the identification of potential disease-causing organisms and the preparation of appropriate countermeasures) kept problems with disease to a minimum. All colonists and their livestock were inoculated before they arrived and strict quarantine procedures were in effect from the start. The larger forms of life on Tirane were not difficult to deal with – fences

and various environmental barriers kept the local equivalent of wolves from the colonists' meat animals and kept the local herbivores out of the grain fields.

There were a few problems, but by-and-large, the various colonization efforts have integrated themselves well into the local ecology.

Grand Seasons: In addition to the normal seasons caused by orbital conditions and axial tilt, there are "grand seasons" caused by the proximity of Alpha Centauri B. Though the radiation from Alpha Centauri B is not significant by itself (even at its closest approach, the companion star only comes within 11 AU), the few degrees added are enough to change the climatic zones of the world. These "grand seasons" each last 19.75 years and are similar to regular seasons, only more drawn out. Grandwinter makes the planet a few degrees colder, while Grandsummer make it a few degrees warmer. Grand autumn and Grandspring are the heralds of the gradual changes to the other two Grandseasons.

Because of the constantly shifting weather, farming has taken on a unique pattern. Instead of individual family farms, a system of farming corporations has arisen. A corporation will own large tracts of land in several locations, and a given tract of land will be used for various purposes depending on the season and grand season. Farm families will often undertake to farm a section of land for long-term periods (20 local years is an example of a standard contract). This laid the groundwork for the current system of corporate ownership of land and resources.

As a colony's climate shifts, the employment demands of agriculture also shift, and the population transfers from agricultural jobs to other jobs on a cyclical basis. Farm workers could be said to be migratory in one sense, but since they often spend two or more generations in one place, their life is relatively stable compared to other migratory agricultural workers.

FARM TROUBLES:

Tirane has been shifting from Grand Winter to Grand Spring, and temperatures are rising. As a result, farm contracts are being renewed. However, there has been an increasing movement to automated farming, and many of the previous family contracts are not being renewed. This has led to massive protests in Nouvelle Provence, Freihafen and Wellon, along with scattered outbreaks of violence.

COLONIAL HISTORY

Tirane is a garden world in the Alpha Centauri system and the site of the oldest human colonies in space (there are older out posts, but Tirane was the site of the first attempts at full-scale colonization). It was a tremendous coincidence that Alpha Centauri had a world similar to Earth, but this co-

incidence spurred the search for other such worlds. Had the system not contained any worlds suitable for human habitation, the course of future interstellar exploration might have been considerably different.

The first interstellar probe (an unmanned vehicle, launched under the auspices of the ESA) arrived in system in 2137 and made a detailed survey of the constituent worlds. The probe dropped an instrument package on Tirane, which included the flags of the member nations of the ESA. On the basis of this, when the data about Tirane arrived back on Earth, the member nations of the European Space Agency (at the time, the active members were France, Bavaria, Azania, and the United Kingdom) announced their discovery and claimed the system for their exclusive colonization. Several nations immediately filed diplomatic protests and began speeding up their interstellar programs. Argentina (in concert with Mexico) sent a probe to the system in 2138 to establish their claim to it. American and Japanese probes soon followed, but no human had yet set foot on the world. Oddly enough, Manchuria was the only major power to support the ESA, although many remained neutral (especially those without hope of an interstellar exploration program). In 2129 a joint ESA survey party went into orbit around Tirane and spent the next four years studying the first world outside the solar system found suitable for human life. The party landed and planted flags, reasserting their claim to exclusive colonization.

The ESA began construction of a large fleet of interstellar transports with a view to colonization (many of these were converted interplanetary freighters). Other nations followed suit, but Argentina quickly converted several transports to warships and sent them to Tirane. The Alpha Centauri War was the result.

Most of the war was conducted in the Alpha Centauri system: the Argentinean armed transports battling the hastily armed merchant ships of the ESA. Neither side could gain a clear advantage, but both sides were unwilling to expand the conflict to Earth.

When Australia offered to mediate, the two sides concluded a cease-fire which turned into an armistice. Both sides later claimed victory, and the war is still a touchy subject in some circles.

The Melbourne Accords which ended the war also opened Tirane to settlement by all spacefaring nations, and established the precedent of open settlement which continues to this day (though somewhat modified). The nations of the ESA had a head start, however, and Tirane's present demographic situation reflects this. A majority of the planet's 1.2 billion inhabitants are descendants of the ESA colonists. Several colonies failed for one reason or another and were absorbed into one or another of those listed below.

The two moons of Tirane, Esa and Europos, were named

after the European space agency and the continent of Europe, respectively, and they currently contain nothing but a few small observatories, research facilities, and navigational beacons. There are several orbital colonies, each holding upwards of 10,000 people, and large factory complexes orbiting Tirane, including the massive shipyards of Nouvelle Provence, Freihafen and Tirania. Along with the factories, there are nine solar power satellite arrays and numerous communications and land-use satellites. Construction of an international Gateway-style station is ongoing at the geosynchronous point of the Freihafen Beanstalk, and there is talk of forming a defense force along the lines of Earth's Orbital Quarantine Command.

Although Tirane is sparsely settled compared to Earth, the long period of settlement has led to social conditions similar to the home world, where security and safety are taking precedence over concepts of individual freedoms. The Kafer War has certainly hastened this process, so much so that some fringe groups have denounced the war as a fake, a conspiracy designed to do nothing more than allow the government to seize additional power. However, the current sociological situation on Tirane can easily be seen to be part of an ongoing trend, rather than a sudden break with the past. In part as a result of this trend, a large surplus population has left to settle in the outer fringe colonies. As the frontier areas of Tirane became more civilized and opportunities for land began to dry up, increasing numbers of colonists have emigrated from Tirane to other worlds where a person can make a fresh start, get in on the ground floor, and generally escape from the pressures of civilized life (such as surveillance cameras and identicards). In many ways, Tirane has become a second Earth. The Law Level on Tirane is slightly more tolerant than that of Earth as well, with most nations banning non-hunting firearms outright (Law Level 7) unless a person shows a demonstrable need.

Tirane has recently faced another sort of demographic pressure, as floods of refugees from further up the French Arm have arrived, looking for assistance. The nations of Earth are unwilling to deal with the refugees, fearing biological and cultural contamination. Likewise, the nations of Tirane have no real wish to deal with the flotsam of the Kafer war, and few refugees find their way to the surface. Most are sent up the American or Chinese Arm, to uncertain futures on Avalon, Dukou or Cold Mountain.

SURVEILLANCE ON TIRANE:

Even though the nations of Tirane are far younger than those of Earth, they have still adopted the high-surveillance society of Earth. This is partly due to pressure from Earth, but is also due to the great comfort of the citizens of this world, and their desire to keep things that way. Tirane is no longer a frontier.

COLONIES AND NATIONS

There are numerous individual colonies on Tirane. However, though Tirane boasts the largest population of any colony world, its 1.4 billion inhabitants are sprinkled rather thinly across the continents – Tirane's overall population density is fairly sparse.

The nations and enclaves of Tirane are uniformly well-developed, and sport very high standards of living. The following characteristics are common for Tiranean nations:

Life Expectancy: 101 years

Literacy: 99%

College Education: 75%

Law Level: All Firearms save Shotguns and Hunting Rifles Prohibited (7)

Resources: Farming, Mining, Heavy Industry

Military Presence: Orbital Defense Installation, Military Base, Naval Base

Services: Solar Power Satellite, University, Powernet, Road Net (100%), Rail Net (100%), Link Network (99%), Weather Satellites, Communications Satellites, Surveillance Satellites, Orbital Terminal

NOUVELLE PROVENCE

Colony Name: Nouvelle Provence

Colony Population: 250 million

Date Founded: 2167

Nationality: French

Major City(s): Nouvelle Paris (2 million), Nice-sur-Tirane, (1.2 million)

Currency: Livre

Government Type: Elected council responsible to Chamber of Deputies on Earth (4)

Tech Level: (12)

Trade Data: Ri

Interface Capability: Spaceplane, shuttle, catapult (B)

Notes: Nouvelle Provence has a large-capacity civilian shipyard

Now a department of metropolitan France, Nouvelle Provence is the location of France's largest starship construction facilities, the Université du Tirane, the Institut des Études Exobiologiques' (IEX's) extensive zoological collection, and the famed Musée Xenologique. Without rival, Nouvelle Provence is the cultural capital of Tirane.

Though still a colony, Nouvelle Provence enjoys a great deal of power in the Chamber of Deputies in France. Her population is more than double that of European France, and easily surpasses all non-European French territories on Earth.

There have been some rumblings in recent years of independence, but the determination of France not to lose any more colonies has tempered this wish. The example made of

the remnants of the Kimanjano colony is too fresh in everyone's mind.

In addition to being the cultural center of Tirane, Nouvelle Provence is also the center of French commercial shipbuilding. While most of the military ships are laid down in the orbital yards above Earth, Nouvelle Provence is responsible for over 60% of the civilian ship construction in French space, and has the largest commercial yards in the French Arm, or indeed anywhere outside of the Sol system.

Freihafen

Colony Name: Freihafen (formerly Garten)

Colony Population: 197 million

Date Founded: 2167, independent since 2293

Nationality: Independent

Major Cities: Neumunchen (3.1 million), Freistadt (1.7 million), Ceske Vary (1.1 million)

Currency: Freihafen Thaler (NOT Taler)

Government Type: Representative Democracy (4)

Tech Level: (12)

Trade Data: In, Ri

Interface Capability: Spaceplane, shuttle, catapult, Beanstalk (A)

Notes: Freihafen has both a military and a civilian shipyard

This former Bavarian colony was unwilling to become a part of a reunited Germany and is now an independent nation. Relations with the rest of the colonies are better for it, since a strain between two large colonies on Tirane would have possibly created a global conflict or economic hardship. Freihafen is heavily industrialized, and is noted for the manufacture of heavy vehicles and machine tools both for internal use and export. Freihafen is also notable as the site of the second extra-solar Beanstalk, which began construction in 2311, and was completed five years later. This has proved to be a major boon for the nation's industry, and for its economy in general. Freihafen is one of the richest, and likely the most powerful, extra-solar nation. Its economic clout is inline with many Earth-based nations, and the establishment of the country's first outpost (soon to be a colony) at Wolf 461 A has cemented their major power status.

During the Kafer War, Freihafen devoted a large percentage of its industrial production to the manufacture of the so-called intruder corvette. Used in large numbers, the corvette became a mainstay of the Human navies pushing into Kafer space, and remains the staple vessel of many smaller powers even today, seven years after the end of the war. Many of these ships were declared surplus after the war, stripped of all armaments, and made available for sale.

POTENTIAL EMPLOYMENT:

The Freihafen Ministry of Industry needs some investigators to check out the yards responsible for decommissioning the old intruder corvettes. Recently a privateer vessel was intercepted with weapons from a corvette. Investigation of serial numbers revealed that the ship was officially broken up and destroyed three years ago.

Tudukubwa

Colony Name: Tudukubwa

Colony Population: 69 million

Date Founded: 2167

Nationality: Azanian

Major Cities: Tudukubwa City (3.1 million), New Natal (800,000)

Currency: Azanian Rand

Government Type: Colonial Operations Board appointed by Azanian Parliament (6)

Tech Level: (10)

Trade Data: Ag, Ri, Ni

Interface Capability: None integral (E)

Notes: Tudukubwa has no surveillance satellites or navy base, nor any heavy industry

The Azanians made only a small effort on Tirane initially. Along with Nouvelle Provence, Freihafen, and Tunghu, Tudukubwa shares the largest of Tirane's seven continents. The colony itself is mostly concentrated in an original city complex built against a geologically recent crater (tudukubwa means great hole). Mines which used to be operated in the pit of the crater have long since gone out of business, but the colony's roots and center are still there. With the collapse of the mining, the economy has become more centered on agriculture, producing luxury crops or consumption across human space.

It's interesting to note that Tudukubwa lacks the extensive surveillance and monitoring networks of the other nations. This isn't, as often stated by other nations, due to a lack of technology or funding. It's a conscious choice on the part of the colony's government, and contributes to the relaxed atmosphere of the colony. Tourism has become a major industry, along with some other, less savory enterprises that seek to take advantage of the lack of the overwhelming surveillance. However, though the Tudukubwan government doesn't use the extensive monitoring networks of other nations, that doesn't mean that it is lax on crime, as their regular arrests of drug traffickers and other criminals demonstrates.

New Albion

Colony Name: New Albion

Colony Population: 6 million

Date Founded: 2167

Nationality: British

Major Cities: Exeter (750,000), Newcastle-upon-Windsor (180,000), Kirkwall (90,000)

Currency: British Pound

Government Type: Constitutional Monarchy, with an elected Parliament, and appointed Upper House, answerable to the King. (4)

Tech Level: (11)

Trade Data: Ag, Ri

Interface Capability: Spaceplane (C)

Notes: New Albion has no mining, heavy industry, military base or naval base

British settlement of this colony was intense in the early days of colonization but soon tapered off as other avenues opened up. Still, to many British, the colony at New Albion marked the rekindling of the long dead empire and the pride associated with it. Now the English have colony worlds along the entire French Arm, but New Albion is arguably the "national favorite." Originally an agricultural and light industrial colony, New Albion is now also a retreat for the nobility, and fiefs granted here are known for their lavish upkeep and luxurious appointments. For the first forty years, Wellon was governed by New Albion, until the population and concerns of the larger colony outstripped the ability of the New Albion legislature to deal with them.

Wellon's subsequent independence had little effect on New Albion, as the balance of their trade was off-world, and the two still maintain amicable relations.

TOURIST TRADE:

New Albion is the "in" destination for wealthy travelers from both Tirane and Earth. In addition to the beautiful beaches and palatial estates, this colony also boasts many high-class casinos, race tracks and other leisurely pursuits for the idle rich.

Wellon

Colony Name: Wellon

Colony Population: 212 million

Date Founded: 2169 (independent in 2277)

Nationality: Independent

Life Expectancy: 102 years

Literacy: 100%

College Education: 91%

Major City(s): Far London (4.3 million), Lancaster (2.5 million), Cambridge (1.9 million)

Currency: Wellon Pound

Government Type: Constitutional Monarchy. Two elected houses, in theory responsible to the King but in practice independent (4),

Tech Level: (12)

Trade Data: Ag, Ri, In

Interface Capability: Spaceplane, shuttle, catapult

(B)

Notes: Wellon boasts both a high-capacity civilian shipyard and a very modern military yard

Wellon was originally the industrial component of the two-pronged British settlement plan for Tirane, and was governed from New Albion until achieving home rule in 2241. Of the two portions of the British colony, Wellon attracted much more interest from colonists, as it had greater opportunities, and settlers from many English-speaking nations favored this colony as their first choice.

Wellon's economy grew rapidly, as did her population, surpassing that of Earth-bound Britain in 2245. With this economic power came a desire for greater autonomy, and finally a strong desire to chart her own course, alongside Britain and the other Commonwealth nations. Britain's attempts to satisfy this desire led to home rule for the Wellon colony in 2241. This sufficed for a generation, but by the 2270's, Wellon wanted more.

In 2277, after a national referendum, Wellon declared its independence from the mother country, but still enjoys a close relationship. The island of New Albion elected to remain a Crown possession. Wellon is another colonial powerhouse, and though the country has yet to establish its own colonies, it is actively surveying several promising worlds. There are talks of a joint British-Wellon colony in the Wolf cluster sometime in the next 10 years, with Wellon industry supporting British knowledge and experience.

New Albion is regarded largely as a curiosity by the inhabitants of Wellon, and is their favorite destination for holidays, along with New Canberra.

MILITARY BUILDUP:

The government of Wellon is arguably one of the wealthiest in Human space. They have chosen to use much of this wealth in building up their military, both space forces and ground forces. They currently have one of the largest navies, and perhaps the fourth largest army. The only question is: What are they going to do with them?

TIRANIA

Colony Name: Tirania

Colony Population: 31 million

Date Founded: 2167

Nationality: American

Major Cities: New Washington (2.2 million), Montgomery (1.6 million), Tirania City (990,000)

Currency: American Dollar

Government Type: Representative Democracy, with military oversight (4)

Tech Level: (11)

Trade Data: Ri

Interface Capability: Spaceplane, shuttle, catapult (B)

Notes: Tirania has a new military shipyard, along with an older, low-capacity civilian shipyard. To support its heavy industry, Tirania also has a fusion plant.

American settlement on Tirane was never extensive and was carried out largely by private corporations. As an interesting side note, no American colony has ever been named New America, as this phrase has a bad connotation to them (it refers to an extremist movement of the late 20th and early 21st centuries). Tirania had been on the brink of being labeled a “failed colony” as the local population had been in decline for over a decade. That is, until the advent of the Kafer War.

America’s colonies are all concentrated far up on the American Arm, and in the course of prosecuting the Kafer War, America required a second staging area. While Tirane isn’t on a direct route to the French Arm, it was ideally suited for a near-Sol naval base, and American investment flowed into the colony starting in 2308. Though the American efforts made heavy use of the industrial capacity of both Wellon and Freihafen, more was needed, and the yards of Tirania were designed and built to handle much of America’s military expansion.

The government of Tirania is elected, but the local commander of the Naval base has the power to overrule any civilian decision if he or she feels it will compromise base security or the base’s mission. Any base commander who does so will face a board of inquiry, but on the 12 occasions that this has happened over the past ten years, the board has sided with the base commander in all but 1.

NEW CANBERRA

Colony Name: New Canberra

Colony Population: 61 million

Date Founded: 2167

Nationality: Australian

Major Cities: Port Ayers (12 million), Caroline (5.5 million),

Currency: Australian Dollar

Government Type: Representative Democracy (4)

Tech Level: (12)

Trade Data: Ag, Ri

Interface Capability: Spaceplane, shuttle (B)

Notes: New Canberra has no heavy industry.

The Australians received colonial guarantees on Tirane as a result of the Melbourne Accords and claimed them immediately. The Australian colony’s main claim to fame was that it was the site of the so-called “First-and-a-Half Interstellar War” between Australian and Japanese survey teams over a major tantalum strike.

With a population just more than double that of the home country, elements of New Canberra society have recently begun agitating for some variety of home rule. It is expected that they will receive it with 10 years, and likely be independent in 20.

NEW CANBERRA POPULATION:

Fans of the old 2300 AD will notice a discrepancy between the population figure here and that published in the original *Colonial Atlas*.

AMATERASU

Colony Name: Amaterasu

Colony Population: 121 million

Date Founded: 2167

Nationality: Japanese

Life Expectancy: 106 years

Literacy: 100%

College Education: 91%

Major City(s): New Tokyo (6.5 million), Miyazaki (4.5 million), Sapporo (2.6 million)

Currency: Japanese Yen

Government Type: Representative Democracy, with military and corporate representation (4)

Tech Level: (12)

Trade Data: Ag, Ri

Interface Capability: Spaceplane, shuttle, catapult (B)

For reasons which were never completely clear, Japanese survey teams began staking out claims which overlapped those of Australia. The situation was complicated by the fact that tantalum was discovered in the disputed area (called “Duffer’s Strip” by the Australians), and several small scale skirmishes resulted between Australian and Japanese survey teams before a mutually satisfactory settlement could be negotiated. The strip went to the Australians, but the tantalum would be mined by a joint Australian/Japanese corporation.

Since that inauspicious start, the Amaterasu colony has become the main source of tantalum for the Japanese shipbuilding industry, though the limited amount allowed under the treaty has Japan constantly on the lookout for additional sources.

Amaterasu is still a favored destination for Japanese colonists, close to Earth in distance and culture, but still less restrictive than the home islands.

Amaterasu has recently started importing deep-sea construction technology from Earth, and have started to build an undersea city 350 kilometers off their coast, near a series of dormant undersea volcanoes that have good prospects for tantalum reserves.

Religion:

Religion is still very important in 2320AD. The major religions of the 20th century still survive, along with some new ones. However, religion is a private affair, especially in the Core. Here is a brief (and incomplete) list of the religions active in 2320:

Roman Catholic, Greek and Russian Orthodox, Anglican, Lutheran, Presbyterian, Baptist, Pentecostal, Unitarian, Latter-Day Saints, Society of Friends, Islam, Judaism, Shinto, Buddhism, Community of Sentients, Wicca, Hindu, and Native Spiritualism.

PROVINCIA DO BRASIL

Colony Name: Provincia do Brasil

Colony Population: 102 million

Date Founded: 2167

Nationality: Brazilian

Major City(s): Belo Horizonte (3.2 million), Salvador (2.2 million), Valadares (1.3 million)

Currency: Real

Government Type: Colonial Council answerable to Brazilian National Congress (5)

Tech Level: (10)

Trade Data: Ag, Ri

Interface Capability: Spaceplane (C)

Brazil became a spacefaring power on the basis of its native tantalum deposits and purchased American and French technology in order to construct ships. Their colony on Tirane is still their proudest interstellar achievement, and is the equal of the mother nation in most, if not all, ways.

Provincia do Brasil is a well-developed nation, and is starting to feel the urge of self-direction. The home nation recognizes this, and steps are under way to grant the colony an increased measure of autonomy, though short of outright independence. Provincia do Brasil is widely known for the production of specialized luxury foods, along with its famed airship industry, probably the most advanced of its type in Human space.

Tunghu

Colony Name: Tunghu

Colony Population: 3.1 million

Date Founded: 2167

Nationality: Manchurian

Major City(s): Harbin (2.2 million)

Currency: Manchurian Ruble

Government Type: Council appointed by Manchurian Empress (6)

Tech Level: (12)

Trade Data: Ri

Interface Capability: Spaceplane (C)

Notes: Tunghu has no mining or farming, no military or naval base, and no orbital defense installation

Manchuria was never overly interested in settlement on Tirane, having decided to exploit other possibilities in interstellar colonization. Nevertheless, Manchuria purchased a small area in one of the Bavarian claims (approximately 300 square kilometers), in order to maintain trade contacts. The small trade center is now a bustling metropolis and duty-free market for goods from all over human space. Its position literally in the shadow of the Freihafen beanstalk gives it unequalled access.

Harbin is the central city of the territory, holding most of the population. The outlying towns are the controlled suburbs for the elite of the city. The Tunghu colony exerts a greater degree of control over its citizens than the other colonies on this world (Law Level 9), resulting in more severe restrictions on personal freedoms. Given their lifestyle, however, the citizens on Tunghu seem little inclined to protest the restrictions.

SANTA MARIA

Colony Name: Santa Maria

Colony Population: 9.1 million

Date Founded: 2167

Nationality: Argentinean

Major City(s): Córdoba (790,000), Comodoro Kimball (430,000)

Currency: Argentine Peso

Government Type: Representative Democracy (4)

Tech Level: (11)

Trade Data: Ri

Interface Capability: Space Plane (C)

Notes: Santa Maria has no heavy industry, and uses a fusion plant rather than relying on the ESA solar power satellite network.

Despite all the rhetoric surrounding the Alpha Centauri War, Argentina was never able to mount a successful colony on Tirane. Only sheer stubbornness has kept the colony alive. Argentina had originally chosen its location on the basis of stolen ESA survey data that indicated the site would have large mineral reserves, in particular tantalum. It wasn't until years later that INAP agents discovered that the report had been altered, and leaked to the Argentineans in an attempt to marginalize them.

Lately the Argentine colony has been using technology developed for deep-sea mining on Earth to explore and exploit resources along the mid-ocean rift system that the island colony straddles. These efforts have begun to yield results, but the Argentine claim is in contention, as the region they are mining is in international waters, and their claim is being disputed, largely by Wellon and Nouvelle Provence. During

the Kafer War, Argentina's small contingent of warships were based out of Santa Maria's orbital terminal, and injected fresh capital in the colony at a much needed time.

NATIONAL ENCLAVES

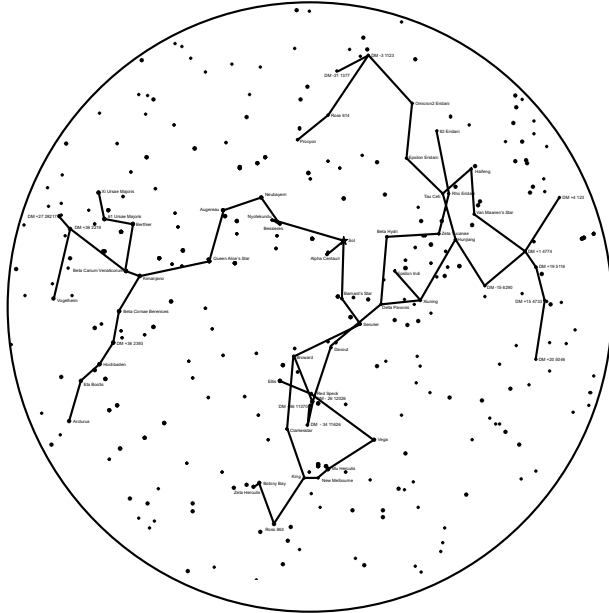
Aside from the large national colonies outlined above, Tirane is also home to many smaller operations from many different nations. These small enclaves rarely get above 100,000 people, and are usually located in or near the territory of an allied nation. So Canada's is near Wellon, Greece's is near Provincia do Brasil, and so on.

The following nations maintain enclaves on Tirane:

Austrovenia, Canada, Canton, Greece, Incan Republic, Indonesia, Italy, Mexico, Nigeria, Scandinavian Union, Spain, Texas, UAR, and Ukraine.



FRONTIER WORLDS



Life on the frontier is very different from life on Earth and Tirane. The pace is more relaxed, in particular for the agricultural worlds, though less so for the mining colonies. On the frontier, there is not the constant sense of being watched, no surveillance cameras drifting through the sky. People can say what they want, and live how they want. Most frontier worlds tend to be more socially conservative than their coun-

NOTES ON THE UWP:

The UWP, Universal World Profile is a component of all versions of *Traveller* and related games. It is a shorthand description of a planet, for both physical and social aspects.

In *2320AD*, the meaning of the first digit has been changed to reflect the nature of the setting. In most versions of *Traveller* this is the starport type for a world. Given the costs and difficulty of interface travel in *T20*, this digit instead describes the type of interface transport publicly available. Each type assumes that all other lower grades of interface travel are available

- A Beanstalk
- B Catapult
- C Spaceplane and/or shuttle
- D Roton
- E Cargo rocket
- X No publicly available interface transportation

COLONIES AND TIERS:

For currency values, colonies are considered to be on the same Tier as their mother countries. In all other respects, however, they are more like Tier 4 nations. The independent colonies and the Foundation and corporate-controlled colonies vary.

Stellar Nation	Tier
Wellon	2
Freihafen	2
Nibelungen	3
Heidelsheimat	3
Elysia	4
Adlerhorst	3
Kie-Yuma	2
Cousteau	3
TanstaafI	4

terparts in the Core. Urban areas on frontier worlds do have a lot in common with the Core cities, but everything seems muted. The signs aren't as garish, the advertising not so loud. Few use implanted RFID chips, so the personalized ads of the Core are not found on the frontier.

COLONIES

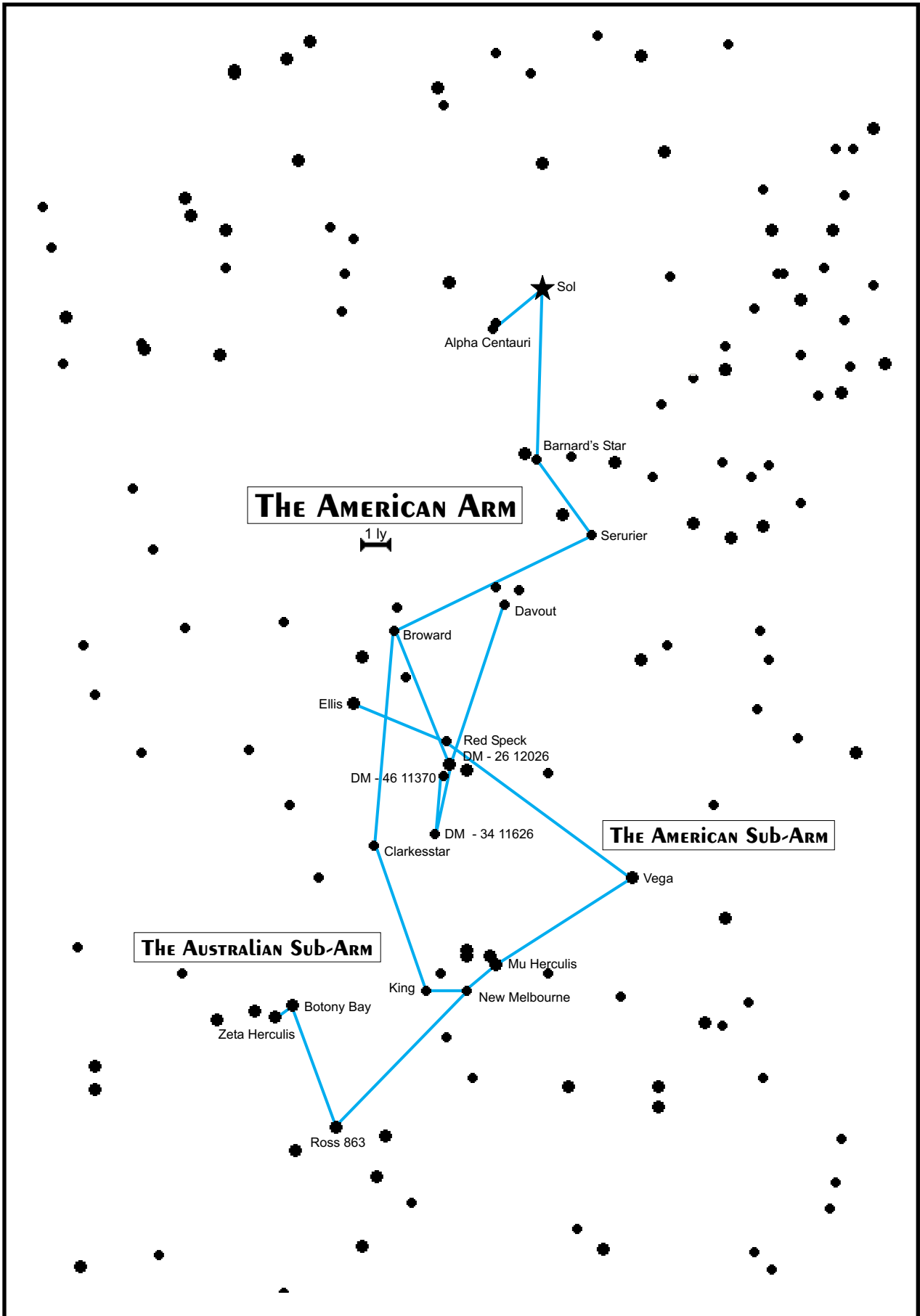
The following table identifies three different types of settlements. An outpost can be several things. Most outposts are way stations on the routes between stars, existing as refueling and repair stations. Some outposts are mining or science settlements in otherwise inhospitable systems. The last category for outposts is a colony precursor, a small settlement designed to test and prepare for a full-fledged colonization effort. Colonies are large settlements on clement worlds, typically subordinate to a controlling nation, Foundation or corporation. Enclaves in this context are small settlements or embassies on an alien-controlled world.

Between 2167 and 2320, a total of sixty-three human colonies were established on thirty-three habitable worlds. In addition to these colonies, there are a large number of outposts and scientific, military and corporate bases scattered across dozens of worlds, only some of which are named in the above table. These colonies and outposts were founded by a wide variety of groups, for a wide variety of purposes.

Of the sixty national colonies, seven have since gained

SETTLEMENT LIST:

Nationality	System Name	Type	Colony Name	Gravity	UWP
America	Alpha Centauri	Colony	Tirania	1.01	A867977-C
America	Barnard's Star	Outpost	Levis and Clark Station	0.71	D7B0377-7
America	Broward	Outpost	Armstrong Station	0.26	B221286-8
America	King	Colony	New Columbia	3.08	BD97675-B
America	New Melbourne	Outpost	FAR Station 7	0.39	C331276-9
America	Mu Herculis	Colony	Hermes	0.73	B668644-A
America	Vega	Outpost	FAR Station 17	0	D500289-B
America	Red Speck	Outpost	FAR Station 11	0.23	B210388-6
America	DM-34 11626	Colony	Avalon	0.72	D664475-2
America	Ellis	Colony	Ellis	0.92	B861666-9
America	AC+2 2155-242	Outpost	FAR Station 19	0	D500289-7
America	AC+20 1463-148	Outpost	Acey-Acey Station	0	D500289-7
America	DM+5 3409 A	Outpost	Erie	0.78	D667313-4
Arabia	Beta Hydri	Colony	Far Riyadh	0.66	BA54777-B
Argentina	Alpha Centauri	Colony	Santa Maria	1.01	A867977-C
Argentina	DM-26 12026	Outpost	Estación Escobar	0.97	C602378-8
Argentina	Omicron2 Eridani	Colony	Montana	0.98	C769543-9
Australia	King	Colony	Huntsland	3.08	BD97675-B
Australia	Alpha Centauri	Colony	New Canberra	1.01	A867977-C
Australia	New Melbourne	Outpost	Bandicoot Station	0.39	C331276-9
Australia	Ross 863	Outpost	Fisher Station	0	C000386-6
Australia	Botany Bay	Colony	Botany Bay	0.91	C769664-9
Australia	Zeta Herculis	Colony	Kingsland	0.99	D766645-7
Azania	Alpha Centauri	Colony	Tundukubwa	1.01	A867977-C
Azania	Nyotekundu	Outpost	Naragama	1.02	B7A0479-7
Azania	Kimanjano	Colony	Okavango	0.94	E799678-7
Azania	61 Ursae Majoris	Colony	Lubumbashi	1.05	BA66675-A
Ex-Bavaria	Rho Eridani	Nation	Heidelsheimat	0.44	B867778-C
Brazil	Alpha Centauri	Colony	Provincia de Brasil	1.01	A867977-C
Brazil	DM-21 1377	Outpost	Eshari Station	0.69	C6A5368-9
Brazil	Ross 614	Outpost	Amazon Station	0.48	C500469-A
Brazil	Procyon	Colony	Paulo	0.99	C967645-8
Britain	Alpha Centauri	Colony	New Albion	1.01	A867977-C
Britain	Queen Alice's Star	Colony	Alicia	1.05	B867775-B
Britain	Clarkestar	Outpost	DeVilbis Station	0	D000367-8
Britain	Beta Canum	Colony	New Africa	0.94	A766775-B
Britain	Henry's Star	Colony	Crater	0.61	B7516AA-7
Britain	61 Ursae Majoris	Colony	New Cornwall	1.05	BA66675-A
Britain	Gamma Virginis	Outpost	Warkington's Drift	0.68	E656265-5
Canada	DM+19 5116	Outpost	Come-by-Chance Station	0.38	D320366-6
Canada	DM+3 123	Enclave	Stark	0.83	B767977-C
Canada	DM+15 4733	Outpost	Moosejaw Station	0.13	D200366-6
Canada	DM+20 5046	Colony	Kanata	0.87	C768564-9
Canada	AC+17 534-105	Colony	Eriksson	0.93	D664464-4
Canton	Zeta Tucanae	Colony	Lhngtou	1.02	B867665-A
France	Kimanjano	Colony	Fromme	0.94	D778676-8
France	Beta Comae	Devastated	Nous Voila	1.05	X965500-0
Ex-France	Vogelheim	Nation	Adlerhorst	1.16	C986625-9
France	Eta Bootes	Colony	Aurore	0.73	C666674-B
France	DM+27 28217	Outpost	Bon Chance	0	C000378-A
France	Bessieres	Outpost	Bessieres Station	0.58	C431369-A
France	Augereau	Outpost	Augereau Station	0.47	C4A0369-9
France	Serurier	Outpost	Serurier Station	0.21	B201469-B
France	Alpha Centauri	Colony	Nouvelle Provence	1.01	A867977-C
France	DM-26 12026	Outpost	Point de Voie	0.97	C602378-8
France	Davout	Outpost	Ville de Glace	0.76	B635478-8
France	Nyotekundu	Outpost	Inferno	1.02	B7A0479-7
France	D'Artagnon	Outpost	D'Artagnon Station	0.65	C772468-5
France	Queen Alice's Star	Colony	Europe Neuve	1.05	B867775-B
France	Beta Canum	Colony	French Continent	0.94	A766775-B
France	DM+36 2219	Colony	Sans Souci	0.99	C766565-4
Freihafen	Alpha Centauri	Nation	Freihafen	1.01	A867977-C
Freihafen	DM+10 2531	Colony	Friesland	0.67	C550464-3
Germany	DM+36 2393	Colony	Dunkelheim	0.6	B464544-A
Germany	Hochbaden	Devastated	Hochbaden	0.29	X400000-0
Ex-German	Neubayern	Nation	Nibelungen	0.63	B463844-B
Germany	Beta Canum	Colony	German Continent	0.94	A766775-B
Ex-German	Vogelheim	Nation	Adlerhorst	1.16	C986625-9
Germany	61 Ursae Majoris	Colony	Halbinsel	1.05	BA66675-A
Germany	Augereau	Outpost	Hunsrück Station	0.47	C4A0369-9
Heidelsheimat	DM-56 328	Outpost	Geroellblock	0.25	C200468-8
Inca	Rho Eridani	Colony	Machu Picchu	0.44	B867778-C
Inca	DM-3 1123	Colony	Secura	1.25	BA89674-9
Independent	Eta Bootes	Colony	Tanstaaf	0.73	C666674-B
ex-British	Alpha Centauri	Nation	Wellon	1.01	A867977-C
ex-German	Alpha Centauri	Nation	Freihafen	1.01	A867977-C
ex-French	61 Ursae Majoris	Nation	Elysia	1.05	BA66675-A
Japan	Alpha Centauri	Colony	Amaterasu	1.01	A867977-C
Japan	Davout	Outpost	Shungen	0.76	B635478-8
Japan	Beta Hydri	Colony	Daikokou	0.66	BA54777-B
Japan	61 Ursae Majoris	Colony	Tosashimizu	1.05	BA66675-A
Life Foundation	DM-3 1123	Colony	Cousteau	1.25	BA89674-9
Life Foundation	DM+17 2611	Enclave	Klaxun homeworld	0.87	X767800-1
Manchuria	Alpha Centauri	Colony	Tunghu	1.01	A867977-C
Manchuria	Barnard's Star	Outpost	Fuyuan Station	0.71	D7B0377-7
Manchuria	DM-26 12026	Outpost	Zhong Ba Station	0.97	C602378-8
Manchuria	Delta Pavonis	Colony	Cold Mountain	0.83	C674766-8
Manchuria	Xiuning	Outpost	Xiuning	0.7	D630368-5
Manchuria	Epsilon Indi	Colony	Chengdu	1.12	B797745-B
Manchuria	Hunjiang	Outpost	Hunjiang	0.33	D311368-6
Manchuria	Zeta Tucanae	Colony	Chyuantii	1.02	B867665-A
Manchuria	Serurier	Outpost	Serurier	0.21	B201469-B
Manchuria	Tau Ceti	Colony	Kwantung	0.93	B667775-B
Manchuria	Epsilon Eridani	Colony	Dukou	1.57	BA8051A-8
Manchuria	DM-15 6290	Outpost	Yinchuan Station	0.86	D778457-8
Manchuria	Haifeng	Colony	Heaven's Water	0.81	C76A565-6
Manchuria	DM+1 4774	Outpost	Bayan Obo	0.37	C342368-5
Manchuria	DM+4 123	Enclave	Stark	0.83	B767977-C
Mexico	Omicron2 Eridani	Colony	Montana	0.98	C769643-9
Mexico	Tau Ceti	Colony	Kwantung	0.93	B667775-B
Multi-National	Gamma Serpentis	Enclave	Bugville	1.2	XA9386A-2
Pentapod	Beta Canum	Enclave	Beta Canum	0.94	A766775-B
Pentapod	Sol	Enclave	Mars	0.32	D310577-9
Pentapod	Gamma Serpentis	Enclave	Gamma Serpentis III	1.2	XA9386A-2
Pioneer Society	AC+8 142 393	Outpost	Pioneer Station	0.78	C655314-4
Scandinavian Union	AC+17 534-105	Colony	Eriksson	0.93	D664464-4
Sung	DM+20 5046	Enclave	Kanata	0.87	C768564-9
Sung	AC+17 534-105	Colony	Eriksson	0.93	D664464-4
Texas	DM-31123	Colony	Austin's World	1.25	BA89674-9
Texas	Rho Eridani	Colony	Alamo	0.44	B867778-C
Texas	82 Eridani	Enclave	Kormoran	1.46	XA87874-3
Trilon Corp	Xi Ursae Majoris	Colony	Kie Yuma	1.21	BC97618-C
Trilon Corp	DM+5 3993	Outpost	Trilon 14	0.00	B000619-B
UAR	82 Eridani	Enclave	Nasser	1.46	XA87874-3
Ukraine	Eta Bootes	Colony	Novoya Kiyev	0.73	C666674-B
Transhuman League	Van Maanen's Star	Outpost	Drexlar	0.08	D000303-9



their independence: Freihafen, Wellon, Elysia, Nibelungen, Heidelshiemat, and the German and French colonies at Vogelheim. Two more were utterly devastated by the Kafer War, with Hochbaden destroyed in the early phase of the war, and Nous Voilà destroyed by the retreating Kafer fleets towards the end of the final phase of the war.

In addition to the national colonies, three more were established by independent organizations: Tanstaaf on Aurore, Trilon's headquarters on Kie-Yuma, and the Life Foundation colony of Cousteau on Austin's world.

The national colonies enjoy a wide variety of relationships with their home governments. Some remain virtual protectorates, their external affairs managed by the mother country, while others enjoy home rule, and send representatives to the national legislatures. In addition to the colonies, there are numerous manned outposts on uninhabitable worlds or in deep space orbit around star systems. These serve as scientific research centers and refueling way stations on important star routes.

Along with these colonies and outposts, there are also eleven major human enclaves on worlds inhabited by indigenous intelligent races, one at Lightfall (DM+17 2611-1) the Klaxun homeworld, two each on Stark (DM+4 123-3), the Sung homeworld and Kormoran (82 Eridani-4), the Eber homeworld, and another six on the Kafer homeworld of Gamma Serpentis III, supervising the occupation.

It is easiest to examine the colonies in terms of explored "arms," the naturally occurring corridors of colonization that result from stellar geography. There are three arms, and they are almost universally referred to as the American, Chinese, and French Arms, after the major powers which have dominated their exploration and colonization. Along with these major Arms of exploration and settlement, there are a four other regions of special note, the so-called Alien Space regions: the Bayern Corridor, the Kafer Sphere, the Pentapod Finger and the Beta Aquilae Cluster.

THE AMERICAN ARM

The American Arm is the smallest of the three colonial regions. Although the first American outpost was established in 2160 at Barnard's Star, the opening of the American Arm proper dates from the establishment of the outpost at Broward in 2172. This way station became the crossroads for the American and Chinese Arms, with one branch leading through Clarkesstar (outpost established 2187) to the rich colony systems of King, and then branching at New Melbourne into the Australian Sub-arm (to the colonies on Botany Bay and Zeta Herculis) and the American Sub-arm (to the colonies on Mu Herculis and Ellis). The second principal branch from Broward leads to DM-26 12026, the gateway to the Chinese Arm.

Until the opening of the Beta Aquilae Cluster, no indigenous intelligent life had been discovered along the American Arm. Even in the Cluster, the only evidence of intelligent life is the discovery of ruins on the first three explored worlds. In addition to the worlds of the Cluster, probes from DM-26 12026 to DM-46 1 1370 indicated another world suitable for colonization, and America's newest colony was established at DM-34 11626 in 2303, and dubbed Avalon by the colonists. Development of this colony was delayed by the Kafer War.

Until recently, the American Arm was seen as closed, with no further systems in range of a stutterwarp vessel. The opening of the Beta Aquilae cluster changed all that, as the cluster leads off into uncharted space. Two methods were used to surpass the conventional 7.7 light-year range to reach the cluster. The first was by finding and exploiting the brown dwarf ISO 417, a small sub-star that is about 14 times the mass of Jupiter. The presence of the brown dwarf gives interstellar vessels a safe haven to discharge their stutterwarp coil. Another method is the tug ship, which uses new technology to extend the range of a ship, out to 11.55 light-years under ideal conditions. Both of these technologies are used to gain access to the Beta Aquilae cluster. The AECA controls access via the Acey-Acey bridge and the ISO 417 brown dwarf, while the Pioneer Society and the Trilon Corporation use the stutterwarp tug. In order to reach the distant worlds of Ylii space, both methods have to be used, through the Backdoor Brown Dwarf and then a tug further on to bridge another long gap. Further information on the Beta Aquilae Cluster can be found in the section Alien Space, at the end of this chapter.

Colonies on the American Arm tend to receive more support than settlements on the Chinese Arm, but not as much as those found on the French Arm. The oldest colonies here are over 100 years old, long enough to have developed a unique culture, though derivative of the culture of the mother country. Colonists on this Arm tend to be socially conservative, placing value in self-reliance and a shared distrust of government, though they are loyal to their respective nations. Many of these settlers left Earth because of the encroachment of the surveillance society on their private lives, and a felt need to regain some control over their lives.

American colonies in particular enjoy a great deal of central support, at least in the construction and maintenance of their infrastructure. Individuals receive decidedly less, and have to work harder to survive and flourish. These colonies, more than those of other countries, were not just established for prestige, or to garner resources for the mother country, but also to provide a structured outlet for those who can't deal with the claustrophobic nature of life on Earth.

DESCRIPTION OF TERMS

STELLAR DATA

Primary Name: Name of the primary star in the system. There can also be companion stars.

Spectral Class: Spectral class and size.

Magnitude: Magnitude is a measure of the absolute brightness of a star, independent of distance.

X, Y, Z Coordinates: Location of the star on the map, with the Earth system at 0,0,0.

Number of Planets: Number of planets, their names and order out from the central star.

Number of Asteroid Belts: Number of asteroid belts. Usually not named.

PLANET DATA

Name: Name of the planet.

Distance from Primary: Average distance from its primary.

Year Length: Time to complete one revolution around the central star.

Size: kilometers in diameter.

Day Length: Time it takes for the planet to spin completely around its axis.

World Type: Garden, Ocean, Post-Garden, Glacier, Pre-Garden, Desert.

Surface Gravity: Surface Gravity in gravities. Earth = 1.

Atmospheric Pressure: Air Pressure in atmospheres. Earth = 1.

Climate: Range for average daytime temperature, from p376, T20 Handbook.

Water Presence: Percentage of the surface covered by liquid water. Notes made for ice-caps.

Atmospheric Composition: (%) (%) (%) Primary gases of the atmosphere and their percentages.

Biodiversity: Range of life-forms on the world (page 377 T20 Handbook).

Natural Resources: Value of resources available.

Satellites: Number of moons, names and order out from the main world.

COLONY DATA

Colony Name: Name of the individual colony or nation.

Colony Population: Total population, including children.

Date Founded: Date when first colonists arrived, not survey teams.

Nationality: Nation that founded the colony, and whose citizens typically form the majority of the population.

Life Expectancy: years life expectancy for someone born on the world.

Literacy: Average literacy rate of adult (18+) population.

College Education: Average rate of college education for adult (18+) population.

Major Cities: Names of cities or towns with highest populations.

Currency: Type of money.

Government Type: () General type of government plus the corresponding UWP Government Code.

Law Level: () General level of law enforcement, weapons controls, plus the corresponding UWP Law Level Code.

Tech Level: General Tech level corresponding to T20 levels.

Trade Data: Trade data, for use with the commerce system and character generation.

Principal Trading Partners: Three countries or colonies that are the main trading partners.

Interface Capability: Spaceplane, shuttle, catapult, roton, Beanstalk () Lists the types if interface transport available, and the corresponding UWP starport digit.

Resources: Farming, Mining, Heavy Industry, Orbital Industry These are man-made improvements to the colony, aimed at extracting resources or producing industrial materials.

Military Presence: Orbital Defense Installation, Military Base, Naval Base Orbital Defense Installations are orbital forts, heavily-armed, but immobile. Military base is an installation for ground-based forces, while Naval Base is for space naval forces, and is usually in orbit.

Services: Fusion Plant Indicates the presence of a large fusion power plant .

Solar Power Satellite, Indicates that the colony owns a solar power satellite.

Rectenna: A receiver station for power from a solar power satellite. Colonies do not have to have a solar power satellite to have a rectenna.

University: This is an institute of higher learning. If a colony lacks one, young people have to go off-world to study advanced subjects.

Powernet (%) Percentage of the claimed area of the colony that has access to the local power distribution network.

Road Net (%) Percentage of the claimed area of the colony that has access to the local road network.

Rail Net (%) Percentage of the claimed area of the colony that has access to the local rail network.

Link Network (%) Percentage of the claimed area of the colony that has access to a local data network

Airship Net Indicates whether a colony has an airship transport network in place. Airship networks are flexible, so a

percentage isn't needed.

Weather Satellites: Indicates whether the colony has access to weather satellites.

Communications Satellites: Indicates whether the colony has access to communications satellites. This is separate from the local link network.

Surveillance Satellites: Indicates whether the colony has access to surveillance satellites. These types of satellites are rare outside of the Core.

Orbital Terminal: Almost all colonies have an orbital terminal, where passengers and cargo can transship from starships to interface vessels.

Civilian Shipyard: Indicates whether the colony is capable of building civilian (TL10-11) starships and system ships.

Military Shipyard: Indicates whether the colony is capable of building military (TL10-12) starships.

Worlds of the American Arm

KING/DM+2 3312

The horrible conditions on King have gained it the reputation of being as close to hell as man will ever get. However, it has things to offer – enough so that the Americans and Australians have taken a tremendous interest in the planet's development.

SYSTEM DATA

STELLAR DATA

Primary Name: DM+2 3312

Spectral Class: K7 V

Magnitude: 8.15

X, Y, Z Coordinates: -4.0, -24.2, 0.9

Planets: 5 (King, Dawes, Burling, Kissing, and Carter)

PLANETARY DATA

PLANET DATA

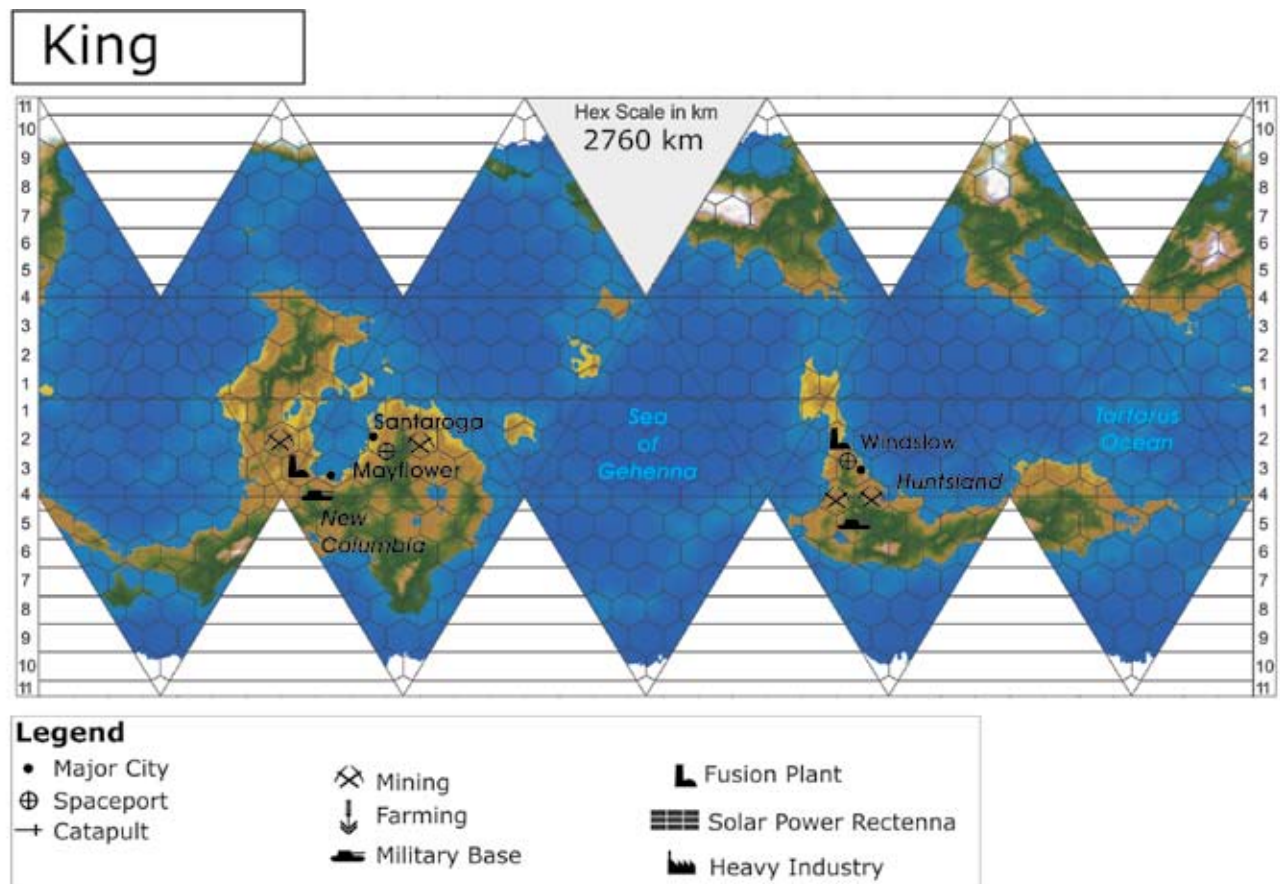
Name: King

Distance from Primary: 0.2 AU

Year Length: 23.78 standard days (29.04 local days)

Size: 30,750 km in diameter

Day Length: 19.65 hours



World Type: Garden**Surface Gravity:** 3.08 G**Atmospheric Pressure:** 2.7 atm**Climate:** Hot**Water Presence:** 67%**Atmospheric Composition:** N₂ (75%), O₂ (19%), Trace (6%)**Biodiversity:** Diverse; toxic**Natural Resources:** 12**Satellites:** 1 (Abernathy, 4500 km, 2 naval bases)

The planet King is one of the most inhospitable worlds ever settled by mankind. Currently home to the American colony of New Columbia and the Australian settlement of Huntsland, this world has a crushing gravity, violent seasonal changes, and harsh surface temperatures. Neither nation would have built any kind of extensive base on King if it were not for the tremendous natural resources found here. Currently, King is the source for nearly all of the tantalum used by both nations in their space agencies.

COLONIAL DATA

Normal human beings cannot survive in King's crushing gravity and poisonous atmosphere. The first colonists underwent a DNA Modification process, the results of which they passed down to their children. The final effect is thought to be somewhat monstrous, but it is effective. It is worth noting that the perception of the King modification as leading to "supermen" is what precipitated the Gene Protests of the early 2200s, which led, in turn, to a moratorium on non-therapeutic DNA modification research in Humans.

Orbital Maternity Complex:

Bitter experience taught the colonists the dangers of attempting to bring a child to term in King's immense gravity. Even though the children inherit their parent's DNA modification, most are just not strong enough to survive the first year. Many were stillborn as well, with infant mortality rates approaching 80% in the first generation. In response, the colonial governments established the Orbital Maternity Complex, or OMC, a space station which provides an Earth-normal gravity for mother and children from the first trimester through to the end of the child's first year of life. The cost of the OMC is partially offset by the government, and in part by the colonists through loans and contracts.

SOCIETY

Both colonies on King have developed a reputation for conservative attitudes, in particular an almost fanatic adherence to the laws and rules of their nations. This is a legacy from government attempts to foist convict labor off on to their world.

Colony Name: New Columbia**Colony Population:** 2.9 million**Date Founded:** 2194**Nationality:** American**Life Expectancy:** 52 years**Literacy:** 85%**College Education:** 68%**Major Cities:** Mayflower (1.1 million), Saratoga (650,000), OMC (2,200)**Currency:** American Dollar**Government Type:** Elected congress with externally-appointed governor (4)**Law Level:** Moderate. Personal concealable firearms prohibited (5)**Tech Level:** (11)**Trade Data:** NI**Principal Trading Partners:** America, Ellis, Mu Herculis**Interface Capability:** Spaceplane, shuttle, catapult**Resources:** Farming, Mining**Military Presence:** Orbital Defense Installation, Military Base, Naval Base**Other Bases:** Foundation (Alberta Farmer's Cooperative)**Services:** Fusion Plant, Powernet (83%), Road Net (74%), Rail Net (98%), Link Network (43%), Weather Satellites, Communications Satellites, Orbital Terminal

The American colony of New Columbia is halfway between the north pole and the equator. The site was selected because it is one of two regions where the surface temperature stays within human tolerances. Huntsland, the Australian colony with its capital of Windslow, is located in a similar position in the southern hemisphere.

Colony Name: Huntsland**Colony Population:** 1.2 million**Date Founded:** 2197**Nationality:** Australian**Life Expectancy:** 51 years**Literacy:** 85%**College Education:** 71%**Major Cities:** Windslow (850,000)**Currency:** Australian Dollar**Government Type:** Appointed Governor (6)**Law Level:** Moderate. Personal concealable firearms prohibited (5)**Tech Level:** (11)**Trade Data:** NI**Principal Trading Partners:** Australia, Botany Bay, Kingsland**Interface Capability:** Spaceplane, shuttle, catapult (B)

Resources: Farming, Mining

Military Presence: Orbital Defense Installation, Military Base, Naval Base

Other Bases: None

Services: Fusion Plant, Powernet, Road Net (87%), Rail Net (65%), Link Network (53%), Orbital Terminal

Huntsland has been undergoing a population decline for the past forty years. It has become almost impossible to attract new colonists, and the ones there are leaving in record numbers. Later generations are simply finding living conditions to be too onerous. In 2319, nearly 100,000 people tried to leave the colony, but there was only space available for 20,000.

The recent population crisis precipitated a collapse of the planet's state government, with the Lieutenant-Governor being forced to take direct control of the colony's government until new elections can be held.

DNAM Rebellion:

In recent years there has been a growing protest movement related to the genetic manipulation of the colonists. As the fifth generation of children reared on this world are now coming to maturity, many are questioning the suitability of King as a colony. Some in the protest movement view it as a human rights issue, with the limited longevity of King residents often cited, while others point to the low standard of living and low literacy and college education rates. On Ellis, people can live to be well over 100, while on King, a 60-year old man is considered extremely old. Even with the extensive DNA modifications, the planet is extremely harsh. And now, many members of these diverse groups are demanding to be resettled off world, and the DNA modification reversed so they can live normal lives.

HERMES/MU HERCULIS

Though overshadowed by the success of the Ellis colony, the American colony on Hermes has had an interesting history. Its shaky start and imperfect conditions have restricted the world to second-rate importance along the American Arm.

SYSTEM DATA

STELLAR DATA

Primary Name: Mu Herculis A

Spectral Class: G0 IV

Magnitude: 3.89

X, Y, Z Coordinates: -1.6, -23.3, 12.2

Number of Planets: 6 (Gemini, Apollo, Hermes, Tangent, Phoenix, and Odysseus)

Number of Asteroid Belts: 1

PLANETARY DATA

PLANET DATA

Name: Hermes

Distance from Primary: 2.2 au

Year Length: 2958.53 standard days (8.1 years)

Size: 9600 km in diameter

Day Length: 9 hours 4 minutes

World Type: Garden

Surface Gravity: 0.73 G

Atmospheric Pressure: 1.5 atm

Climate: Temperate

Water Presence: 81%

Atmospheric Composition: N₂ (73%), O₂ (25%), inert gasses (2%)

Biodiversity: Diverse; unusable (levo-amino acids)

Natural Resources: 6

Satellites: 0

White Wing:

One of the more dangerous flying carnivores on Hermes, the White Wing can mass as much as 250 kilograms and vaguely resemble furry white pterodactyls. Hunting white wings is a popular tourist attraction.

COLONIAL DATA

Colony Name: Hermes

Colony Population: 2.07 million

Date Founded: 2215

Nationality: American

Life Expectancy: 97 years

Literacy: 99%

College Education: 82%

Major Cities: Hope (345,000), Burgess (261,000), and Grey Hill (188,000)

Currency: American Dollar

Government Type: Democratic Republic (4)

Law Level: Moderate. Light assault prohibited (4)

Tech Level: (10)

Trade Data: Ri, Hi, In

Principal Trading Partners: Ellis, Kingsland, Botany Bay

Interface Capability: Spaceplane, catapult, roton (B)

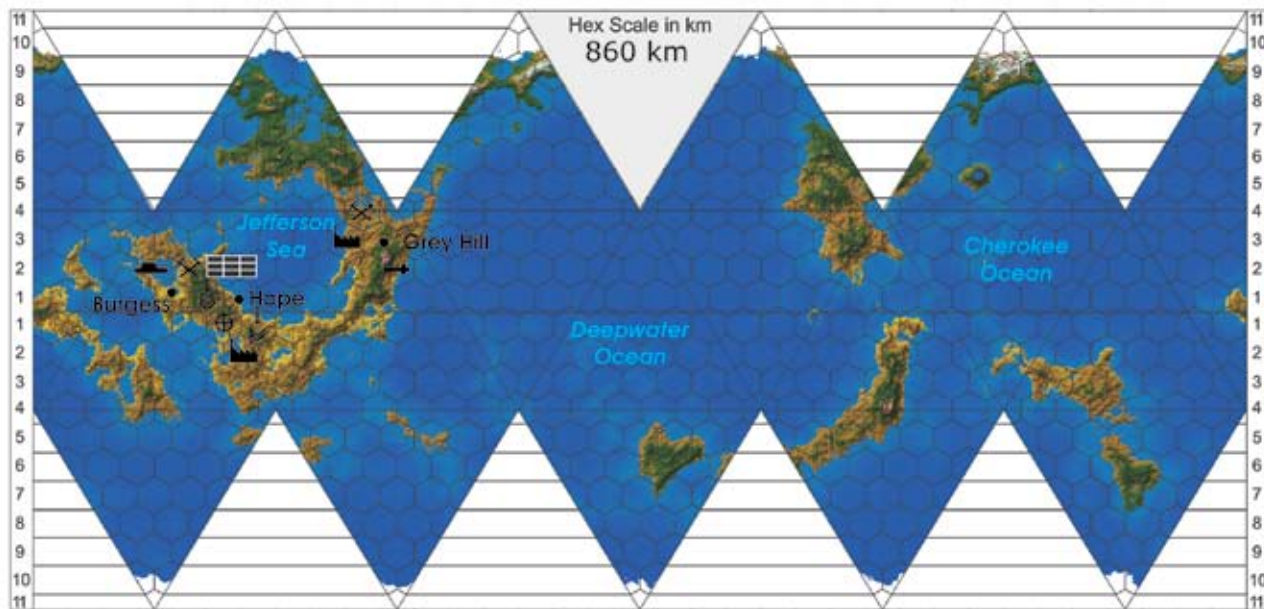
Resources: Farming, Mining, Heavy Industry

Military Presence: Military Base, Naval Base

Other Bases: None

Services: Solar Power Satellite, Rectenna, University, Powernet (91%), Road Net (20%), Link Network (98%), Airship Net, Weather Satellites, Communications Satellites, Orbital Terminal

Hermes



Legend

• Major City	⊗ Mining	⌒ Fusion Plant
⊕ Spaceport	↓ Farming	☐ Solar Power Rectenna
→ Catapult	⚙ Military Base	⚙ Heavy Industry

Hermes might have been America's first failed colony were it not for the actions of Jennifer Storher and Kim Silva. These two ex-industrialists were immigrants from Earth seeking a quieter, more satisfying life. Seeing that the pursuit of agriculture on Hermes was a dead-end proposition, they formulated a plan. Presenting a proposal to the Life Foundation, Storher and Silva obtained a grant to help them start the now-famous Mule Corporation. Mule's goal was to start an industry to supply heavy machinery to both American and Australian worlds along the Arm at prices less than that of similar products imported from the Core. Situated on the planet's first true city, Hope, the Mule Corporation's production facility, employing 47 men and women at that time, rolled out its first vehicle in 2257. Called the Mule-Apache, this tractor's first sale, ironically, was to a farming cooperative on Ellis.

Success followed the Mule Corporation as its line diversified and its clientele expanded, producing specialized equipment for mining efforts on King and supplying the Australian worlds with much needed heavy equipment.

ELLIS/AC +48 1595-89 BREADBASKET OF THE AMERICAN ARM

Proud to have become an off-planet state of America, Ellis is an extremely productive world on the very edge of the American Arm. Its future seems bright as the colony is growing to be the largest in the region, and is the base for exploration of the Beta Aquila cluster.

THE CHANDLER UNIVERSITY:

Chandler University was founded by Eva May Chandler in the city of Grey Hill in 2276. It was funded by grants from the American Interstellar Science Institute and the American government. It has become one of the most highly regarded schools in colonial space for the study of liberal arts and life sciences. The students who attend this institution come from several of the worlds in the American Arm as well as a small number from the Core worlds.

In addition to its facilities on the planetary surface, the Chandler University at Mu Herculis also maintains an Orbital Biological Studies Lab and has students at the Borlaug Institute for Jovian Xenobiologies in the King system.

SYSTEM DATA

STELLAR DATA

Primary Name: AC + 48 1595-89

Spectral Class: M3 VI

Magnitude: 10.97

X, Y, Z Coordinates: -6.5, -14.3, 17.6

Number of Planets: 3 (Ellis, Oyster, Gibbet)

Number of Asteroid Belts: 0

PLANETARY DATA

The second world from the star is named Oyster. This colorful jovian is just over 90,000 kilometers in diameter and orbits at a distance of 0.15 AU. It has four major moons and a bright ring of dust and ice. One large, Titan-like moon, Carlton, serves as training facility for the USMC, giving troops experience in operations under low-gravity, non-terrestrial conditions.

Boise, a large asteroidal member of Oyster's trailing trojans, acts as the system's primary spaceport. To create a more comfortable environment, it has been extensively tunneled and a spin has been induced to give a simulated gravity. All customs operations are also handled at Boise's facilities.

PLANET DATA

- Name:** Ellis
- Distance from Primary:** 0.07 AU
- Year Length:** 2.44 standard days
- Size:** 12,850 km in diameter
- Day Length:** 18.02 hours
- World Type:** Desert
- Surface Gravity:** 0.92
- Atmospheric Pressure:** 1.4 atm
- Climate:** Temperate
- Water Presence:** 7%
- Atmospheric Composition:** N₂ (80%), O₂ (16%),

inert gases (4%)

Biodiversity: Minor

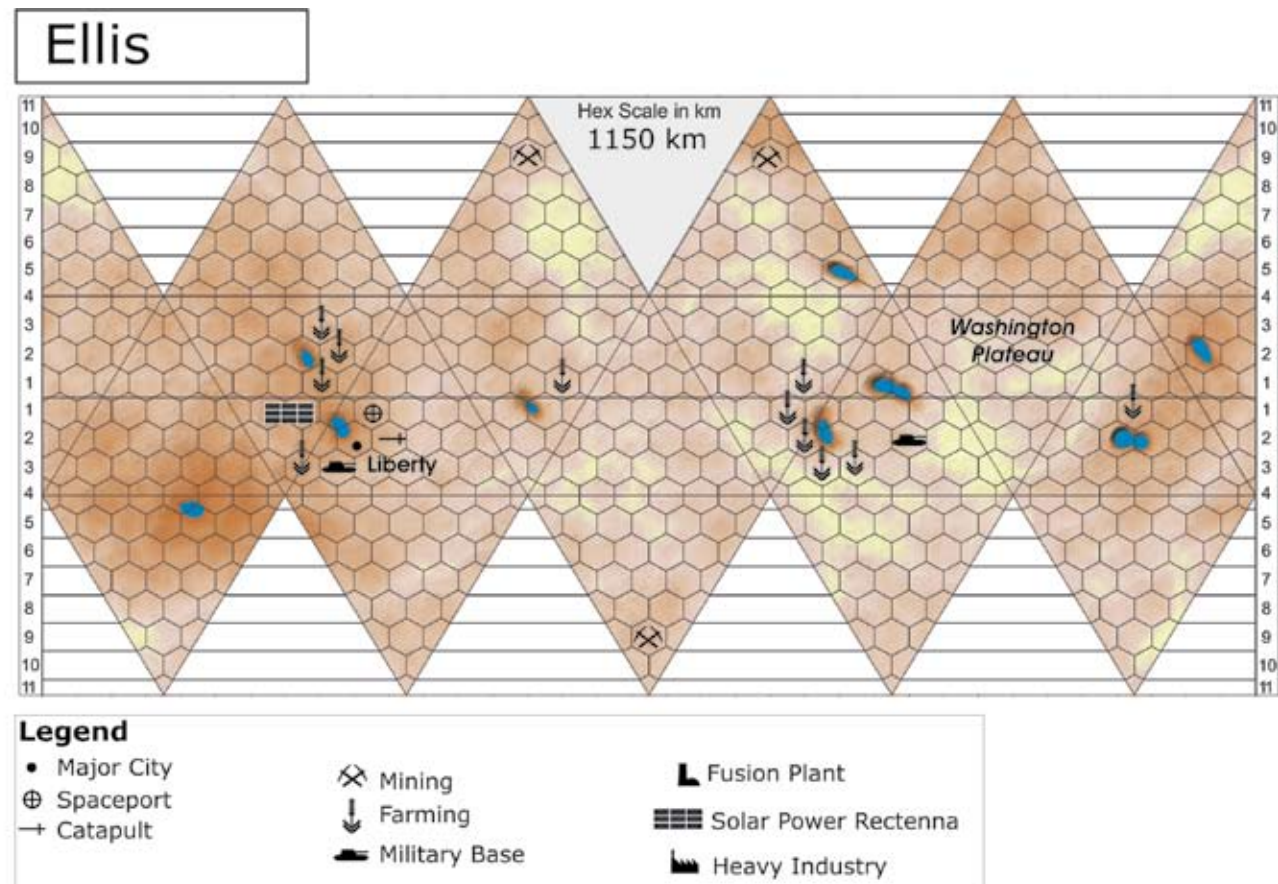
Natural Resources: 9 (agricultural products)

Along the lengths of the American Arm, there are few worlds as important to the daily survival of the colonies as Ellis. Once a fairly Earth-like world, Ellis has been in a constant spiral toward ecological ruin for thousands of years. The bold colonists who have chosen to settle there, however, are engaged in an effort to halt the ecological decline and restore the planet to some semblance of its former state. As the 24th century dawns on humanity, this once barren world is now the pride of the United States, producing a great amount of food which is shipped across the entire American Arm.

Only 7 percent of the surface of Ellis is covered with water, making most of the planet a dry wasteland. The efforts of colonists, however, are increasing the productivity of the lands around these scattered lake regions. Various efforts are underway to irrigate the wastelands, and each year additional farmlands are opened up to homesteaders. There is a limit to how far these farmlands can expand, however, due to the extremely limited amount of water available.

RESOURCES

The primary export of the American colony on Ellis is food. Long ago, much of this world is believed to have been covered in grasslands and light forests. Recently, in planetary terms, Ellis has begun to lose much of its surface water. There



are several theories regarding this event, ranging from variation in the star's output to localized chemical recombination. When the first mission to explore the system unexpectedly stumbled across the planet in 2220, Ellis was well on its way to becoming a post-garden world. With the help of the Alberta Farmers' Cooperative, the Canadian government, and several commercial interests, the American government began a program of careful ecological control. While far short of the terraforming projects planned for some other worlds, this restoration program has proven to be quite successful. With the establishment of an irrigation network and extensive soil reclamation efforts, vast areas of arid land are once again supporting life. Food from the colony on Ellis is shipped across the American Arm.

In addition to the increasingly bountiful agricultural resources of the planet, Ellis has fairly large petrochemical reserves. These are only beginning to be exploited as the 24th century opens, and they hold much promise for the future. Due to the fragile ecology of the planet, however, extreme care is being taken to avoid damage to the environment which might be caused by this new industry.

COLONIAL DATA

Colony Name: Ellis

Colony Population: 4.5 million

Date Founded: 2228

Nationality: American

Life Expectancy: 96 years

Literacy: 99%

College Education: 72%

Major Cities: Liberty (125,000)

Currency: American Dollar

Government Type: Democratic Republic (4)

Law Level: Moderate. Light Assault Weapons Prohibited (4)

Tech Level: (9)

Trade Data: Ri, Hi

Principal Trading Partners:

Interface Capability: Spaceplane, shuttle, catapult (B)

Resources: Farming, Mining

Military Presence: Military Base, Naval Base

Other Bases: Foundation (Alberta Farmer's Cooperative), Science

Services: Fusion Plant, Pownet (98%), Road Net (100%), Rail Net (100%), Link Network (98%), Weather Satellites, Communications Satellites, Orbital Terminal, Civilian Shipyard, Military Shipyard

During the first decade of settlement, the colony was headed by leaders appointed by the American government. Most of this time was taken up with the establishment of

the planetary bureaucracy. Once the control and support structures were in place and functioning smoothly, the appointed leaders stepped down and democratic elections were held. Members of the appointed government proved to be so popular, however, that many of them remained in positions of power for years to come.

Farms were established as soon as the colony ships arrived, but these were intended only to support the populace. After the colony was established and settling into a routine, the expansion of the farmlands began. Irrigation systems began to spread outward from the lakes like fine spider webs. Gradually, soil was restored and crops planted in the once again fertile regions. By the close of 2245, the farms were producing enough food to begin exporting.

The colony continued to grow at a fairly good rate. The environment of Ellis was not harsh, and homesteading was quite popular. New immigrants came from all across the American Arm. In 2270, the population of Ellis passed one million.

In 2275, a referendum was passed by an overwhelming majority which called upon the United States government to grant statehood to Ellis. On July 4, 2276, the president of the United States, Norman Isaacs, signed the papers to make it official— America celebrated the addition of its newest state. To this day, the American colonies on King and Mu Herculis remain territories of the United States, and only Ellis has attained statehood.

In the nearly 50 years since that historic event, Ellis has continued to grow in importance. It's agricultural industry has been vital to both the American and Australian colony efforts all along the American Arm. The petrochemical reserves which have recently begun to be exploited promise even more influence for this newest state.

By and large, the colonists on Ellis are an honest and peaceful group. They are often homesteaders (or their children) who are working "to make it for themselves." Ellis has the lowest crime rate of any state in the union. The colonists of Ellis are known across the American Arm as conservatives and patriots and are fiercely proud of their heritage and their national history. There is, unfortunately, a wide streak of New America sentiment in many of the colonists. There has even been some agitation for the world to secede from the Union, or for the New American "True Patriots" to create their own colony on the barren world.

Currently, the population of the colony continues to grow at a rate of about 3.9 percent per year. Homesteading is the primary source of immigration, and life on Ellis is often promoted as a true example of "the traditional American Dream." All land grants for would-be settlers are dealt with by the United States Department of Extraplanetary Resources (USDER).

BOTANY BAY/DM+33 2277

The muddy seas of Botany Bay have spawned an interesting living kingdom. The Australians have seized upon the world as a vital site for their budding space presence.

SYSTEM DATA

STELLAR DATA

Primary Name: DM+33 2777

Spectral Class: K7 V

Magnitude: 8.19

X, Y, Z Coordinates: -8.6, -24.7, 17.3

Number of Planets: 9 (Newgate, Gehenna, Rock, Botany Bay, Hardplace, Alcatraz, Outworld, Tannhauser, Meridian)

Number of Asteroid Belts: 0

PLANETARY DATA

PLANET DATA

Name: Botany Bay

Distance from Primary: 0.8 AU

Year Length: 312.24 days

Size: 11,200 km in diameter

Day Length: 22.27 hours

World Type: Garden

Surface Gravity: 0.91

Atmospheric Pressure: 0.92

Climate: Temperate

Water Presence: 90%

Atmospheric Composition: N₂ (78%), O₂ (21%) Kr (0.5%)

Biodiversity: Diverse

Natural Resources: 3

When Australian explorers first encountered the world that would become known as Botany Bay, they found a warm, watery world that just might be capable of sustaining a colony. Further study of the system revealed a world in many ways like Earth, but in many ways much different.

COLONIAL DATA

Colony Name: Botany Bay

Colony Population: 1.3 million

Date Founded: 2233

Nationality: Australian

Life Expectancy: 99 years

Literacy: 98%

College Education: 64%

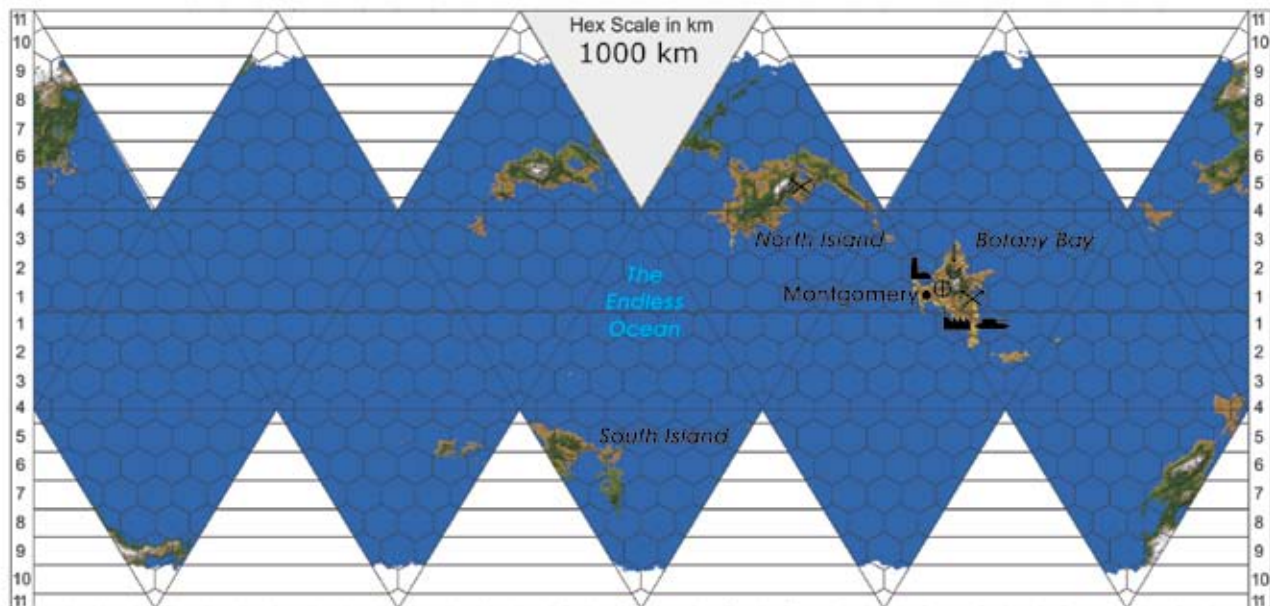
Major Cities: Montgomery City (55,000)

Currency: Australian Dollar

Government Type: Colonial Governor (6)

Law Level: Moderate. Light Assault Weapons Prohibited (4)

Botany Bay



Legend

- Major City
- ⊕ Spaceport
- Catapult
- ⚡ Mining
- ↓ Farming
- ⚡ Military Base
- ⌒ Fusion Plant
- ☰ Solar Power Rectenna
- ⚡ Heavy Industry

Tech Level: (9)**Trade Data:** Ri**Principal Trading Partners:** Ellis, King, Australia**Interface Capability:** Spaceplane, shuttle (C)**Resources:** Farming, Mining, Heavy Industry**Military Presence:** Military Base**Other Bases:** Science

Services: Fusion Plant, University, Powernet (71%), Road Net (80%), Rail Net (80%), Link Network (98%), Airship Net, Weather Satellites, Communications Satellites, Orbital Terminal

Botany Bay presented the Australians with their first opportunity to colonize an entire world for their own purposes. Agreements with their American allies at the time allowed them exclusive rights to populate and explore the entire DM+33 2777 system. Naturally, their first garden world was named Botany Bay in a unanimous vote of the Australian legislature three years earlier.

The first colony, started on Cook Island in the southern hemisphere, failed due to some bad planning and worse luck. The second colony on Botany Bay, Darwin Island, was begun two decades later, in 2233, again with government and popular backing, and with massive planning support.

For mostly political reasons, the second colony was placed on a northern hemisphere island. Darwin promised to be distant enough from the failed colony on Cook to put people's minds at ease. This new settlement has become a successful industrial colony, known principally for electronics and paper products.

The Darwin Library:

Typically, early colonies are stretched to the limits to find transport for the bare essentials such as food and equipment. There is seldom room for any sort of luxury such as nonessential computer equipment for a library. The Darwin Library is one notable exception.

Originally brought along with the first colonists, under the direction of Montgomery himself, were five technicians and several data computers to set up a primitive library within the settlement.

As the colony grew, the need for more educators became obvious, and the library technicians began to take a greater and greater role in the education of young citizens.

Today the Darwin Library is the center of the entire education system on Botany Bay. A strange conglomeration of traditional education and information processing techniques, the Library provides an information-intensive education for every child in the colony. The educators there have been noted for their innovative use of materials to produce a stimulating learning environment, and teachers from as far away as the Core have come to Darwin to try to emulate these extraordinary results.

KINGSLAND/ZETA Herculis A

The huge world of Kingsland has become Australia's new outback. The scattered villages and families have only begun the taming of this enormous chunk of extraterrestrial real estate.

SYSTEM DATA

STELLAR DATA

Primary Name: Zeta Herculis A**Spectral Class:** G0 IV**Magnitude:** 2.97**X, Y, Z Coordinates:** -9.2, -25.1, 16.4**Number of Planets:** 4 (Ayers, Woomera, Musgrave, Kingsland)**Number of Asteroid Belts:** 1 (Infinity Belt (shared))**Companion Name:** Zeta Herculis B**Spectral Class:** K0 V**Magnitude:** 5.57**X, Y, Z Coordinates:** -9.2, -25.1, 16.4**Number of Planets:** 4 (Zeta Herculis B-1, Zeta Herculis B-2, etc)**Number of Asteroid Belts:** 1 (Infinity Belt (shared))

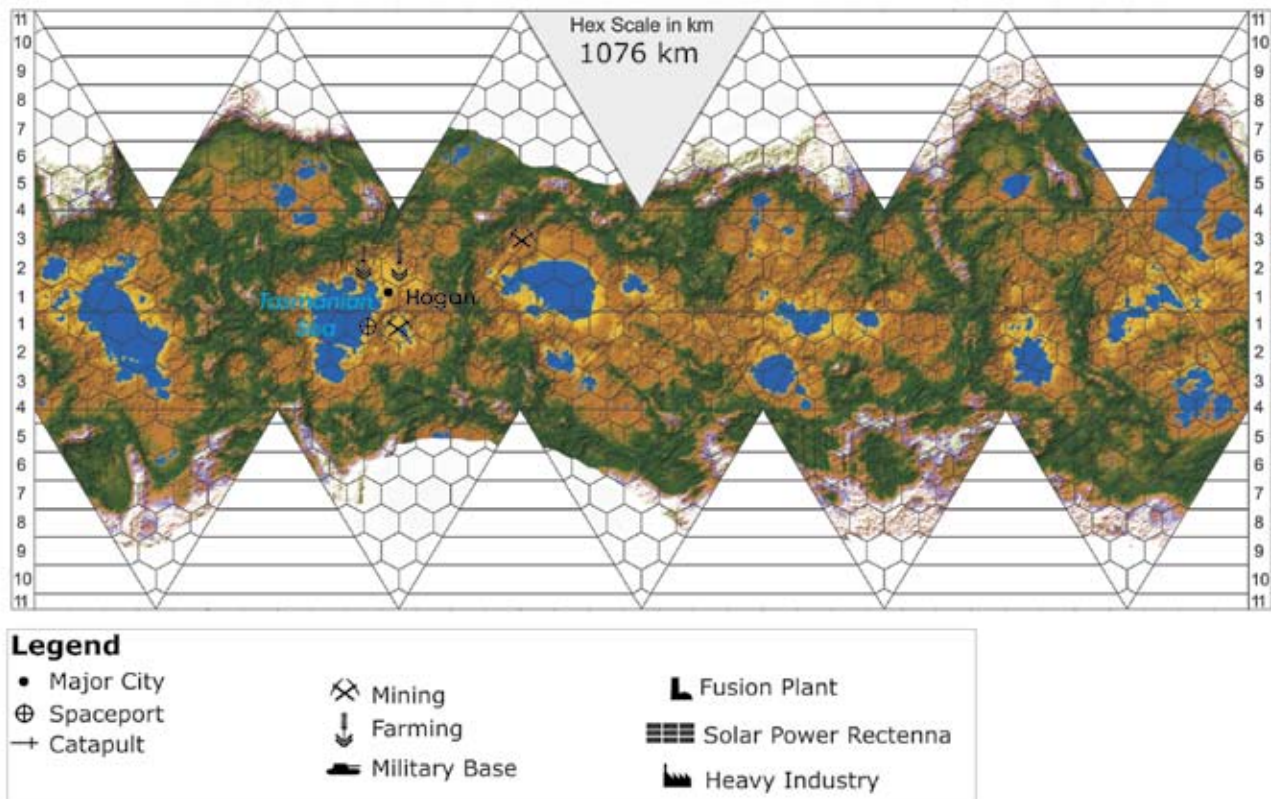
PLANETARY DATA

PLANET DATA

Name: Kingsland**Distance from Primary:** 1.2 AU**Year Length:** 539.19 days**Size:** 11,987 km in diameter**Day Length:** 41 hours**World Type:** Glacier**Surface Gravity:** 0.991**Atmospheric Pressure:** 0.94**Climate:** Temperate**Water Presence:** 55% (80% in glaciers)**Atmospheric Composition:** N₂ (79%), O₂ (19%), Trace (2%)**Biodiversity:** Sparse, useable**Natural Resources:** 3**Satellites:** 2 (Prime, Second)

Kingsland is officially classified as a glacier world. However, since there is considerably less water available on the planet, the glaciers only cover the northern and southern sixth of the planet. Also, since Kingsland has almost no axial tilt, there is an area around the equator which is not only ice free, but has lakes of freestanding water and its own weather patterns. These areas have spawned life and are quite hospitable. However, much of the surface of Kingsland is unusable, and is split into three distinct types – glacier, tundra, and

Kingsland



equatorial.

There are many remarkable plants native to this world, but two bear special mention.

The Bunyip's Hat: Virtually the only life form on the glacier is known locally as the Bunyip's Hat. Each plant springs quickly from a seed on the surface of the ice to form a circular mat from one to five meters in diameter. The living mat is very dark in color, either dark green or nearly black. Light absorbed by the plant is used both for photosynthesis and to heat the mat, melting some of the ice underneath and supplying water for growth. At three spots on the edge of the mat are new seed growths, which will grow at the end of a compressed gas bag. When the seed is ready, the compressed gas in the bag fires the seed away from the parent plant to grow a new Bunyip's Hat where it won't compete with the parent plant.

The Bunyip's Hat is playing a key role in the passive terraforming efforts currently underway on Kingsland, and is being considered by French scientists for the ongoing effort on Sans Souci.

The Flat Tree: A rather remarkable and useful Kingsland plant is known as the flat tree. This tree can attain heights of 70 meters, and can be as large as 18 meters across at the base. In its mature phase, the tree is host to a large, internal symbiote initially described as a "large amoeba" (although it is multicellular) that helps it extract certain nutrients from the soil in return for protection. When the tree dies, it

undergoes rapid petrification from the minerals leached out over the years. The symbiote dies quickly, leaving a large cavity in the base of the now-petrified tree.

Early in the colonies history, the settlers discovered the flat tree, and converted them into home with a unique style, a far cry from the bland, mass-produced housing modules common to colonial startups.

COLONIAL DATA

Colony Name: Kingsland

Colony Population: 1.5 million

Date Founded: 2215

Nationality: Australian

Life Expectancy: 98 years

Literacy: 98%

College Education: 76%

Major Cities: Hogan (117,000)

Currency: Australian Dollar

Government Type: Representative Democracy (4)

Law Level: Moderate. Personal concealable firearms prohibited (5)

Tech Level: (7)

Trade Data: Ri

Principal Trading Partners:

Interface Capability: Roton (D)

Resources: Farming, Mining

Military Presence: Orbital Defense Installation, Mi-

tary Base, Naval Base

Other Bases: Science

Services: Road Net (25%), Link Network (12%), Weather Satellites, Communications Satellites, Orbital Terminal

Kingsland is a established colony world, having celebrated its 100th birthday in 2315. But for the first fifty years or so, only rugged Australian frontier families made their homes there: the census of 2280 recorded a mere 11,250 people living on Kingsland. The colony has drawn settlers for two chief reasons. First, it was and is a matter of pride among the Australian people to be a colonial power – their origins as a colony and the benefits they received being a part of the British Commonwealth reinforce public opinion that colonies only strengthen the owning power, provided relations can be kept friendly. The second reason for colonization is potential mineral wealth, both on Kingsland and on its larger satellite, known as Kingsland Prime. Still, the primary reasoning behind colonization is for race-wide prestige. The possibility that Kingsland's resources or output will greatly benefit its mother nation are recognized as being quite small. But, in the eyes of the Australian government, being a stellar colonial power will bring benefits which are less tangible from the human community on Earth and beyond.

Some mining has begun on Kingsland, with marginal success. There are deposits of iron, bauxite, and tantalum on the planet. Eventually it is hoped that Kingsland will be able to support mining operations on Kingsland Prime as well, but such efforts are combined merely to a couple of demonstration sites at this time.

Kingsland is governed as an Australian state, with an elected Parliament. A Lieutenant-Governor is appointed by the Australian Parliament and charged with maintaining federal interests in the colony.

AVALON/DM -34 11626 A

This world is the latest American colony, and is notable also for being the first solo Nigerian extra-solar venture. A world of shallow seas and archipelagos, Avalon's ecology is fragmented, with each island chain having its own unique micro-ecology.

SYSTEM DATA

STELLAR DATA

Primary Name: DM-34 11626 A

Spectral Class: K3 V

Magnitude: 7.03

X, Y, Z Coordinates: -3.7, -18.8, -13.4

Number of Planets: 6 (Tint gel, Avalon, Lothian, Lionesses, Pewees, and Anon)

Number of Asteroid Belts: 2 (Morgan Belt, Merlin

Belt)

Companion Data:

Companion Name: DM-34 11626 B

Spectral Class: K5 V11.2 AU

Magnitude: 7.9

X, Y, Z Coordinates: -3.7, -18.8, -13.4

Number of Planets: 2 (Griever, Lancelot)

Number of Asteroid Belts: 0

Primary Name: DM-34 11626 c

Spectral Class: M2 V

Magnitude: 10.89

Distance from Primary: 112 AU

X, Y, Z Coordinates: -3.7, -18.8, -13.4

Number of Planets: 1 (Coalman)

Number of Asteroid Belts: 0

PLANETARY DATA

The planets and the asteroid belts are all named after places or characters from Arthurian mythology. The Morgan Belt is the only body in the system to attract attention after Avalon. It seems to have a high number of very dense asteroids, indicating possible heavy metals. So far no one has been able to do any further exploration, as the settlement of Avalon is taking precedence.

PLANET DATA

Name: Avalon

Distance from Primary: 0.42 au

Year Length: 195 days

Size: 10,476 km in diameter

Day Length: 21.35 hours

World Type: Ocean

Surface Gravity: 0.72 G

Atmospheric Pressure: 0.75 atm

Climate: Temperate

Water Presence: 97%

Atmospheric Composition: N₂ (77%), O₂ (22%), Trace (2%)

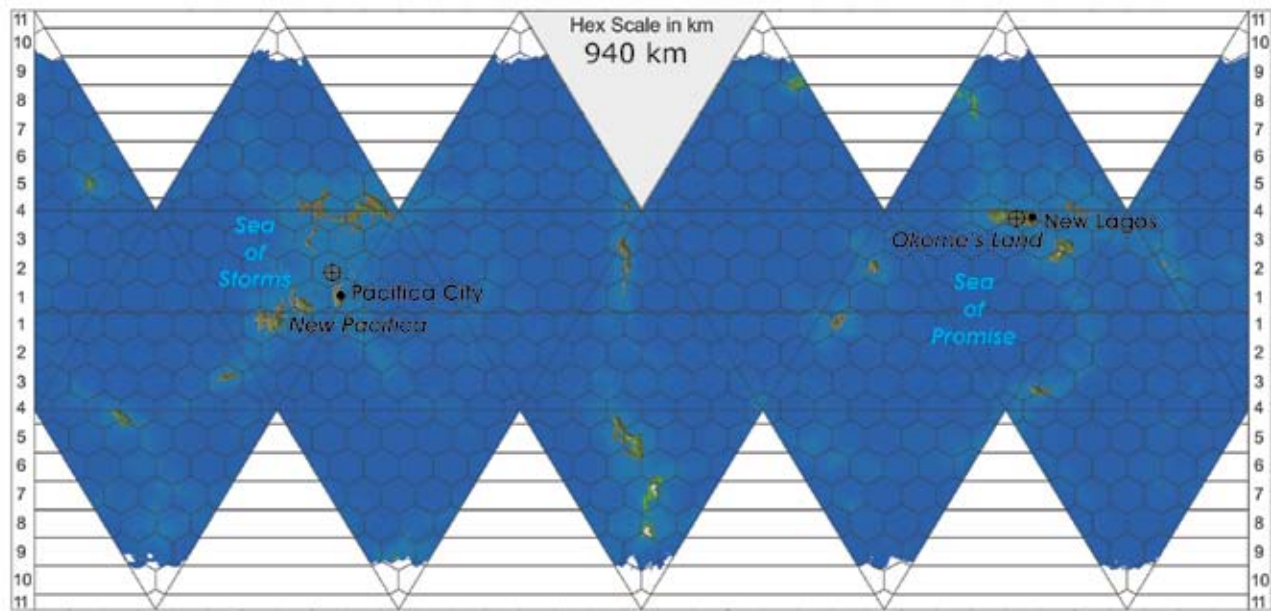
Biodiversity: Diverse; usable, vitamin supplements required

Natural Resources: 5

Satellites: 2 (Murdered, Griever)

Avalon is a world of small islands and archipelagos, all heavily shrouded in cloud and fog. From space, Avalon is a mystery, with few breaks in the cloud cover. The depth of the oceans is quite unusual. Most of the seas are very shallow, less than 300 meters. However, at the north and south poles, the oceans are almost three times deeper than elsewhere on the planet. It is theorized that at one point in time the water level was much lower, giving the planet wide continents. Mechanisms for the increase in depth of the oceans are all speculative. The common theory runs that the world was

Avalon



Legend

- Major City
- ⊕ Spaceport
- Catapult

- ⛏ Mining
- ↓ Farming
- 🏠 Military Base

- ⚡ Fusion Plant
- ☀ Solar Power Rectenna
- 🏭 Heavy Industry

once much colder, with extensive polar ice caps and some sort of climate shift warmed the world up, thus melting the ice caps.

The salinity of the world's ocean's backs up the idea that there was once more land. Haifeng, with its deeper oceans, but a similar amount of land area, has a much lower salinity than the oceans of Avalon, even after accounting for the much greater volume of water.

Travel on Avalon is largely by dive-capable surface vessels or light aircraft. Weather is relatively benign, due largely to the mitigating effects of the constant cloud cover. When a storm does brew up, though, it can last for weeks.

COLONIAL DATA

Avalon has not been settled for very long. The first American settlers established the colony of New Pacifica in late 2309, while the Nigerians didn't start work until 2315. Both colonies are thus small and underdeveloped.

Colony Name: New Pacifica

Colony Population: 44,000

Date Founded: 2309

Nationality: American

Life Expectancy: 104 years

Literacy: 100%

College Education: 78%BDOD

Major Cities: Pacifica City (5500)

Currency: American Dollar

Government Type: Appointed Governor (6)

Law Level: Moderate. Light assault weapons prohibited (4)

Tech Level: (3)

Trade Data: Wa

Principal Trading Partners: American colonies, America

Interface Capability: Roton (D)

Resources: Farming

Military Presence: Naval Base

Other Bases: Science

Services: Airship Net, Weather Satellites, Communications Satellites, Orbital Terminal

New Pacifica is centered around a large archipelago running north-south near the world's equator. This archipelago boasts most of the world's dry land, along with its largest land animals. In addition to aquaculture, New Pacifica supports a number of small mining and petrochemical corporations, who are hoping Avalon will be a good source for minerals and petroleum.

Most of the aquaculture is taking place in floating complexes off the shore of the colony. The fish being raised are a combination of local and imported forms. There is talk of genemodding one of the imported types to synthesis the B-complex vitamins lacking in the native life forms. In the meantime, the B-complexes have to be imported from off-

world.

A large proportion of the settlers to New Pacifica are veterans of the Kafer War, and many more are expected as the colony expands. These veterans have had noticeable difficulty in adapting to life back on the Core worlds, and the American federal and state governments are “encouraging” many of them to seek their fortunes off-world.

Colony Name: Okome’s Land

Colony Population: 16,000

Date Founded: 2315

Nationality: Nigerian

Life Expectancy: 95 years

Literacy: 99%

College Education: 82%

Major Cities: Lagos (8000)

Currency: Nigerian Naira

Government Type: Appointed Governor (6)

Law Level: Moderate. Personal concealable firearms prohibited (5)

Tech Level: (3)

Trade Data: Wa

Principal Trading Partners: American colonies, Nigeria

Interface Capability: Roton (D)

Resources: Farming

Military Presence: None

Other Bases: Science

Services: Weather Satellites, Orbital Terminal

It was Nigerian President Okome who pushed through the negotiations for Nigeria to get its first colony, and the colony is named in his honor. He never lived to see his dream fulfilled of a separate Nigerian colony, having passed away three years before the first ship left. Though Nigeria has previously participated in joint efforts on the Chinese Arm, this is its first independent colony.

Okome’s Land has imported a sophisticated oceanographic vessel, designed to help map the submarine landforms around their colony. This will help them in long-term task of making the colony viable, as the mapping should be able to pick up land-forms indicative of exploitable minerals.

Odd-Landforms:

In the six months since the undersea mapping project started, there has been a moment of controversy. One of the locations mapped by the vessel shows very odd sonar returns which some believe indicates a drowned city. Further mapping expeditions had to wait until one of Avalon’s sudden, intense storms passed. When the survey vessel returned to the location a month later, it could find no trace of the unusual submarine landforms. Interest in the undersea mapping project has become extremely high.

FRENCH ARM

The French Arm vies with the Chinese Arm as the most developed grouping of colony worlds. The Arm contains a total of twelve colony worlds, colonized mainly by France, Britain, Germany, and Azania, but with settlements by many other nations as well.

The Kafer War has had a devastating effect on many, if not most, of the worlds on the French Arm. Casualties are in the millions, while the numbers of displaced people in unknown, though thought to be well in excess of 3 million. In terms of sheer deaths and damage, the Kafer War is the worst calamity to befall mankind since the Twilight War. However, that damage has been confined to the colonies, and very little news of their condition leaks out to the contented masses of Earth. Many on Earth seem more concerned with the plight of the Little Guys far down the Bayern Corridor than the fate of a French settler from the human frontier.

Worlds of the French Arm

Frontiers: The French Arm is replete with fingers, together known as the frontiers. Their reach is still uncharted and their potential is still unrealized. Explorations beyond settled systems has brought contact with the Pentapods, the Klaxun, the Little Guys, and the Kafers; the possibility of new contacts is real and immediate. For this reason most nations exhibit caution in their explorations. Freihafen is currently the only nation investing in colonial operations in the frontiers, but as the Kafer War recedes into the past, more nations are liable to join them.

NIBELUNGEN/NEUBAYERN

Neubayern is the first star out along the French Arm from Earth which had the potential for supporting a colony. Bavaria first settled the world in 2169, and despite the colony’s success, no other major colony was ever established here.

SYSTEM DATA

STELLAR DATA

Primary Name: Neubayern

Spectral Class: K7 V

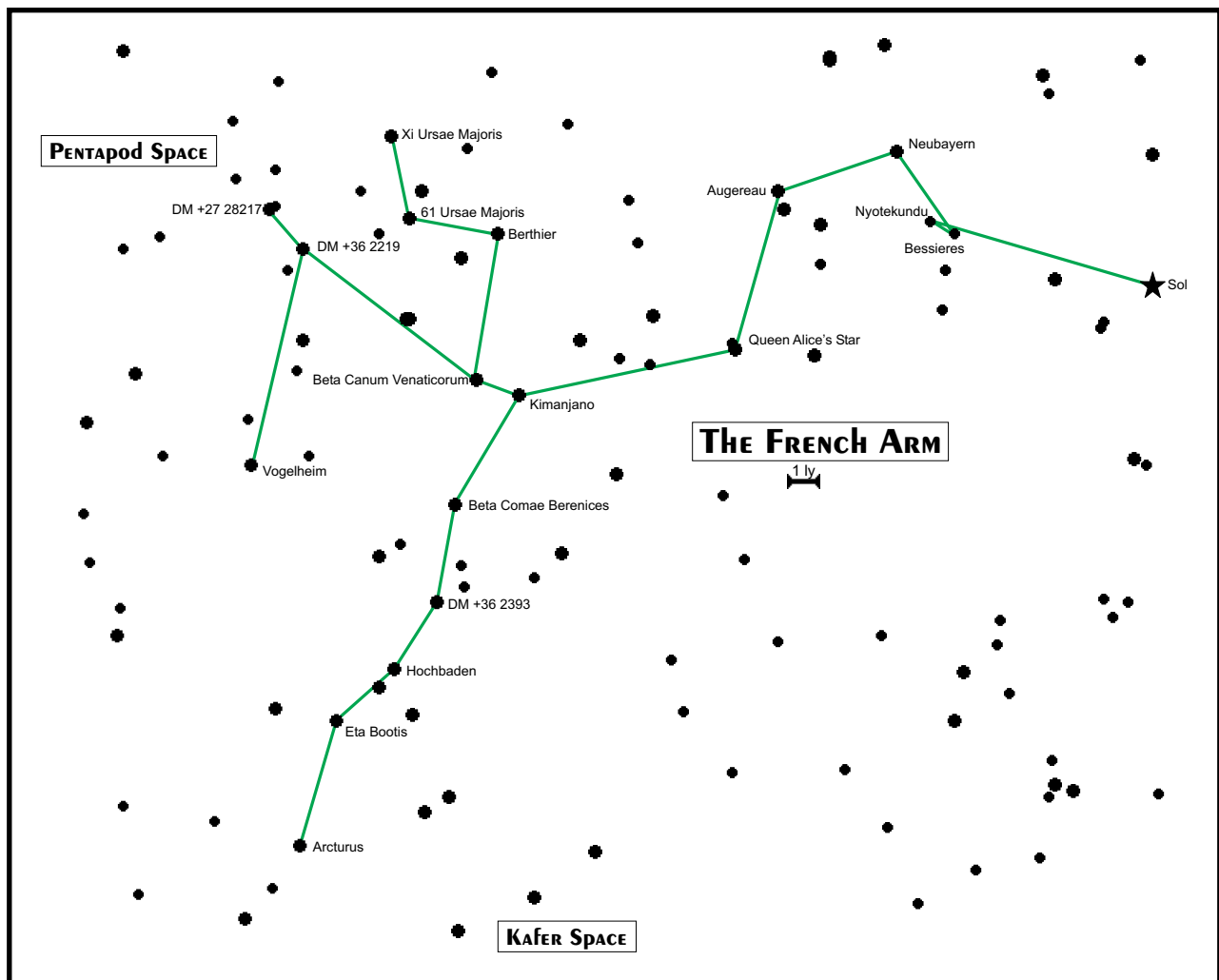
Magnitude: 10.4

X, Y, Z Coordinates: -8.4, 4.4, 11.1

Number of Planets: 11 (Nibelungen, Darmstadt, Munchen, Wiesbaden, Neuschwanstein, Essen, Duiberg, Dortmund, Frankfurt, Augsburg, and Wurzburg)

Number of Asteroid Belts: 0

The Neubayern system consists of eleven worlds and seven satellites orbiting an orange K7 primary. The star is rather cool, and the life zone is within less than one-third of



an AU. Considering the relatively small size of the star, Neubayern possesses an impressive collection of worlds.

PLANETARY DATA

Name: Nibelungen

Distance from Primary: 0.29 AU

Year Length: 157.33 days

Size: 8000 km in diameter

Day Length: 17.5 hours

World Type: Garden

Surface Gravity: 0.63 G

Atmospheric Pressure: 0.64 ATM

Climate: Temperate in the Twilight Zone, Torrid on Hotside, Freezing on Coldsides

Water Presence: 30%

Atmospheric Composition: N₂ (81%), O₂ (16%), Trace (3%)

Biological Diversity: Diverse; usable

Natural Resources: 7

Satellites: 0

Geography: As a tidally-locked world, Nibelungen has three distinct climactic zones: Hotside, Coldsides and Twilight.

Coldsides contains most of the land area of this planet, sitting under an ice sheet over 1000 meters thick. This ice sheet is the source of the both the Ostmeer and Westmeer, the two large seas

The Nibelungen hotside contains a large desert in the southern hemisphere. Temperatures in the equatorial regions are moderated somewhat by the presence of the eastern reaches of the Ostmeer but are still very warm by human standards. The Ostmeer is divided through the middle by the Grosshalbinsel, or Great Peninsula, which completely crosses the hotside and extends well into the twilight reaches of the Ostmeer (the western most tip of the Grosshalbinsel is inhabited, and linked to the other twilight zone by the trans-hotside railroad).

The twilight zone contains portions of both the Ostmeer and Westmeer, several mountain ranges, plains, forests, tundra, and numerous bogs.

The climate in the twilight regions is quite temperate at the equator, fading to near arctic conditions at the poles. The "perpetual spring" of the twilight zone due to the world's tidally-locked orbit allows crops to be planted and harvested nearly all year.

Nibelungen boasts a well developed local biosphere

with significant influxes of Terran species in the settled areas. Many varieties of the local plants proved to be largely edible by Terran livestock, and a wide variety of local species have been adapted to livestock feeds in conjunction with imported Terran varieties, and some have been genetically adapted to the local conditions. Vitamin supplements are generally not required.

COLONIAL DATA

Colony Name: Nibelungen

Colony Population: 92 million

Date Founded: 2169 (Independent since 2313)

Nationality: Independent

Life Expectancy: 108 years

Major Cities: Schoenblick (3.7 million), Neue Kassel (1.9 million), Stadt am See (1.3 million)

Government Type: Representative democracy (4)

Law Level: Moderate. Light assault weapons prohibited (4).

Tech Level: (11)

Trade Data: I, Ag

Principal Trading Partners: Freihafen, Wellon, Germany

Interface Capability: Spaceplane, shuttle, catapult (B)

Resources: Farming, Mining, Heavy Industry, Orbital Industry

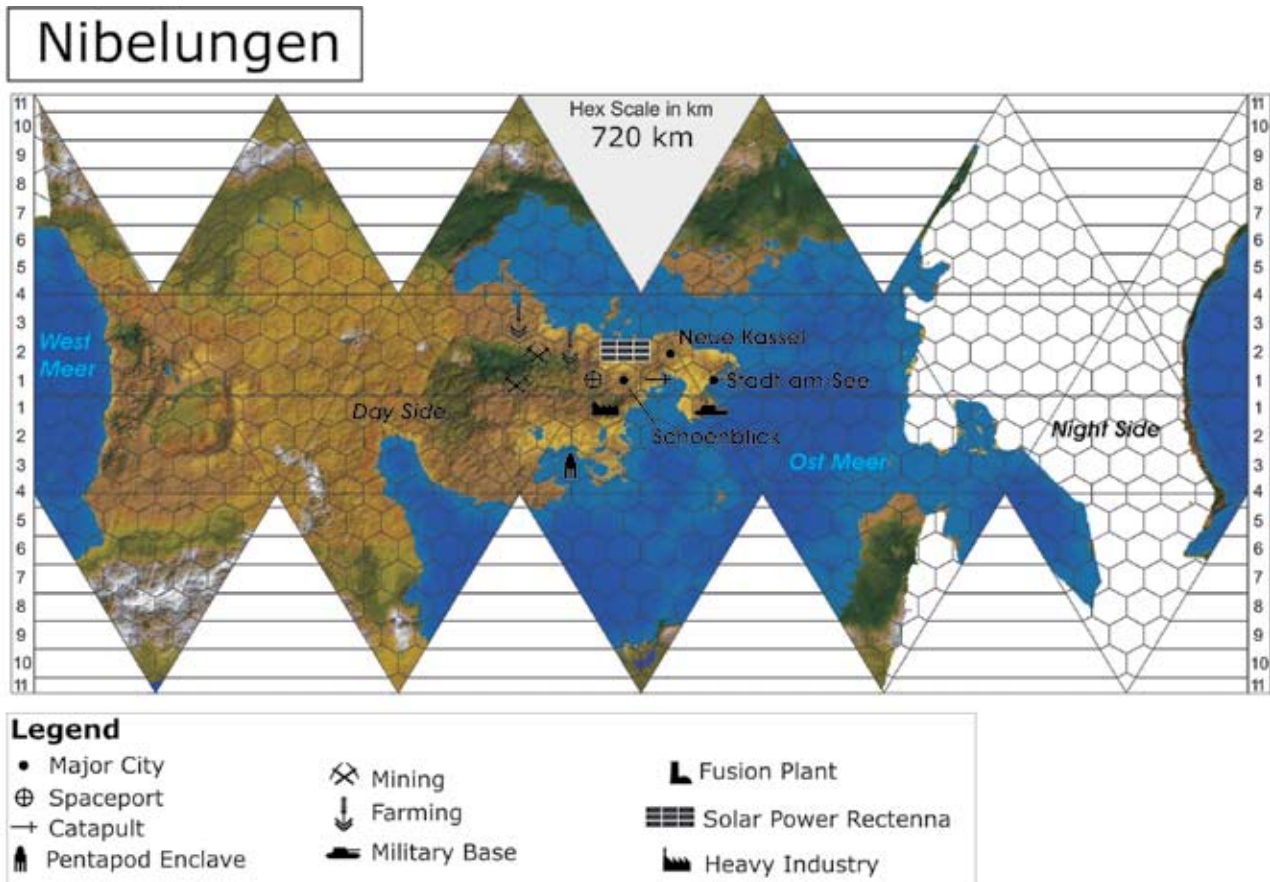
Military Presence: Orbital Defense Installation, Military Base, Naval Base

Other Bases: Foundation (ARI, IEX), Science

Services: Solar Power Satellite, Rectenna, University, Powernet (94%), Road Net (100%), Rail Net (100%), Link Network (98%), Orbital Terminal, Weather Satellites, Communications Satellites, Civilian Shipyard

The Neubayern system was discovered in 2142 by a Bavarian-built probe working for the Bavarian government in cooperation with the Astronomischen Rechen-Institut (using Azanian tantalum supplied to the University of Heidelberg for the ARI), but it was not surveyed for nearly a decade. The discovery of a tantalum deposit on Neubayern IV by an ARI team radically accelerated settlement of the system.

Nibelungen, the only habitable world in the system, was the site of an intense colonization effort despite the hardships involved. In spite of the fact that the world was tidally locked, limiting occupation to the twilight band, the demands for cheap food for the tantalum miners spurred a colonization effort. There was another factor operating as well: national pride. Neubayern was the only system (at that time) discovered solely by Bavarians. It was likely to be the only place open to their people for the foreseeable future (not the case, as it turned out, but it was, for almost a century, the principal Bavarian settlement in interstellar space). The name "Neubayern" applied to the star indicates the level of emotion involved in its discovery, exploration, and colonization. Even



though Bavaria obtained other colonies in later years (Hochbaden, Heidelshiemat, and Dunkelheim), none could replace Neubayern in the hearts of the citizenry. It was to symbolize their brightest and best hopes for the future.

After the War of German Reunification, Nibelungen acceded to German demands to join the new nations, along with most of the former Bavarian colonies. However, Nibelungen chafed at the restrictions and demands of the new German government, and an independence movement appeared. For the most part, however, the citizens of what was now Germany's most prosperous colony were content with their situation.

The Kafer War saw a great many changes to the character of Nibelungen. There was even a space battle fought in the system, though the colony itself never came under direct attack. It was the death of the Over-Suzerain itself in the climatic Battle of Neubayern that saw the turning point of the War. Nibelungen ships were out there with the massed fleets of Earth, defending their home.

During the War, Nibelungen found itself chafing against German demands for more ships, more products, and all at a lower cost. In the 2308 elections, Die Nibelungen Organisation (the Nibelugen Organization), a local independence movement, won 120 of the 384 seats in the Landtag, and their opponents, along with the German government, had to

KONTERADMIRAL WILHELM LUTKE:

Lutke was the senior German officer at Aurore when it was cut off by the second phase of the Kafer War. He managed to hold the factions of the Aurore fleet together through a combination of practical leadership and shrewd maneuvering. As the combined human fleet pushed into Kafer Space, he was given command of a large German squadron tasked with investigating worlds off the main line of Human advance. In so doing, he came across the worlds that had once belonged to Triumphant Destiny, the Kafer Suzerain who had begun the war with humanity, and was responsible for the destruction of Hochbaden. Lutke sterilized the worlds and orbital habitats, paying the Kafers back for Hochbaden. Despite his atrocities, he was allowed to remain in command of the German squadron, and during the attack of the Kafer home system, his ships visited destruction on Gamma Serpentis IV, the Kafer's oldest colony world. He was arrested afterwards, and sent back to Earth for trial. He never arrived. While in orbit over Nibelungen, naval officers still loyal to him smuggled him off the courier, and he claimed refugee status on the planet below.

To this day, he sits in his house near the edge of the swamp, protected by the Nibelungen government, watching the sky. He is 98 years old, old, tired, and bitter.

start taking the movement seriously. After a non-confidence vote toppled the ruling Centrist Party in 2311, the new round of elections gave the NO 143 seats, which allowed them to form a coalition government with the like-minded Bavarian Party. A national referendum the next year gave the government the mandate it needed, and Nibelungen declared its independence the following year.

Many analysts expected Germany to move decisively in order to retain control of its most prosperous colony, but the German Bundestag did nothing save issue a short statement congratulating the Nibelungen citizens, and wishing them nothing but good fortune in their quest for self-government.

Other countries never engaged in significant colonization of the Neubayern system because of the size of the Bavarian effort, the limitation of settlement to the twilight zone, and the easy availability of uncontested worlds elsewhere. A small number of Azanian settlers arrived in the colony's early years and now represent about 11 percent of the population. A smattering of other, primarily European, nationalities are present, but these are a minor portion of the total population.

BEOWULF/QUEEN ALICE'S STAR (DM+46 1797)

After a circuitous route along the outposts and colony systems of the inner French Arm, all travelers find themselves at the halfway point of Queen Alice's Star. The system's inhabitants accept and profit from their convenient location, welcoming visitors from the core to the truly distant worlds of the frontier.

SYSTEM DATA

STELLAR DATA

Primary Name: Queen Alice's Star

Spectral Class: K4 V

Magnitude: 8.2

X, Y, Z Coordinates: -13.7, -2.1, 14.3

Number of Planets: 8 (Wiglaf, Beowulf, Grendel, Hrothgar, Unferth, Edgetho, Brecca and Higlac)

Number of Asteroid Belts: 0

Notable Planets: Grendel poses an eccentric orbit that takes it inside Beowulf's orbit every 12 years, and stay inside for only 13 months before heading out along its long orbit. Grendel appears to be an interloper to the system, though debate is still divided.

PLANETARY DATA

Name: Beowulf

Distance from Primary: 0.42 AU

- Year Length:** 43.65 days
- Size:** 13,969 km in diameter
- Day Length:** 523.2 hours
- World Type:** Garden
- Surface Gravity:** 1.05 G
- Atmospheric Pressure:** 1.02 atm
- Climate:** Temperate
- Water Presence:** 78%
- Atmospheric Composition:** N₂ (74%) O₂ (22%) Trace (4%)
- Biodiversity:** Diverse
- Natural Resources:** 3
- Satellites:** 2 (Hrunting, Nagling)

The climate of Beowulf is somewhat harsher and the terrain generally much more rugged than comparable Terran regions.

Life forms from Beowulf and Terra are mutually compatible; each find food from the other planet nourishing. Vitamin supplements, so important on many colony worlds, are not necessary on Beowulf.

WATCH THE SKIES!

The most fearsome predator on Beowulf is the so-called Dragon-Bat, a huge nighttime flier that is capable of killing an adult, or carrying off a child.

TIME AND TIDE:

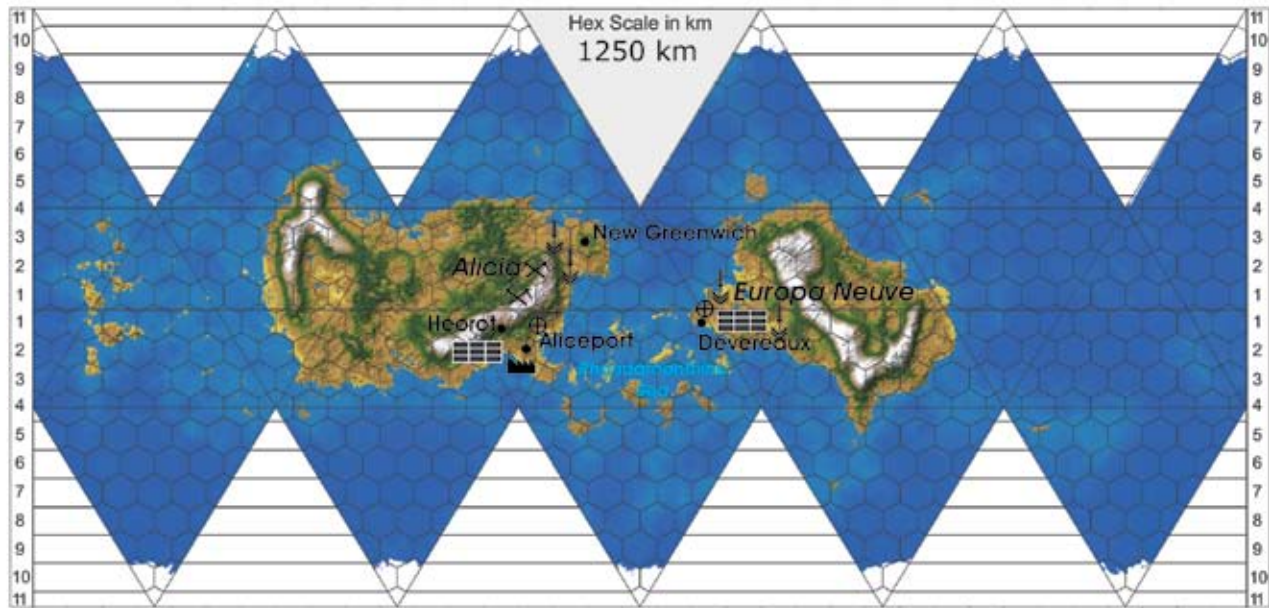
Though the tides rise and fall very slowly on Beowulf, they rise extremely high. In some tidal bores they can crest at nearly 80 meters, double the normal height. The highest tides are associated with the inner moon of Hrunting, and have been known to completely cover some of the small islands of the shallow Randamanthine Sea, buildings and all.

COLONIAL DATA

THE BRITISH COLONY

- Colony Name:** Alicia
- Colony Population:** 26.2 million
- Date Founded:** 2167
- Nationality:** British
- Life Expectancy:** 102 years
- Major Cities:** Aliceport (3.7 million), Heorot (1.6 million), New Greenwich (1.4 million)
- Currency:** British Pound
- Government Type:** Constitutional Monarchy, 2 elected houses responsible to British Crown, with limited self-rule (4)
- Law Level:** Moderate. Personal concealable firearms prohibited (5)
- Tech Level:** (11)
- Trade Data:** Ri, Aq

Beowulf



Legend		
• Major City	⌘ Mining	⌚ Fusion Plant
⊕ Spaceport	↓ Farming	☰ Solar Power Rectenna
→ Catapult	🏠 Military Base	🏭 Heavy Industry

Principal Trading Partners: Britain, Nibelungen, Wellon

Interface Capability: Spaceplane, Shuttle, catapult (B)

Resources: Farming, Mining, Heavy Industry

Military Presence: Orbital Defense Installation, Military Base, Naval Base

Other Bases: Science

Services: Solar Power Satellite, University, Powernet (89%), Road Net (100%), Rail Net (100%), Link Network (96%), Weather Satellites, Communications Satellites, Orbital Terminal

British colonists were first to settle on Beowulf, and they quite naturally chose to develop the best of the two continents when they arrived. They named the continent Alicia, in honor of the Queen at that time; the first large city (and capital until 2279 AD.) was Aliceport. Later a new capital, named Heorot after the grand hall where Beowulf battled Grendel, was built to house the colonial government.

The French Colony

Colony Name: Europe Neuve

Colony Population: 13.1 million

Date Founded: 2196

Nationality: French

Life Expectancy: 102 years

Major Cities: Devereaux (3.2 million)

Currency: Livre

Government Type: Elected council responsible to Chamber of Deputies on Earth (4)

Law Level: Moderate. Personal concealable firearms prohibited (5)

Tech Level: (11)

Trade Data: Ri, Ag

Principal Trade Partners: France, Nouvelle Provence

Interface Capability: Spaceplane (C)

Resources: Farming

Military Presence: Orbital Defense Installation, Military Base, Naval Base

Other Bases: None

Services: Solar Power Satellite, University, Powernet (56%), Road Net (47%), Rail Net (64%), Link Network (75%), Orbital Terminal

The French colonization effort on Beowulf was far less intensive than that of the British on Alicia, more so because of the region they were forced to settle in, the smaller continent they named Europe Neuve, was of far less exploitable value. Like the British, the French are mostly found along the coast of the continent; the interior is untamed and largely unexplored. A large scientific facility has been established in the rugged hinterlands to investigate a number of interesting life forms and natural phenomena.

Fish War:

Rising tensions between French and British sea harvesters may boil over, due to the perception by the French that the British are stealing the best harvesting sites. While an ESA commission investigates, travelers are urged to avoid the Atlantis Rising region of the Randamanthine Sea.

The Kafer War

The Beowulf system was the site of the climatic battle of the first phase of the Kafer War, and like most human worlds along the French Arm came under attack in the second phase. It escaped relatively intact, however, thanks to the effectiveness of the orbital forts and the improved system defense forces of the British Colony. Nonetheless, nearly 10% of the world's population was killed in the Kafer attacks, which were largely limited to orbital bombardment, with few troops actually landed. Heorot and Devereaux took the worst damage, and Heorot was the site of the actual landings themselves. A few Kafers took to the hills and remain as a scattered threat, but most were eliminated in the first few hours after the landings.

The Kafer fleets themselves withdrew in the face of the Terran Reserve Fleet, which warped in as the Kafers were bombarding Devereaux.

KIMANJANO/DM+34 2342

Kimanjano I lies at a major nexus of the French Arm. This, unfortunately, attracted the protracted interest of the Kafers in both phases of the last war, reducing the planet's population by nearly 40% and displacing a further 22%. Once known for its extremely cheap polycarbon and organic chemical products, Kimanjano is now known for its refugee problem. The once-thriving economy has been devastated, and there are no plans to rebuild it any time soon.

SYSTEM DATA

STELLAR DATA

Primary Name: Kimanjano

Spectral Class: K4 V

Magnitude: 8.2

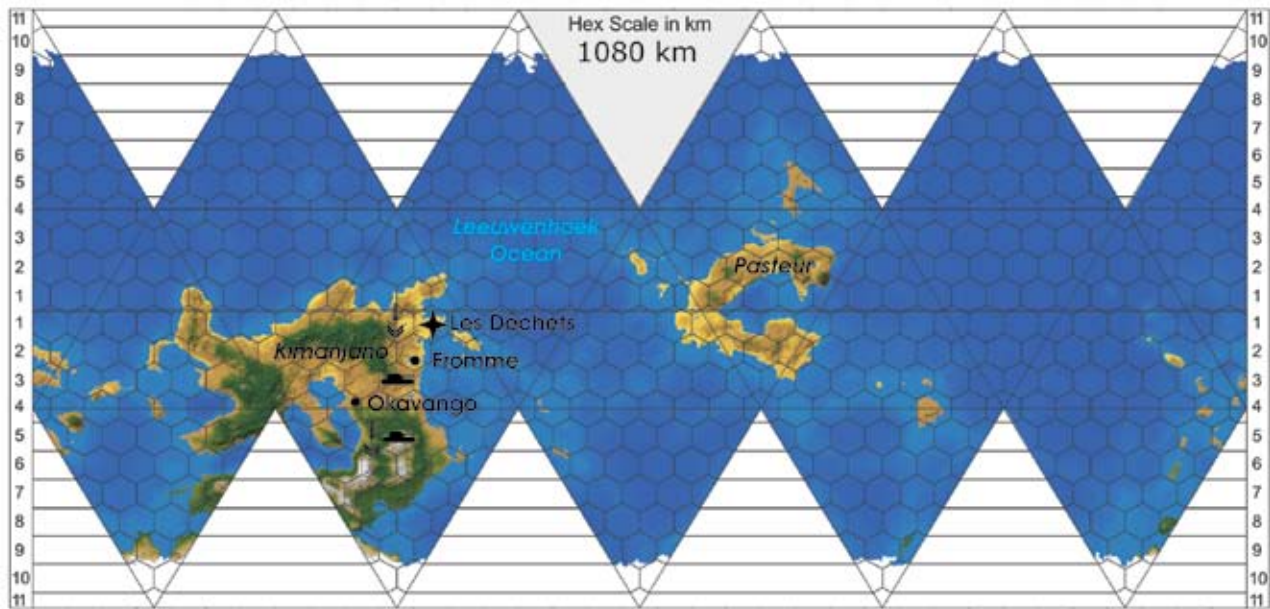
X, Y, Z Coordinates: -20.8, -3.6, 14.3

Number of Planets: 6 (Kimanjano, Tamburg, Setanne, Nivith, Roubaix, and Lyth)

Number of Asteroid Belts: 0

The central sun of the system has been the recipient of more scrutiny than any other star in the French Arm. Evidence suggests that, some half a billion years ago, the sun flared, temporarily doubling its normal output. The surface of sev-

Kimanjano



Legend

• Major City	⚡ Mining	⌚ Fusion Plant
⊕ Spaceport	⬇ Farming	☰ Solar Power Rectenna
→ Catapult	🏠 Military Base	🏭 Heavy Industry
✦ Ruins		

eral world in the system literally melted. Evidence suggests that the flares only lasted for a few hours, and there has been no further evidence and any stellar abnormalities. Both the ARI and the Royal Society have positioned automated solar observatories in near-solar orbit, in the hopes of determining the cause of the anomalous flare, and detecting on in advance should it happen again.

PLANETARY DATA

Name: Kimanjano I

Distance from Primary: 0.67 AU

Year Length: 189.67 days

Size: 12,040 km in diameter

Day Length: 35.28 hours

World Type: Pre-Garden

Surface Gravity: 0.94 G

Atmospheric Pressure: 0.89 atm

Climate: Tropical

Water Presence: 87%

Atmospheric Composition: N₂ (68%) O₂ (23%) CH₄ (9%)

Biodiversity: None (or Minor, depending on one's perspective)

Natural Resources: 8

Satellites: 1 (Bamenda)

Kimanjano is a geologically active world that sports a

radiation belt similar to, but much more intense than, the van Allen belts of Earth. They are strong enough that many orbits about Kimanjano are prohibited for long-term habitation.

Though Kimanjano has an oxygen-nitrogen atmosphere, it possesses no life as it is normally defined. The first expeditions discovered this anomaly, and subsequent survey found the source of the oxygen. The oceans of Kimanjano are an organic soup of chemicals, including many that are commercially valuable. Some of these pre-biotic materials react with the seawater to produce oxygen, while others utilize some of the oxygen in there. Though there is no life, there are things that could almost pass as life-forms, free-floating globs of amino acids and organic chemicals. The most famous class of these globs has been dubbed the Phreds, masses of gelatinous material which oozed onto the surface from the shallow seas and travelled at random along the coastal rocks. These blobs, some of which measured as much as two meters in diameter, gained minerals needed to sustain themselves among the rocks of the coast. They were not, in the strictest sense, alive, though definitions were beginning to cloud. The Phreds (named by a junior research assistant) did not exhibit differentiation within their structure or many other aspects of "life," though they did replicate through division. They were only the first of many such borderline cases.

The Instituts Études Exobiologiques (IEX) became very interested in the initial reports from Kimanjano, and IEX out-post and research vessels have been present ever since, re-

searching the unusual “biology” of this world.

In addition to the Phreds and their cousins, the oceans of Kimanjano hold a fortune in chemicals, capable of producing everything from construction synthetics to fine perfumes, with a variety of medical compounds thrown in for good measure.

The colony went through a brief tantalum boom in the 2230s, though the finds never delivered as much stardrive material as had originally been forecast.

The Kafer War

By the end of the Kafer War, the prized industrial capability of Kimanjano lay in ruins. Before the war, Kimanjano had produced nearly 8% of the synthetic materials in use on the Core worlds, and over 20% of the synthetics in use along the French Arm of space. The loss of that production capability out a serious strain on colonial and national economies throughout Human space.

By population, the French colony of Kimanjano was one of the worst hit, with only Hochbaden and Nous Voila losing larger percentages of their population, and only Beta Canum losing more in absolute numbers. Due to its astrographic location, Kimanjano was the target for thousands of refugees fleeing the Kafer attack throughout the war. There are now nearly 500,000 refugees on Kimanjano, one of the largest groups of displaced persons in Human history.

LES DÉCHETS:

The largest industrial facility on Kimanjano, “L’Usine” (“The Works”), was subjected to extensive orbital bombardment. The weapon used was not the mass destruction weapon often used in bombardment, but instead a small anti-armor weapon, called “pointes” (“spikes”) in military circles. These long-rod penetrators were just over 2 meters long, and several hundred of them were released over The Works. Now, the heavily-damaged facility, with its towns and sirfields, is known as Les Déchets (“The Scraps”), and is home to thousands of refugees from across Kimanjano and the French Arm.

In late 2310, as the war ground on into the Kafer Sphere, the government of the French colony, Fromme, petitioned the Imperial Colonial Ministry for increased funds to rebuild the world’s devastated economy. With France becoming overextended by the war, and other, more important, colonies clamoring for assistance, the colonial government at Fromme was instructed to cope as best they could, but at the same time were pressed to get the material processing plants back into operation. Faced with incompatible goals, the government at Fromme made a decision.

June 11, 2311, the government of Fromme, along with

the outposts at Nyotekundu, Bessieres and Augereau, all declared independence and sought international recognition. Only Elysia and Manchuria recognized the fledgling nation, while other nations waited for France’s response.

It took three weeks, then the action came in a series of coordinated strikes at the fragile outposts. Within hours, French special forces had captured the life support facilities of the three outposts, and the war ended for them.

Fromme was attacked by Legion Etrangere (Foreign Legion) troops in an orbital assault that owed its technology and tactics to the ongoing Kafer War. It took several hours, but the Legion troops were able to virtually annihilate the ragtag defense force of mercenaries and patriots. The leaders were rounded up, tried, and sentenced to life in prison. Within days they were on Legion landing craft, to be shipped to the French high security facility on Nyotekundu.

In retrospect, it seems obvious that France couldn’t afford the further loss of international prestige that the loss of these settlements would entail, and would be willing to weather the storm of international protest its military actions would engender. The ongoing crises of the Kafer War, and the excitement of the human landings on the Kafer worlds served to sweep aside the bad press surrounding the Kimanjano affair, and when word of the German squadron’s genocidal actions reached Earth, Kimanjano vanished from public awareness.

Kimanjano is currently under the direct control of General Auguste Duchêne, and he is working to alleviate the refugee problem, having invited in several Foundations, including Zapamoga, NARL and the Alberta Farmer’s Cooperative to assist in providing food, housing and medical care for nearly half-a-million refugees. In addition, he has to try and restart the colony’s chemical industries, but his efforts lag behind those of the Azanian colony, which has further exacerbated tensions between the two colonies.

The IEX:

Throughout the Kafer War, the IEX continued to man its stations and perform its research. Since the end of the war, they have moved their primary research facilities to offshore platforms. Much of the research has commercial applications, and the French colony is eager to make use of the information. However, the IEX leadership has been delaying turning over the data, and the IEX is too big for the French government to force it to turn over the information. Many speculate that the IEX played a role in Kimanjano’s abortive attempt at independence, and is withholding its data as an expression of disapproval at the government’s actions.

The French Colony**Colony Name:** Fromme**Colony Population:** 2.3 million**Date Founded:** 2231**Nationality:** French**Life Expectancy:** 77 years**Major Cities:** The Scraps (320,000), Fromme (121,000), Zapamoga Camp 1 (120,000)**Currency:** Livre**Government Type:** Direct Rule by Military Governor (6)**Law Level:** Moderate. Ownership of firearms is prohibited (8)**Tech Level:** (7)**Trade Data:** Po**Interface Capability:** None (E)**Resources:** Farming**Military Presence:** Military Base, Naval Base**Other Bases:** Foundation (IEX), Science**Services:** Road Net (55%), Rail Net (25%), Link Network (67%)

The original French colony site was carefully planned, with room for expansion and its infrastructure all laid out in an orderly fashion. The war changed that. When the colonial government declared independence, the capital city had just started to rebuild, and when the Legion was through with it, the military governor decided that it would be easier to build a completely new site about 50 kilometers away. The ruins of the old town are still used by squatters and refugees, and have increasingly become a stopping point for outlaws moving through the French Arm.

The new site has been carefully planned as well, though from a military standpoint. It is easily defensible, with a ring of minefields and automated weapon towers. Ostensibly, this is to protect the town from Kafer raiders, but these defenses are more likely to be used against Human rebels. The guns of the weapon towers can be set to fire within the perimeter of the town, with nice long streets that afford clear fire zones. Secession is not an option anymore.

In the aftermath of the failed secession, the few escaping rebels fled into the ruins of Les Déchets, and continue to strike at government forces when the opportunity presents itself. To the refugees amid the squalor of the devastated colony, they seem like heroes.

AZANIAN Colony**Colony Name:** Okavango**Colony Population:** 520,000**Date Founded:** 2280**Nationality:** Azanian**Life Expectancy:** 89 years**Major Cities:** Okovango (35,000), Zapamoga

Camp 2 (25,000)

Currency: Azanian Rand**Government Type:** No Government Structure (0)**Law Level:** Low. Strictly military weapons prohibited (4)**Tech Level:** (8)**Trade Data:** Po**Interface Capability:** None (E)**Resources:** Farming**Military Presence:** Military Base**Other Bases:** Science**Services:** Road Net (5%), Rail Net (8%), Link Network (12%)

In contrast to the French colony site, the Azanian site was a study in inspired anarchy. Very much the latecomers, the Azanians only settled in 2280. Their colony consists of standardized, commercially purchased modular units. These have been set down with apparently no order, scattered over a 20-square-mile region roughly surrounding a small bay. There is a landing strip just beside the bay. The lack of an organized structure actually helped the colony during the bombardment phase of the war, when Okavango was largely passed over by the attacking Kafers. Although the Azanian's losses were still very high (over 100,000 killed, with another 150,000 displaced), they came through better than the French. Though the Azanian refineries and fusion plant had been destroyed by the Kafer attack, most of their processing fleet survived relatively intact, and the Azanian government, aided by Britain and Zapamoga, is moving to build new shore facilities and rebuild the colony's transportation infrastructure, nearly destroyed in war and the chaos which followed. These rebuilding efforts have been troubled by sabotage, nothing extreme, but enough to slow the recovery. Some point to the French, who respond that with all the refugees, Kafers and out-of-work mercenaries on the planet, there are many much more likely suspects than another government.

The Azanian presence is still mainly felt in the oceans, where their floating processors are busy collecting and refining the rich organic soup that comprises much of the planet's

The Circus:

The Amazing Interstellar Circus consists of three traveling shows, each based in one of the Arms of exploration. The Circus visits a new world each month, and stays for about a week, providing shows and entertainment for the entire planet. Costs of the Circus are partly subsidized by the major governments and sponsoring corporations. There are rumors of something dark behind the Circus, though the story varies from Arm to Arm. In the Chinese Arm these stories are linked to ProVolution, in the American Arm to smugglers and slavers, and in the French Arm either to Pentapods or Kafers.

water. In contrast to the randomness of their colony, these facilities are compact and efficient, utilizing fission plants that allow them to stay out on their missions for a year or more before servicing. They are supplied by large Heliostats which call periodically, transferring their processed distillates to the main spaceport. In this way the Azanians have avoided many of the problems encountered by the reliance on fixed platforms and undersea pipelines used by the French.

The war destroyed much of the automated crop production used by both colonies, and the Alberta Farmer's Cooperative is providing assistance on repairing, and rebuilding the extensive factory farms. In the meantime, they are shipping in tons of grain every day.

KIE-YUMA/XI URSAE MAJORIS

Kie-Yuma is the only human colony world claimed exclusively by a corporate entity. As such, it is a unique world where corporate bureaucracy and governmental operation have often become one and the same.

SYSTEM DATA

STELLAR DATA

- Primary Name:** Xi Ursae Majoris A-I
- Spectral Class:** G0 V
- Magnitude:** 4.9
- X, Y, Z Coordinates:** -25.0, 4.9, 15.7

Number of Planets: A-A' – 5 (Kie Yuma, Petrolia, Magnussen, Boulder, Pinhole; B-B' – 4 (Xi Ursae Majoris B-1, etc.)

Number of Asteroid Belts: 0

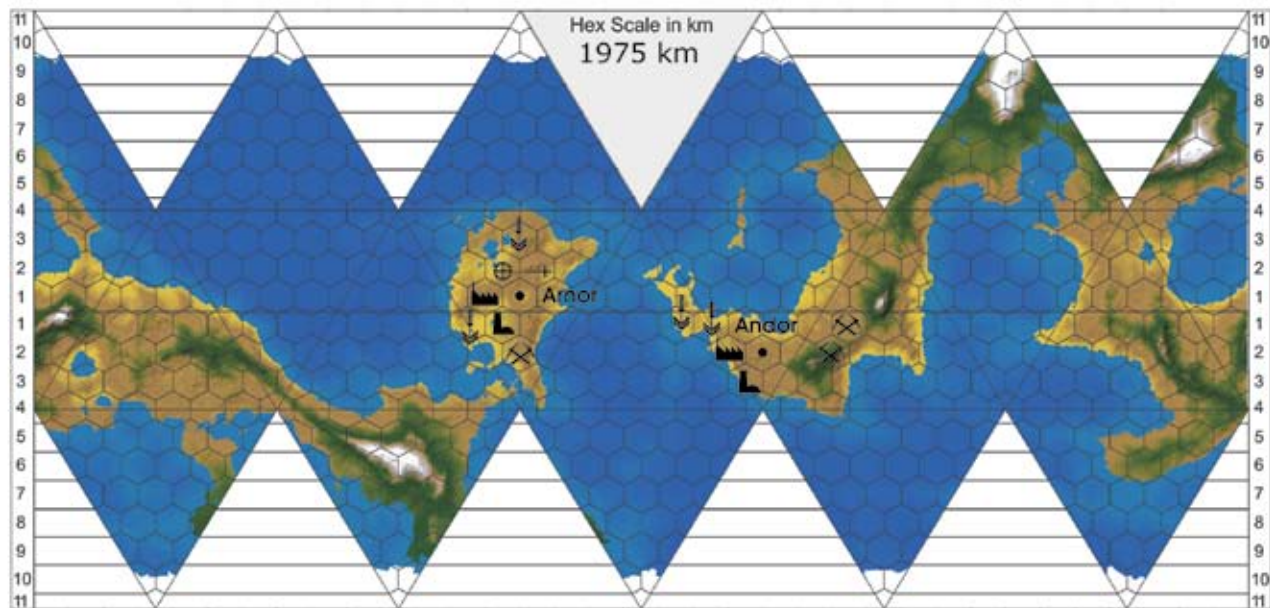
The Xi Ursae Majoris system is very complex, consisting of two type G0 V stars and two M0 V stars. Each of the M0 stars orbits the G0 primary as a close companion, and the two pairs orbit each other with a separation of 12.188 AU.

PLANETARY DATA

PLANET DATA

- Name:** Kie Yuma
- Distance from Primary:** 0.697 AU
- Year Length:** 208.68 days
- Size:** 22,000 km in diameter
- Day Length:** 26.501
- World Type:** Pre-Garden
- Surface Gravity:** 1.2 G
- Atmospheric Pressure:** 1.42 atm
- Climate:** Chilly
- Water Presence:** 68%
- Atmospheric Composition:** N₂ (78%), O₂ (20%), CH₄ (2%), Trace Poisons
- Biodiversity:** Active
- Natural Resources:** 6
- Satellites:** 2 (Paradiso, Valmont)

Kie-Yuma



Legend

• Major City	⊗ Mining	⌚ Fusion Plant
⊕ Spaceport	↓ Farming	☰ Solar Power Rectenna
→ Catapult	⚡ Military Base	⚙ Heavy Industry

ATMOSPHERIC PROCESSORS:

In an attempt to remove unhealthy elements from the world's atmosphere, Trilon has set up a number of huge atmospheric processors. These fusion-powered behemoths draw in and filter air, storing the extracted chemicals away for industrial use.

The atmosphere of Kie-Yuma is denser than that of Earth and often appears "hazy" or "murky" to the colonists on the surface. With an oxygen content well within human tolerances Kie-Yuma's air is quite breathable (although a bit "thick" and "heavy" to breath for those used to an Earth-normal pressure) except for a relatively small fraction of unsavory gases present.

Native Life: Oceans cover 68 percent of Kie-Yuma's surface, a percentage close to that of Earth (70.8 percent). Most of the animal life on Kie-Yuma lives in these oceans, with almost all of the land life being plant-type organisms. These animal forms are quite primitive, with the precursor to a spine only just starting to appear.

Kie-Yuma doesn't possess any animal life on land, aside from the rare coastal scavenger, and even plant forms are relatively rare inland. Most of the land is completely barren.

COLONIAL DATA

Colony Name: Kie-Yuma

Colony Population: 1.4 million

Date Founded: 2260 (Independent since 2306)

Nationality: Corporate (Trilon)

Life Expectancy: 94 years

Literacy: 99%

College Education: 68%

Major Cities: Arnor (155,000), Andor (132,000)

Currency: Trilon bill

Government Type: Corporate Bureaucracy (1)

Law Level: Moderate. Firearms prohibited (8)

Tech Level: (12)

Trade Data: In

Principal Trading Partners: America, France, Britain

Interface Capability: Spaceplane, shuttle, Catapult (B)

SABOTAGE:

Shortly after the fourth processor started up in late 2266, a sabotage attempt was made simultaneously on all four processors by a radical faction of NARL. One processor was damaged, but the saboteurs were captured and shipped back to Earth to stand trial. NARL itself denounced the saboteurs as extremists. After this event, security around the processing stations was beefed up significantly. There have recently been additional threats made against the giant processors.

Resources: Farming, Mining, Heavy Industry, Orbital Industry

Military Presence: Orbital Defense Installation, Naval Base

Other Bases: None

Services: Fusion Plant, Powernet (31%), Road Net (30%), Rail Net (45%), Link Network (100%), Airship Net, Weather Satellites, Communications Satellites, Orbital Terminal, Civilian Shipyard, Military Shipyard

Kie-Yuma was first settled in 2260, using a York-class colonization vessel leased from its British supplier. From this start, Trilon operations on Kie-Yuma continued to expand, new employees were recruited off-world and imported to Kie-Yuma, and more extensive facilities were constructed.

The year 2261 saw the first of the atmospheric processors in stalled and construction started on the other three stations. Within five years, all four were completed and brought on-line. NARL had previously raised concerns about the effect of the atmosphere processors on the course of evolution on the planet, but Trilon scientists dismissed the concerns of the environmental group.

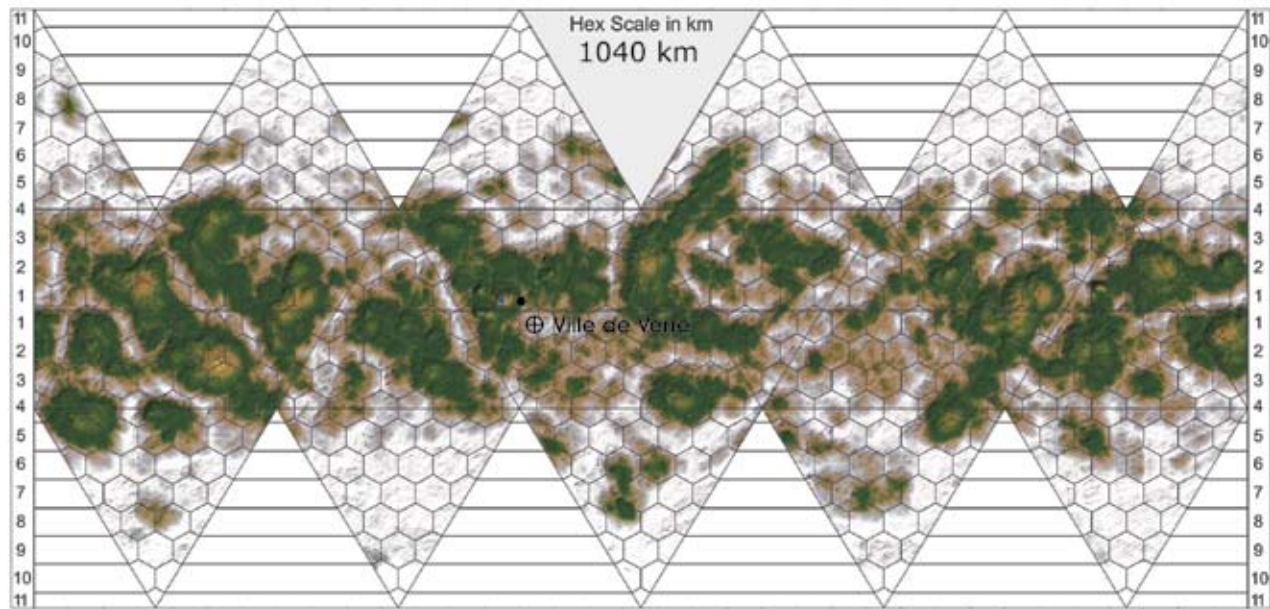
Government: Since independence in 2309, the colonial government has undergone some changes. A form of corporate democracy was instituted, with the number of votes an individual holds is dependent on the amount of Trilon stock that person has. Non-employee's were also granted a vote, but only 1 vote per person.

Facilities: Due to the unsavory elements in the planet's atmosphere, all of Kie-Yuma's colonists live and work in sealed habitats of some form. Air and water are pumped in from the planet's surface, although both must pass through extensive filtering before being utilized by humans. The sealed habitats also serve to protect the colony's facilities from the severe thunderstorms that often develop on Kie-Yuma's surface.

In 2306, as the Over-Suzerain and its fleets bore down on the human worlds, Trilon moved its corporate headquarters from America to Kie-Yuma, and then declared itself independent. Trilon was no longer an American Corporation, but an independent entity in its own right. Trilon was the first TransNat to do this, and others are expected to follow suit once their own colonies are in place. At the same time, Trilon revealed its formidable defense forces. Trilon was (and still is) a major contractor to the American Space Force, and seems to have copied several military designs for its own purposes.

In 2308, when a sub-fleet attacked Kie-Yuma, the corporate defenses were ready. Swarms of remote-controlled Star Eagle fighters engaged the Kafer capital ships, while sleek gunships moved in to batter them into submission. Arnor and several outlying domes all took hits from Kafer orbital bombardment, along with many of the atmosphere processors, but casualties were minimal. The sub-fleet was driven from Kie-Yuman space, and subsequently destroyed at the Battle of Nibelungen.

Sans Souci



Legend		
• Major City	⛏ Mining	⌚ Fusion Plant
⊕ Spaceport	↓ Farming	☀ Solar Power Rectenna
→ Catapult	🏠 Military Base	🏭 Heavy Industry

SANS SOUCI

The newest French colony, Sans Souci is a glacier world that is currently undergoing active terraforming.

SYSTEM DATA

STELLAR DATA

Primary Name: DM+36 2219
Spectral Class: M1 V
Magnitude: 9.7
X, Y, Z Coordinates: -27.9, 1.2, 19.9
Number of Planets: 5
Number of Asteroid Belts: 0

PLANETARY DATA

PLANET DATA

Name: Sans Souci
Distance from Primary: 0.26 AU
Year Length: 105 days
Size: 11,610 km in diameter
Day Length:
World Type: Glacier
Surface Gravity: 0.99 G
Atmospheric Pressure: 1.1 atm
Climate: Chilly

Water Presence: 63%

Atmospheric Composition: N₂ (81%), O₂ (19%)
 Trace (>1%)

Biodiversity: Minor

Natural Resources: 5

Satellites: 1 (Optisme)

Sans Souci is a cold and barren world, similar in many ways to Beta Comae Berenices before it was terraformed. The scientists and engineers who inhabited the first outpost were always convinced that with a little help, Sans Souci could be a welcoming world.

In 2314, with the refugee problem becoming even more acute, the French government decided to put that idea to the test. Using the same organism utilized in the terraforming of Beta Comae, French scientists sought to lower the albedo of the ice sheets, melting them and raising the world's temperature. The effort is starting to pay off, with a rise of 8° Celsius over the past six years. In fact, some scientists are starting to wonder if the terraforming process isn't going too well, with the potential to push the world too far the other way.

An added danger comes from the Terraforming organism itself. When it was first used to melt the glaciers at Beta Comae, that world was virtually uninhabited save for the scientists and technicians monitoring the process. In the case of Sans Souci, however, there is a large, and growing, population already in place, and possible synergistic effects from any germs they carry is a considered risk.

COLONIAL DATA

Colony Name: Sans Souci

Colony Population: 320,000

Date Founded: 2314

Nationality: French

Life Expectancy: 97years

Literacy: 98%

College Education: 67%

Major Cities: Ville de Verre (28,000)

Currency: French Livre

Government Type: Military Governor (6)

Law Level: Moderate. Personal concealable firearms prohibited (5)

Tech Level: (4)

Trade Data: NI

Principal Trading Partners: France

Interface Capability: Spaceplane, roton (C)

Resources: Farming

Military Presence: Orbital Defense Installation, Military Base, Naval Base

Other Bases: Foundation (Zapamoga), Science

Services: Fusion Plant, Pownet (22%), Road Net (56%), Rail Net (10%), Link Network (23%), Airship Net, Weather Satellites, Communications Satellites, Orbital Terminal

Sans Souci long languished as nothing more than a large outpost. French ambitions lay elsewhere, and neither the military junta nor the Empire which replaced it cared to lay out the resources required to turn Sans Souci into a full-fledged colony.

It was only the Kafer War that turned French attention to this long-neglected world. French ships and troops required a staging area for the counterattacks back into the French Arm, and Sans Souci was ideally positioned. This led to a build-up of development and services, and by the end of war, Sans Souci was a major naval and army staging area.

In the wake of the war, the French government faced a couple of new problems. There was widespread dissatisfaction with the way France handled the war. Citizens at home were unhappy, and the Chamber of Deputies was becoming increasingly belligerent. At the same time, many worlds on the French Arm were facing a refugee crisis, especially as the Core Worlds had no desire to take in potentially contaminated refugees.

The outpost at Sans Souci was large and well-developed, and with the end of the war French units were being posted back to the Core. This left many of the planetside facilities empty and abandoned. These empty buildings, hangers and barracks were perfect for resettling colonists from worlds devastated by the war.

The colonization and resettlements efforts for Sans Souci have another effect, as they distract the public, along with

the Chamber, from the now-receding Kafer War. The Imperial government can show that France is carrying and expanding its holdings even as they rebuild those devastated by the war.

BETA CANUM VENATICORUM

Beta Canum (for short) suffered some of the worst casualties of the Kafer War, with nearly half the population of the French Continent killed or displaced. Though once the economic powerhouse of the French Arm, Beta Canum was only recently able to start to repair the damage suffered.

SYSTEM DATA

STELLAR DATA

Primary Name: Beta Canum Venaticorum

Spectral Class: G0 V

Magnitude: 4.46

X, Y, Z Coordinates: -22.2, -3.1, 19.8

Number of Planets: 8 (-1, -2, -3, Beta Canum-4, -5, -6, -7, -8)

Number of Asteroid Belts: 0

The star Beta Canum Venaticorum lies 29.9 light years from Sol on a straight line, but actual distance traveled by human ships is 41.8 light years, as they voyage from star to star along the French Arm. The star is very similar to Earth's, being just slightly larger, hotter, and brighter.

PLANETARY DATA

PLANET DATA

Name: Beta Canum Venaticorum IV (Beta Canum)

Distance from Primary: 1.13 AU

Year Length: 346.8 standard days (407.9 local days)

Size: 12,000 km in diameter

Day Length: 20.4 hours

World Type: Garden

Surface Gravity: 0.94 G

Atmospheric Pressure: 0.92 atm

Average Temperature: 24° Celsius

Water Presence: 61%

Atmospheric Composition: N₂ (77%), O₂ (19%), Argon (2%)

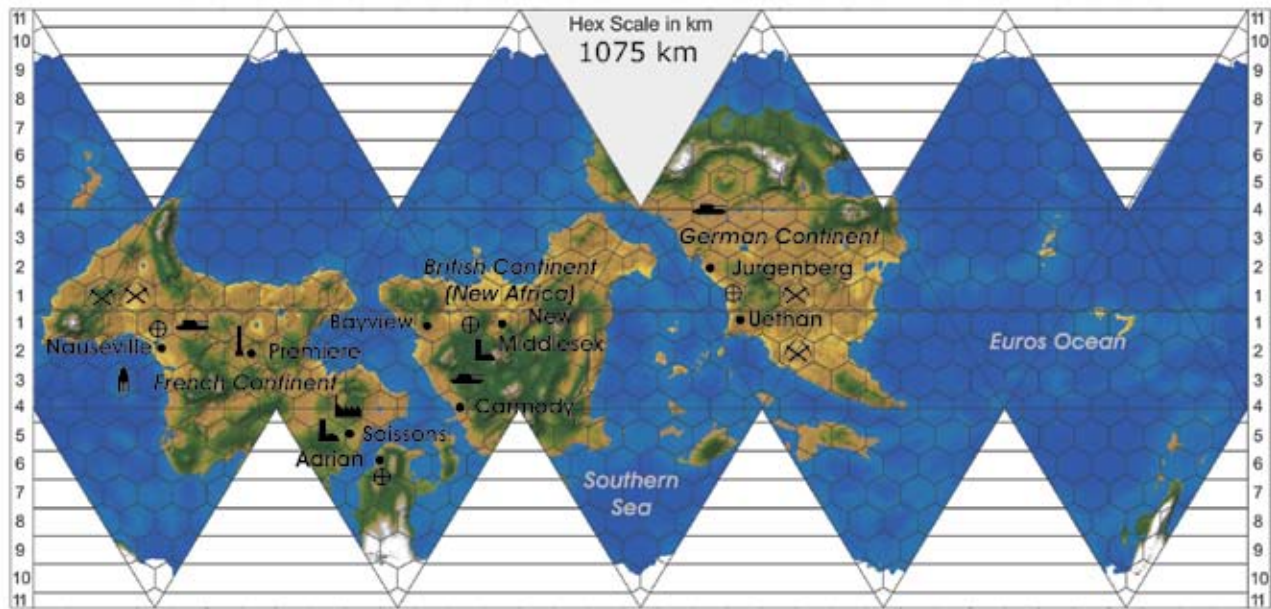
Biodiversity: Diverse; unusable (left-handed amino acids)

Natural Resources: 7

Satellites: 0

Beta Canum Venaticorum-4 is the fourth planet of the star Beta Canum Venaticorum. It is usually called simply Beta Canum by outsiders, while locals often refer to it simply as "BC", an old, ironic reference to the primitive condition in

Beta Canum



Legend

• Major City	⊗ Mining	⌚ Fusion Plant
⊕ Spaceport	↓ Farming	☰ Solar Power Rectenna
→ Catapult	⚡ Military Base	⚙ Heavy Industry
⌚ Beanstalk	⚙ Pentapod Enclave	

the rural regions of the planet.

Beta Canum's abundant life utilizes right-handed amino acids, rather than the terrestrial left-handed amino acids. Native life forms have no nutritional value for Terran lifeforms, and vice-versa. However, transplanted Terran life does very well, as there are no pests to consume it.

The only exception to that rule was the Beta Grain Blight, a local fungal infestation which attacked human crops for two years before being brought under control by a Pentapod-engineered defense. Debate continues to this day as to the cause of the Blight, which some blame on the Pentapods.

Agriculture is still Beta Canum's most valuable industry, though tourism is regaining its importance as well.

COLONIAL DATA

The Beta Canum Veneticorum system was first visited by human starships in 2181. These were French starships exploring under the auspices of the European Space Agency. From 2182 until 2202, detailed surveys of the system were performed by a research team from Das Astronomischen Rechen-Institut, concentrating on the garden world. The initial surveyors established their base of operations on the northernmost tip of Beta Canum's southern continent, now home to the largely abandoned city of Adrian.

Three nations established colonies on Beta Canum: France, Britain, and Bavaria (now Germany), each laying claim to one of the major continents. The southern continent was

held jointly as an ESA territory.

In 2302, and again in 2307, Beta Canum was invaded by Kafers, and became the site of the most important ground battles of the Kafer War. The first occupation was unusual for Kafers, as they actually attempted to govern the humans rather than exterminate them. The second occupation went differently, as there was a considerable contingent of human forces in place to oppose the Kafer landings. Drawing on their knowledge of the world from the first occupation, the Kafers invested the French Continent heavily, counting on the colonists still being demoralized from the loss of the Beanstalk and the lack of power and other amenities.

French troops opposed the Kafer landings, and were joined by British, German and American units in a fierce battle for control of the French colony. For the first time since the battles for Aurore, tactical nuclear devices were utilized by Humans against Kafer troop concentrations.

By the end of the war, the area of the French continent around the spaceport was devastated, but the Kafer ground forces were defeated. Most of the Kafer survivors went to ground in the forests of the French continent, complete with their own Ylii-produced food converters that allow them to live off the land. There are persistent, and growing, rumors that Kafers have taken to eating captured Humans.

Until the Beanstalk was reattached in 2315, the French continent was serviced through the spaceport facilities at the ESA city of Adrian, on the world's Antarctic continent. The

almost-abandoned city was ignored by the Kafers during the war, but has seen a resurgence since the end. There is concern in the city now that the time of prosperity may have been all-too-brief, as shipments have fallen off 30% since the Beanstalk resumed operations in 2318.

French Colony

Colony Name: French Continent

Colony Population: 16.1 million

Date Founded: 2205

Nationality: France

Life Expectancy: 97 years

Literacy: 98%

College Education: 57%

Major Cities: Crépy-en-Seine (576,000), Première (212,000), Zapamoga Camp C (121,000)

Currency: French Livre

Government Type: Military Occupation (6)

Law Level: Low. Military weapons prohibited (3)

Tech Level: (8)

Trade Data: Ri

Principal Trading Partners: New Africa, German Continent, Nouvelle Provence

Interface Capability: Beanstalk, Spaceplane

Resources: Farming, Mining, Heavy Industry

Military Presence: Military Base, Naval Base

Other Bases: Foundation (Zapamoga, IEX, Alberta Farmer's Cooperative), Science

Services: Fusion Plant, Pownet (76%), Road Net (100%), Rail Net (100%), Link Network (98%), Airship Net, Weather Satellites, Communications Satellites, Orbital Terminal,

The Pentapod Enclave:

In 2261, the Pentapods made a request to build an enclave on French Continent's western shore. That request was quickly approved by all ESA governments, in the desire to establish stronger ties with this strange race of bioengineers. Pentapods, being amphibians, are equally at home in all the three environments encompassed by the enclave: underwater, dry, and mixed. Humans gain greater respect from the Pentapods by braving the wet rooms when dealing with the aliens. During the War, most of the Pentapods in the Enclave fled to the open seas. Some made contact with the French underground, and supplied them with technology that allowed the resistance to live off the land, including food converters and tooth guns.

Both phases of the Kafer War visited a great deal of damage upon the French Continent, in particular around the capital city and starport region. Casualties were very high, for

both military units and for civilians. Though the colony has reclaimed much of its agricultural territory, and is starting to rebuild, it still faces continued threats from those Kafers that escaped the last battle around the starport.

The seeming lack of a coordinated French response to the Kafer invasions, along with the hardships endured by the population, have led to yet another strong independence movement. For its part, France refuses to even consider increased autonomy for the colony, let alone independence. Metropolitan troops brought in from Imperial holdings on Earth provide the independence movement with a very clear threat, should the movement ever try to force its hand. The presence of what are virtually occupation troops in the cities have led to increased acts of violence against Metropolitan troops in the countryside, however. The rural dwellers are heavily armed after the chaos of the years when the Kafers were the occupiers of the colony. The irony of the current situation is not lost on political commentators, in particular those of the other two colonies on Beta Canum.

The Beanstalk:

The first operational Beanstalk in human space became operational on Beta Canum in 2291. Though marred by an accident in 2293, when several unmanned capsules fell off, it contributed greatly to the success of all the colonies, in particular the French colony. When the Kafers first invaded in 2302, the Beanstalk was severed at the base by colonial authorities and allowed to drift free. It was not reattached until mid-2315.

German Colony

Colony Name: German (Bavarian) Continent

Colony Population: 11.1 million

Date Founded: 2207

Nationality: German

Life Expectancy: 96 years

Literacy: 98%

College Education: 71%

Major Cities: Jürgenburg (768,000), Uethen (543,000)

Currency: German Taler

Government Type: Multi-party Democracy (4)

Law Level: Moderate. Light Assault Weapons Prohibited (4)

Tech Level: (10)

Trade Data: Ri

Principal Trading Partners: Germany, Dunkelheim, Freihafen

Interface Capability: Spaceplane, Roton (C)

Resources: Farming, Mining, Heavy Industry, Orbital Industry

Military Presence: Orbital Defense Installation, Military Base, Naval Base

Other Bases: Foundation (ARI)

Services: University, Powernet (81%), Road Net (85%), Rail Net (90%), Link Network (34%), Airship Net, Weather Satellites, Communications Satellites, Orbital Terminal

In recent years, the inhabitants of the German Continent have undergone a sort of renaissance, and are viewing the old days of Bavarian control with great nostalgia. The current German regime has been tarred with the ill-fortunes that have befallen the colony since the War of German Reunification in 2293. Even though they cannot logically be blamed for the horror of the Kafer War, there are those who feel that the disaster would have been less severe if Bavaria had still been the governing power for the colony. This sentiment has fueled a small, but growing, sentiment, that independence might be the best course for the colony to steer, and the elections planned for 2321 are expected to bring in many pro-independence candidates, in particular in the rural regions.

British Colony

Colony Name: New Africa

Colony Population: 8.3 million

Date Founded: 2207

Nationality: British

Life Expectancy: 84 years

Literacy: 99%

College Education: 62%

Major Cities: New Middlesex (451,000)

Currency: British Pound

Government Type: Constitutional Monarchy (4)

Law Level: Moderate. Personal concealable firearms prohibited (5)

Tech Level: (11)

Trade Data: Ri, Hi

Principal Trading Partners: French Continent, German Continent, Crater

Interface Capability: Spaceplane

Resources: Farming, Mining

Military Presence: Military Base, Naval Base

Other Bases: Science

Services: Fusion Plant, University, Powernet (100%), Road Net (100%), Rail Net (100%), Link Network (98%), Airship Net, Weather Satellites, Communications Satellites, Orbital Terminal

Of the three colonies on Beta Canum, New Africa came out of the Kafer war with the least amount of damage. The continental airfilm line has heavily damaged by Kafer orbital kinetic strikes, but the damage to the rails was easily repaired. The damage to the colony's tourist industry, the centerpiece of it economy, won't be easy to repair. The use of nuclear weapons in the battles for the French Continent have struck

a sour note with many off-worlders, stung both by Lutke's genocidal nuclear attack on Kafers, and the more distant history of the Twilight War.

New Africa is still instrumental in shipping goods back and forth across the continent, and on to markets in the German and French colonies.

BUSINESS OPPORTUNITIES:

Of all the colonies on Beta Canum, the French colony suffered the most during the Kafer war. Even with the ambitious French rebuilding plans underway, there is still a great deal of hardship in the colony. British and German entrepreneurs have taken it upon themselves to help alleviate the suffering by supplying large quantities of food, drugs, alcohol and narcotics, usually without going through border checkpoints.

JOI/61 URSAE MAJORIS

A true melting pot of human proliferation, Joi is home to no less than four different national colonies and an independent stellar nation. A remarkably hospitable world on the outer edge of the French Arm, Joi attracted settlers almost from the date of its discovery.

SYSTEM DATA

STELLAR DATA

Primary Name: 61 Ursae Majoris

Spectral Class: G8 V

Magnitude: 0.555

X, Y, Z Coordinates: -24.4, 2.2, 16.7

Number of Planets: 14

Number of Asteroid Belts: 0

PLANETARY DATA

PLANET DATA

Name: Joi

Distance from Primary: 0.765 AU

Year Length: 188.39 days

Size: 16,992 km in diameter

Day Length: 28.93 hours

World Type: Garden

Surface Gravity: 1.05 G

Atmospheric Pressure: 1.03 atm

Climate: Temperate

Water Presence: 58%

Atmospheric Composition: N₂ (78%), O₂ (19%), Trace (3%)

Biodiversity: Diverse

Natural Resources: 3

Satellites: 3 (Blanche, Argent, and Or)

Joi, 61 Ursae Majoris III, is the single human-habitable planet in the star system. It is one of the most Earthlike of the colony planets settled to date, although as with all worlds it also displays notable divergences from the Terrestrial "norm."

Native crops are considered suitable for human consumption, but the colonists have found that the relatively less advanced ecosphere of Joi simply cannot compete with plants introduced from off-world. Although ecologists have issued dire warnings, there are two colonies – Azania's and Japan's – which have mounted large-scale importation of such crop seeds. Plans to do the same in Elysia were largely responsible for their break with the French government nearly four decades ago.

The very term "Garden World" presupposes the existence of native life forms on the planet. Joi is no exception to this rule; life is present in abundance. Although the basic biochemistries are compatible and the lay community insists on using terms like "mammalian" or "reptilian" to describe these creatures, any resemblance they have to Terrestrial forms is strictly a matter of common responses to the same evolutionary imperatives. Most of these pseudo-reptilians tend to be on the slow and stupid side, though still occasionally dangerous.

"CLEVER DRAGON":

One species of these pseudo-reptiles has proven to be anything but slow and stupid. These "Clever Dragons" are warm-blooded animals with high-metabolic rates and large brains. Studies have shown them to be at least as intelligent as terrestrial mountain gorillas, and some suggest that they may even be sentient. Efforts to protect the region where the creatures are most numerous is being resisted by all the colonial governments, save Elysia which rather predictably supports the move. The Elysians have even gone so far as to suggest withdrawing all human settlement from the continent in question.

has its own unique characteristics, and each a distinct local identity that has led, on more than one occasion, to serious disputes among them.

THE GERMAN COLONY

Colony Name: Landeplatz-Friedrich der Grosse (Halbinsel)

Colony Population: 1.4 million

Date Founded: 2241

Nationality: German

Life Expectancy: 104 years

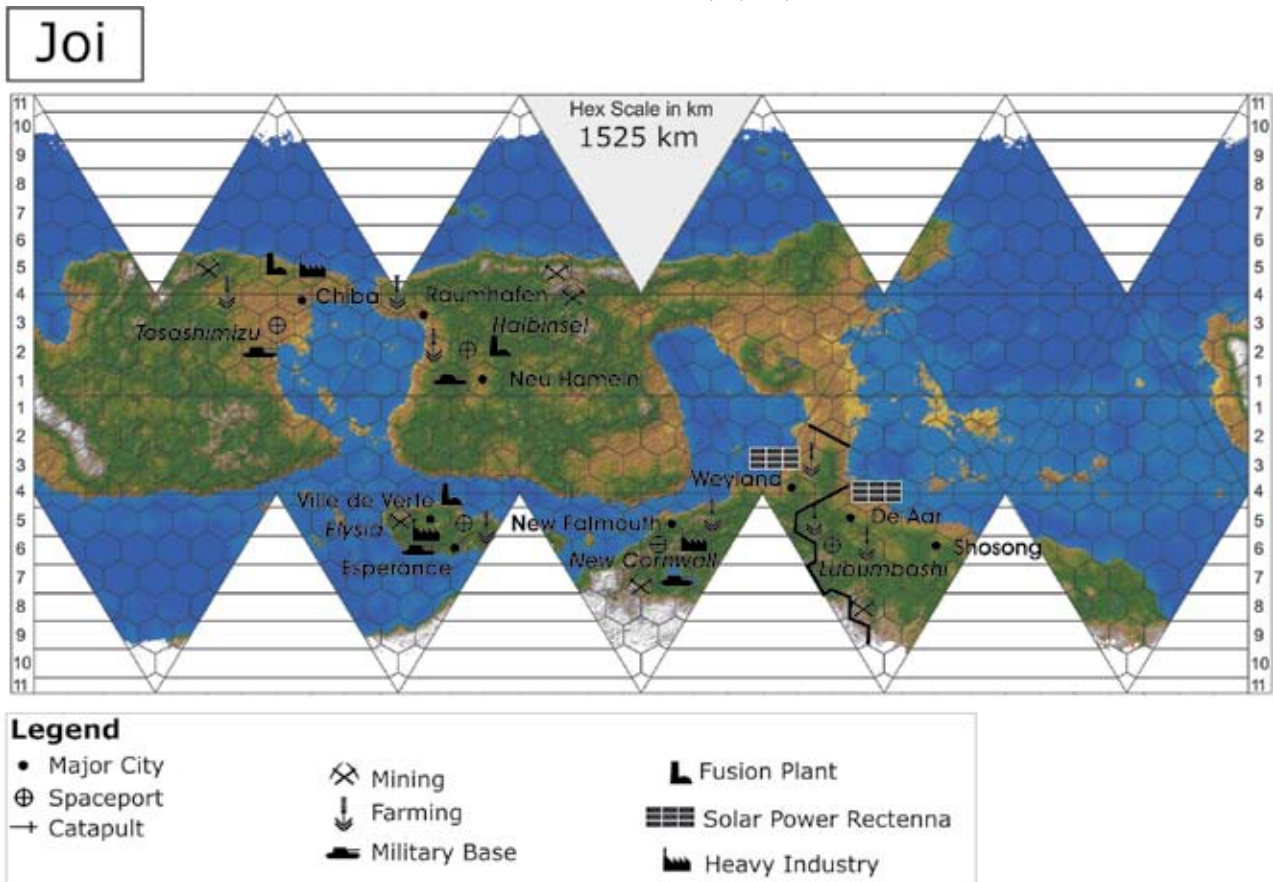
Literacy: 99%

College Education: 64%

Major Cities: Raumhafen (351,000), Neu Hameln (79,000)

COLONIAL DATA

Five different nations planted colonies on Joi. Each one



Currency: German Taler

Government Type: Democratic Republic (4)

Law Level: Moderate. Light Assault Weapons Prohibited (4)

Tech Level: (9)

Trade Data: Ag

Principal Trading Partners: Elysia, Nibelungen, Germany

Interface Capability: Scramjet, Roton (C)

Resources: Farming, Mining

Military Presence: Orbital Defense Installation, Military Base, Naval Base

Other Bases: None

Services: Fusion Plant, Powernet (61%), Road Net (37%), Rail Net (41%), Link Network (81%), Airship Net, Weather Satellites, Communications Satellites, Orbital Terminal

The French may have been the first to survey Joi, but the Bavarians were the first to actually put in a colony.

The German colony is centered on the city of Raumhafen, which is surrounded by extensive farmlands. During the Kafer War the whole region came under heavy attack, and the colonists are struggling to contain an outbreak of Kafer Blight in the farms to the south of the city. Though the damage was extensive, the German government has invested a great many resources in the rebuilding process, and the colony is nearly up to the level it had attained before the war. Like many of the French Arm colonies, Halbinsel suffered over a 20% loss in its population, due to the war and subsequent famine and immigration.

The original large orbital defense installation was destroyed in the fighting, but it was able to give a good enough account of itself to lighten the blow against the world it protected. The ODI has since been replaced, but the new station isn't as capable as the old.

The colonial government operates with a typically German efficiency. There is very little input from the colonists themselves; they answer to an Earth-appointed governor who has some very large – indeed sometimes totally impractical – quotas and schedules to meet. However, the colonists are grateful for the support they received throughout the war and afterwards, and accept the quotas as paying their fair share. Indeed, the colonists are at loss over the recent terrestrial German soul-searching and hand-wringing over their part in the Kafer War, in particular the genocidal acts of Konteradmiral Lutke and his ships.

The ex-French Colony

Colony Name: Elysia

Colony Population: 2.3 million

Date Founded: Independent in 2291

Nationality: Independent

Life Expectancy: 95 years

Literacy: 99%

College Education: 64%

Major Cities: Ville de Verte (120,000), Éspérance (97,000)

Currency: Elysian franc

Government Type: Democratic Republic (4)

Law Level: Low. Personal concealable firearms prohibited (5)

Tech Level: (9)

Trade Data: NI

Principal Trading Partners: Halbinsel, Adlerhorst

Interface Capability: Spaceplane (C)

Resources: Farming, Mining, Heavy Industry

Military Presence: Military base, Naval base

Other Bases: Science

Services: Fusion Plant, Powernet (62%), Road Net (60%), Rail Net (30%), Link Network (93%), Airship Net

France arrived on Joi less than a decade after the Germans, settling on the large island (or small continent) of Elysia. At first French and German interests coincided, but by 2270 they had definitely started to diverge.

In 2285, long-standing grievances between the colonists and the French government erupted into violence. An environmental demonstration termed ugly when a young French lieutenant panicked and ordered his troops to open fire. Though the casualties were small, the event nonetheless incited the population into rebellion.

The fighting lasted for over six years, but eventually left the colonists in charge. Though the Elysians received considerable assistance from certain Hanoverian, now German, agent provocateurs, they nonetheless do not feel beholden to the Germans. The Elysians inherited a large-capacity fusion plant from their former masters, along with an orbital terminal. Though the fusion plant survived the Kafer War, the terminal did not, and the Elysians have not yet been able to replace it.

Though Elysia fared better than most in the Kafer War, it had only barely started to recover from the Elysian War when the Kafers invaded. The population was already widely dispersed, heavily armed and used to fighting a guerilla war. Kafer landings on Elysia suffered heavier losses than any other colony on the planet.

To outsiders, Elysia always seems on the verge of collapse, and indeed it still isn't completely stable. However, the new nation has made great strides since the end of the Kafer War in alleviating the suffering of its citizens. France is still thought to be involved in attempts to destabilize the nation, making the rebuilding process more difficult than it should be.

The British Colony**Colony Name:** New Cornwall**Colony Population:** 1.3 million**Date Founded:** 2254**Nationality:** British**Life Expectancy:** 94 years**Literacy:** 99%**College Education:** 83%**Major Cities:** New Falmouth (287,000), Weyland (127,000)**Currency:** British Pound**Government Type:** Governor General appointed from Earth (6)**Law Level:** Moderate. Light Assault Weapons prohibited (4)**Tech Level:** (10)**Trade Data:** Ri, Ag**Principal Trading Partners:** Alicia, Wellon, Britain**Interface Capability:** Spaceplane, catapult (B)**Resources:** Farming, Mining, Heavy Industry**Military Presence:** Orbital Defense Installation, Military Base**Other Bases:** None**Services:** Solar Power Satellite, Rectenna, Powernet (73%), Road Net (55%), Rail Net (45%), Link Network (35%), Weather Satellites, Communications Satellites, Orbital Terminal

New Cornwall is the most advanced of the colonies on Joi. It remained neutral during the Elysian War of Independence, and was a rallying point during the Kafer War. The colony's advanced industries and advanced orbital defenses were instrumental in limiting the damage caused by the alien invaders in both phases of the war.

Though much of the colony's orbital infrastructure was destroyed in the war, it has largely been rebuilt, though the expense is going to set the colony back many years. Immigration has been heavy during the post-war period, and along with the settlers came refugees from other worlds harder hit by the war.

The Japanese Colony**Colony Name:** Tosashimizu (Samurai Bay)**Colony Population:** 1.2 million**Date Founded:** 2257**Nationality:** Japanese**Life Expectancy:** 99 years**Literacy:** 99%**College Education:** 76%**Major Cities:** Chiba (750,000)**Currency:** Japanese Yen**Government Type:** Colonial Governor (6)**Law Level:** Moderate. Personal concealable firearms

prohibited (5)

Tech Level: (9)**Trade Data:** Ni, Ag**Principal Trading Partners:** Japan, France**Interface Capability:** Spaceplane, Shuttle**Resources:** Farming, Mining, Heavy Industry**Military Presence:** Military Base, Naval Base,**Other Bases:** Science**Services:** Fusion Plant, University, Powernet (79%), Road Net (71%), Rail Net (34%), Link Network (98%), Airship Net, Weather Satellites, Communications Satellites

Japan settled Joi in 2257, shortly after the British arrived, and in contrast to the former colony, chose to commit a massive effort to build up their colony as quickly as possible. Their expansion has been quite aggressive, and they were the first to introduce Terran crops and livestock on a large scale. This caused quite an uproar amongst environmental groups, but the Japanese were undeterred.

During the Elysian War, the Japanese offered support to French forces, though the offer was declined. To this day it is thought that the Japanese have territorial designs on the former French colony.

During the Kafer War, the Japanese population dispersed to carefully-placed shelters in the rural areas. Their carefully-built up infrastructure was devastated by the orbital bombardment and subsequent troop landings, but Tosashimizu's civilian casualties were relatively light.

They have concentrated on rebuilding their ground-based infrastructure since the end of the war, and have only recently put in a small orbital terminal.

The Azanian Colony**Colony Name:** Lubumbashi**Colony Population:** 2.2 million**Date Founded:** 2280**Nationality:** Azanian**Life Expectancy:** 98 years**Literacy:** 98%**College Education:** 68%**Major Cities:** De Aar (264,000), Shoshong (198,000)**Currency:** Azanian Rand**Government Type:** Democratic Republic (4)**Law Level:** Moderate. Personal concealable firearms prohibited (5)**Tech Level:** (10)**Trade Data:** Ri, Ni, Ag**Principal Trading Partners:** New Cornwall, Tundakubwa**Interface Capability:** Roton (D)**Resources:** Farming, Mining**Military Presence:** None**Other Bases:** None

Services: Rectenna, Powernet, Road Net (32%), Rail Net (30%), Link Network (98%), Airship Net

Lubumbashi, the youngest of the Joi colonies, is an Azanian settlement founded in 2280. It was just starting to become self-sufficient in food production when the Kafers struck in 2302. Though the damage was heavy then, the colony was just starting to rebuild when the Kafers struck again in 2307. The damage to Lubumbashi is severe enough that the Azanian government is considering simply pulling support for the colony. There have been recent secret negotiations with the British at New Cornwall, and the rumor runs that the British will absorb the nearby colony. This has generated less controversy than might be expected. The two colonies have always enjoyed good relations, and several Azanian refugee camps were established on New Cornwall's better defended territory during the three years of ground war versus the Kafers.

CRATER/HENRY'S STAR (DM+38 2285)

Not all colony worlds are Earthlike in their makeup and conditions, as Crater is a marvelous example. Some worlds are only habitable by a stroke of luck after one of nature's more spectacular accidents.

SYSTEM DATA

STELLAR DATA

Primary Name: Henry's Star

Spectral Class: G8 VI

Magnitude: 6.71

X, Y, Z Coordinates: -22.7, 0.9, 17.7

Number of Planets: 1

Number of Asteroid Belts: 1

Stellar Data

Companion Name: Catherine's Star

Spectral Class: M0 V

Number of Planets: 0

Number of Asteroid Belts: 0

PLANETARY DATA

While the system has no other planets, the extensive asteroid belt supports a thriving mining industry, and the main station of New Glasgow supports a permanent population of over 12,000 people.

PLANET DATA

Name: Crater

Distance from Primary: 0.36 AU

Year Length: 36.36 days

Size: 11,040 km in diameter

Day Length: 22 hours daylight, 9 hours night. Tidally locked

Core Type: Rocky

World Type: Garden

Surface Gravity: 0.61 G

Atmospheric Pressure: 0.60 atm

Climate: Tropical

Water Presence: 10%

Atmospheric Composition: N₂ (86%) O₂ (10%) Trace (2%)

Biodiversity: Abundant

Resources: 12

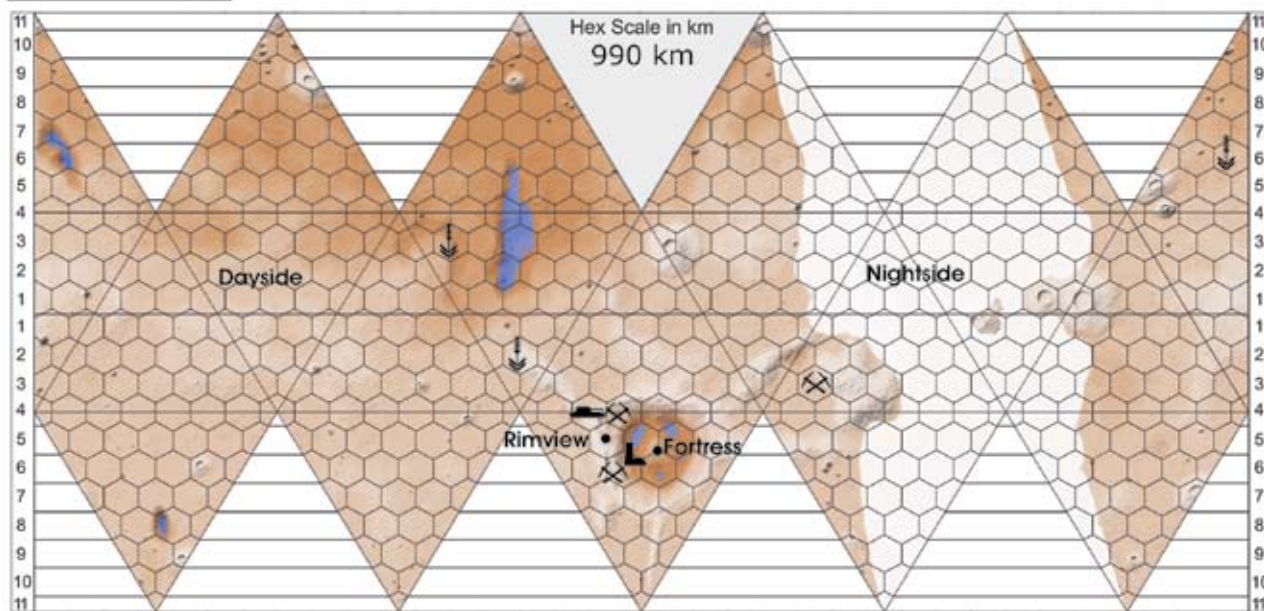
Save for an accident of history, Crater would probably have developed as another of the worthless rocks so common in explored space. Supporting a rather thin atmosphere and scant free water, Crater's classification as a "garden world" is due to exceptional conditions in a single region of the planet. These special conditions have shaped the planet's role in colonial exploitation.

Though Crater is tidally-locked, it does experience considerable libration effects, giving the twilight band around the world something of a day/night cycle. Crater lacks a magnetic field, and coupled with the world's thin atmosphere means that there is scant protection from the radiation and charged particles poured from the system's two stars. In addition, Catherine's Star is a flare star, and during the thankfully rare flare times, the surface is exposed to occasionally lethal doses of radiation, and experiences severe temperature increases.

The world's namesake is a massive 1600 kilometer diameter impact crater in the southern hemisphere. The impact must have blasted away much of the world's atmosphere, and wiped out nearly 90% of the plant and animal life on the world. The planetoid fragment that struck had an unusually high concentration of radioactives and other heavy elements, and so though the rest of the planet is largely worthless in terms of natural resources, the area of the impact crater is extremely rich. The bottom of the impact crater itself is covered with a network of lakes and swamps, and it uncomfortably hot. The only comfortable area within the crater is the mountain at its center, the result of upwellings after the initial impact.

Although local forms find Terran life edible (and vice versa), there are major differences in crucial vitamin complexes between the two animal kingdoms. Thus local life alone cannot be used to support human colonists for any length of time without the use of major vitamin supplements, nor can local animals prey exclusively on Terran food sources. There is evidence that some of the larger predators in the vicinity of the human ranches are starting to show signs of vitamin deficiencies, indicating that Terran animals are forming too large a part of their diets.

Crater



Legend

• Major City	⚒ Mining	⚡ Fusion Plant
⊕ Spaceport	↓ Farming	☄ Solar Power Rectenna
→ Catapult	🏠 Military Base	🏭 Heavy Industry

116

COLONIAL DATA

Colony Name: Crater**Colony Population:** 1.1 million**Date Founded:** 2217**Nationality:** British**Life Expectancy:** 89 years**Major Cities:** Rimview (820,000),**Currency:** British Pound**Government Type:** Governor-General acting as a dictator (A)**Law Level:** High. Long-bladed weapons prohibited and all weapons controlled outside one's home (A)**Tech Level:** (7)**Trade Data:** Po, NI**Interface Capability:** Spaceplane, Catapult (B)**Resources:** Farming, Mining, Heavy Industry**Military Presence:** Military Base**Other Bases:** Foundation (Royal Society)**Services:** Fusion Plant, Powernet (31%), Road Net (22%), Rail Net (12%), Link Network (55%)

The majority of the colonists are concentrated in the small city of Rimview on the upper edge of the crater. Many alternatives were initially considered before this site was chosen; it represents a compromise between a number of different possible sources of discomfort. Most of the city's populace is employed in various light industries or service-oriented

jobs. Notable features of the city include the large orbital catapult on the east edge of the city, the large elevator complex that allows a descent to the crater floor and the fusion plant located there, and a network of underground shelters built into the crater wall below the city. During the Kafer attack, most of the city's population took shelter in those caves, which were normally used in case of high radiation activity or a failure in the town's shielding systems.

The Kafers didn't land many troops during the second phase, but they did use the planet as a forward base. During this time the asteroid miners suffered heavy casualties from near constant Kafer raids. Most of the casualties on the planet came in the initial attack, and though the damage was relatively light compared to some other worlds, by the time the world was relieved by human forces, some 300,000 people had perished, along with another 5000 in the asteroid belt.

The non-urban population of Crater is divided between the ranchers of the uplands and the various small mining towns that are found at various points around and within the crater itself.

The colony's original orbital station was destroyed in the second phase of the war, and Britain has yet to build a new one, instead waiting on the volatile situation on the surface to resolve itself.

In 2309, Governor-General McBride took advantage of the Crown's heavy involvement in the war against the Kafers,

to seize power, using mercenaries that he had hired ostensibly to protect the colony. He continued to send Britain the resources requested, and in return the Home Office turned a blind eye to his actions on the colony. This allowed him to cement his power base, so when the war ended he was too thoroughly in control to be readily removed. Though the admiralty suggested sending in the marines, the Home office demurred, citing the possibility of high collateral damage. The real reason may be the HO's unwillingness to accept culpability for McBride's seizure of power.

McBride has built a citadel for himself on the mountain at the center of the crater, well-defended by his mercenaries and the French and Manchurian heavy weapons he has been able to obtain.

The colony on Crater is not an easy one to live in. Colonists living and working in the desert uplands must contend with a thin atmosphere, desert temperature extremes, a lack of potable water, and other unpleasantness. Prolonged exertion is almost impossible in the uplands because of the low partial pressure of oxygen and the already thin atmosphere. Rimview and other population centers feature sealed buildings where internal pressure can be raised, to Earth standards, and most people forced to work or travel out doors carry oxygen masks. Still, fatigue is a major problem. As for temperature, the daytime temperature in the uplands can climb as high as 30°C, and drop to near 0° C in darkness. These extremes are the result of the thin atmosphere, which has poor heat-retentive qualities.

The miners who work within the crater have a different set of problems to contend with. The atmospheric pressure within the crater climbs as one approaches the floor of the rim; at the lowest levels, it approaches Earth-normal pressure. However, decreased altitude also brings a significant increase in temperature. The floor of the crater consistently runs 8° to 10°C higher than the upland temperatures. In full daylight, this is above the level of human tolerance and protective gear must be worn.

The need for protection from the elements is at the heart of miners' grievances with the government. Light local industries are slowly beginning to furnish some essentials, but all too often the equipment essential to miners trying to make a living on Crater is imported, subject to high initial prices and even higher government tariffs. Imported goods on Crater can cost two or in some cases three times as much as they might cost on Earth or any of the more self-sufficient colony worlds. In many cases, these inflated prices stem as much from local corruption as from actual economic necessities.

Finally, in 2313, the simmering unrest boiled over, and the miners and ranchers rose up in rebellion against Governor McBride and his Colonial Constabulary. Though McBride succeeded in cutting off the uplands from the power provided by the fusion plant, the ranchers had been long manufactur-

ing their own solar panels, and used the abundant sunlight of the dayside to power their homes and vehicles.

In response, McBride has hired additional mercenaries, including the so-called StarSeid, a mercenary outfit running their own armed ships and interface craft. Their primary role is to enforce McBride's blockade of the rebellious regions. Britain is thought to be surreptitiously arming the rebels, while at the same continuing to purchase refined ores from the Crateran government. The local asteroid miners are firmly in support of their brethren on the surface, and have been known to fly shipments of weapons and equipment through the blockade.

The miners, for their part, have retreated into the extensive network of caves once used by McBride and his troops to carry out guerrilla raids on Kafer occupation troops in the early phase of the war. The irony of this is not lost on any of the participants.

ADLERHORST/Vogelheim

The Vogelheim system has a remarkable two worlds with independently developed biospheres. The first is Adlerhorst, home of a human colony. The second is Oiseau, which has evolved a halogen-based biosphere, an event unknown anywhere else.

SYSTEM DATA

STELLAR DATA

Primary Name: Vogelheim

Spectral Class: K3 V

Magnitude: 8

X, Y, Z Coordinates: -29.6, -5.9, 19.4

Number of Planets: 10 (Adlerhorst, Ptak, Pasare, Oiseau, Aigie, Pouli, Tori, Ndege, Ayes, Tsipor)

Number of Asteroid Belts: 1

PLANETARY DATA

PLANET DATA

Name: Oiseau

Distance from Primary: 1.7 AU

Year Length: 427 days

Size: 11,500 km in diameter

Day Length: 41 hours

World Type: Glacier

Surface Gravity: 0.87 G

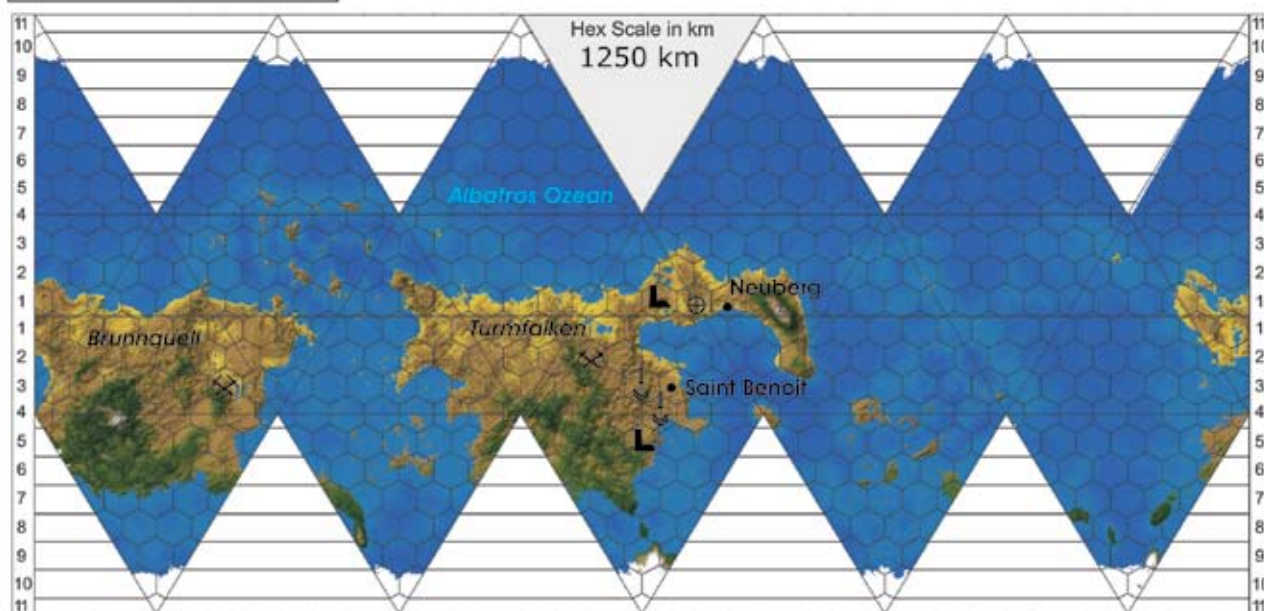
Atmospheric Pressure: 2.3 atm

Climate: Frigid

Water Presence: 54% (HF, hydrofluoric acid)

Atmospheric Composition: N₂ (12%), CF₄ (17%), BF₃ (16%), F₂ (7%), others

Adlerhorst



Legend

• Major City	⚡ Mining	⌚ Fusion Plant
⊕ Spaceport	↓ Farming	☰ Solar Power Rectenna
→ Catapult	🏠 Military Base	🏭 Heavy Industry

Biodiversity: Diverse; unusable

Natural Resources: 4

Satellites: 0

Oiseau is unique in human space, the only world with fluorine present in its atmosphere in such quantities. Oxygen is also a component of this frigid world's atmosphere, but it plays only a minor role in local biochemistry. Its chief effect as far as Humanity is concerned is to render the atmosphere even more reactive to most metals.

Life Forms: The recent discovery of a halogen-based biosphere on Oiseau has caused considerable excitement in the scientific world. In the past few decades, a few old-fashioned remote probes were dropped, but standard life detection sensors will not register Oiseauan lifeforms as alive, and therefore they did not pick them up. The world's highly corrosive atmosphere caused the metal in the early probes to deteriorate rapidly, and few remained in operation long enough to do much other than provide a few details of the world's surface. Interest waned, and studies slowed as research money was pushed into more interesting locales.

Part of good scientific technique, however, is to occasionally reexamine old data for new insights. Because of certain anomalies detected in the data from Oiseau, a researcher with the Adlerhorst branch of the ARI reached a startling conclusion late in 2287. A number of odd-looking formations on the world's surface seemed to be alive (instead of the inorganic crystalline structures they were thought to have been

initially). Other (supposedly inorganic) structures seemed to be able to move of their own volition! In 2279, a new series of probes (built using more advanced synthetic materials and less affected by the atmosphere) were sent to the surface of Oiseau. They soon confirmed the presence of a wide variety of halogen-based life forms.

The nature of basic biochemistries has been fairly well established. The local "plants" photosynthesize carbon tetrafluoride, hydrogen fluoride and other chemicals into food, releasing gaseous fluorine. The "animals" eat the plants, using the inhaled fluorine gas and hydrogen fluoride to digest them, and exhaling carbon tetrafluoride. Details of body structure vary, but most plants use long-chain polymers in their supportive structures (much as many terrestrial plants use cellulose), causing one xenobiologist to remark that they are made of PVC plastic.

Because of the Kafer War, the research into the life forms of Oiseau was temporarily suspended, but many are eagerly awaiting the new series of probes scheduled by the ARI to land later in 2320.

PLANET DATA

Name: Adlerhorst

Distance from Primary: 0.5 AU

Year Length: 202 days

Size: 14,000 km in diameter

Day Length: 27.8 hours

World Type: Garden

Surface Gravity: 1.16 G

Atmospheric Pressure: 1.05 atm

Climate: Temperate

Water Presence: 81%

Atmospheric Composition: N₂ (76%), O₂ (22%), Argon (2%)

Biodiversity: Diverse

Natural Resources: 4

Satellites: 0

One of the most unique features of Adlerhorst is the domination of the two pseudo-avian animal groups over the other animal types in the eco-system. Unlike the birds of Earth, the Tomavians (almost birds) and Xenoavians (strange birds) have largely kept their teeth, and many have manipulatory appendages at the carpal joints of their wing-like forelimbs.

Located at the extreme end of its finger of the French arm, Vogelheim is at the frontier of human space. Unfortunately, it is also at a dead end, and explorations have largely abandoned this sector of space for more profitable areas.

HUMMERS (PTERODEIMOS VAR.):

A bipedal carnivore native to the uplands of Brunquell similar to the now extinct Diatrema of the Oligocene epoch on Earth. Their distress call is a loud, low-pitched hum, hence the name commonly applied to them by the early colonists. Hummers have effectively lost their wings, but they retain large, wickedly curved claws on their legs with which they bring down their prey. Hummers attack in family groups, usually of six or more individuals, chasing their prey to exhaustion and then moving in for the kill with great slashing leaps. These fierce hunters are now largely restricted to the sparsely settled northwestern plains of Brunquell. Hummers range from 100 to 400 kilograms in weight, and from 1 to 2 meters in height.

COLONIAL DATA

Colony Name: Adlerhorst

Colony Population: 8.9 million

Date Founded: 2231, independent since 2213

Nationality: Independent

Life Expectancy: 98 years

Literacy: 99%

College Education: 71%

Major Cities: Neuberg (376,000), Saint Benoit (351,000)

Currency: Adlerhorst Dollar

Government Type: Participatory Democracy (2)

Law Level: Moderate. Personal concealable firearms

prohibited (5)

Tech Level: (9)

Trade Data: Ag

Principal Trading Partners: Freihafen, Germany, France

Interface Capability: Spaceplane, Roton (C)

Resources: Farming, Mining

Military Presence: Military Base, Naval Base

Other Bases: Foundation (ARI, IEX), Science

Services: Fusion Plant, University, Powernet (67%), Road Net (72%), Rail Net (54%), Link Network (100%), Weather Satellites, Communications Satellites, Orbital Terminal

The peaceful existence of this remote colony world was shattered by events on Earth, when sentiments over the War of German Reunification put the two colonies at each other throats. Tensions ran very high, and there were several outbreaks of violence between the two colonies. A multinational peacekeeping force intervened in 2298, and stayed in place until the Kafer War, where they joined the two colonies to defend the world.

Twenty years later, under the pressures of rebuilding from the Kafer War, and dissatisfaction with their colonial masters, the two colonies unified themselves, and presented the Earth nations of Germany and France with a fait accompli. The two nations, caught off-guard, had no real choice but to acquiesce to the colonial secession, though France was decidedly more reluctant to let the world slip away than was Germany.

The new government enforces mandatory voting, and has electronic referenda on any issue of importance. Voters are expected to keep themselves up to date on the issues, and must pass a brief quiz before being allowed to vote. Demarchist-style data access and communications implants are finding a niche in this participatory democracy.

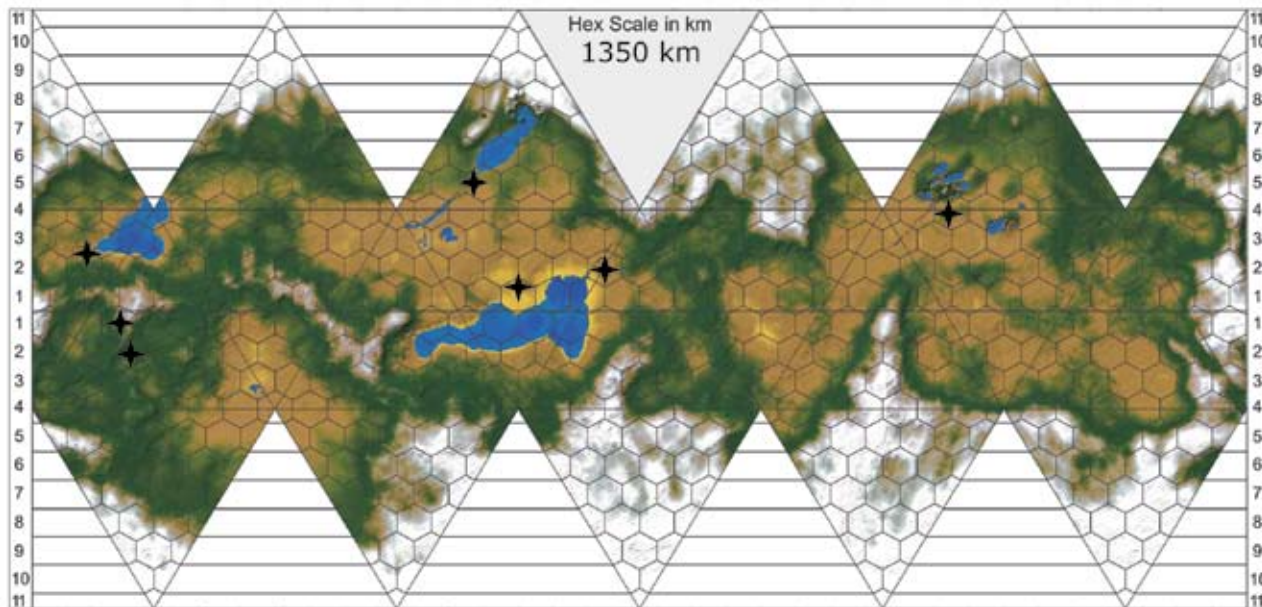
Bad Blood:

Though the two colonies did amalgamate, there is still some bad blood over the war. This sometimes works itself out in the form of violence, from the occasional ethnically-motivated soccer brawl to quiet killings of suspected collaborators. This has even spilled over into demonstrations and riots against the new national government.

NOUS VOILÀ/BETA COMAE BERENICES

Beta Comae Berenices is the first system out from Beta Canum along the finger stretching out toward Kafer space. It was also the last major casualty of the Kafer War, and a devastating loss to the French Empire.

Nous Voilà



Legend

• Major City	⚡ Mining	⚡ Fusion Plant
⊕ Spaceport	↓ Farming	☰ Solar Power Rectenna
→ Catapult	🏠 Military Base	🏭 Heavy Industry
✦ Ruins		

120

SYSTEM DATA

STELLAR DATA

Primary Name: Beta Comae Berenices
Spectral Class: G0 V
Magnitude: 4.66
X, Y, Z Coordinates: -22.9, -7.2, 12.8
Number of Planets: 6 (Senere, Delacroix, Nous Voilà, Un, Deux, Trois)
Number of Asteroid Belts: 0

PLANETARY DATA

PLANET DATA

Name: Nous Voilà
Distance from Primary: 1.48 AU
Year Length: 455 days
Size: 15,000 km in diameter
Day Length: 31.3 hours
World Type: Garden
Surface Gravity: 1.05 G
Atmospheric Pressure: 1.1 atm
Climate: Temperate
Water Presence: 52%
Atmospheric Composition: N₂ (78%), O₂ (18%), Trace (4%)
Biodiversity: Active

Natural Resources: 4

Satellites: 0

Nous Voilà's climate was not always as temperate as it is today. When explorers first discovered it, it had an adequate atmosphere, but was cold, with ice caps covering most of the planet's surface and holding most of the available water. Native life was adapted to this temperature, with hardy plants and a few small sea creatures, but no land animals.

Native Life: One species in particular attracted considerable interest, and debate still rages today over its true import. Was there intelligent life on Nous Voilà before humans arrived? Some archaeologists believe so. Much of the evidence was destroyed by ice and snow, so artifacts are hard to come by, but some sites seem to yield signs that a mammalian quadruped gathered into communities on the largest continent in the northern hemisphere and settled down to civilized life on a small scale.

It is difficult enough to judge whether an extant species is intelligent, but when the species has been extinct for thousands of years, the question may never be answered conclusively. Geneticists have collected vast samples from the life present on Nous Voilà, and have attempted to extract as much genetic material as possible from the fossil evidence, but have had no luck in cloning any of the extinct creatures.

By the time of the Kafer War, Nous Voilà's terrestrial biology was almost entirely Terran, with some forms allowed to run free, notably mule deer, grey wolves and European bison.

TERRAFORMING:

French scientists used a genetically-engineered micro-organism to make the planet inhabitable to man. The microbe was let loose on the planet's surface, where over a period of twelve years it spread over the ice caps. The dark color of the tiny creatures changed Nous Voilà's albedo, warming the planet and melting most of the ice caps and glaciers except at the poles. Once the change was in effect, a second biological agent was released to kill the microorganism. The world was quarantined for another six years to prevent the undesired contamination of other worlds before the microorganisms were totally destroyed.

Human ingenuity had changed a frozen, barren world into a garden ready for planting – and Kafer belligerence may yet return the world to its glaciated state.

Hazards: The process of terraforming Nous Voilà was relatively rapid, as was the initial pace of colonization. However, at some point in the terraforming process, something went wrong, and a deadly retro-viral plague was unleashed on the fledgling colony. The plague was eventually cured through a novel utilization of DNA modification therapies, and the so-called "technique d'amon" named after the doctor who perfected it, is in use on countless worlds fighting any nascent retroviral diseases.

COLONIAL DATA

Colony Name: Nous Voilà

Colony Population: 85,000 human, 78,000 Kafer

Date Founded: 2220

Nationality: French

Life Expectancy: 61 years

Literacy: 50%

College Education: 20%

Major Cities: None

Currency: French Livre

Government Type: None (0)

Law Level: None (0)

Tech Level: (0)

Trade Data: -

Principal Trading Partners: France

Interface Capability: None (X)

Resources: None

Military Presence: Naval Base

Other Bases: Foundation (Zapamoga)

Services: none

Nous Voilà was a pleasant colony world characterized by scattered villages and productive farms. The first settlers were from French Africa, primarily Cameroon and Senegal. Later colonists followed from continental France, fleeing the latest round of government obtrusiveness and the tightening of the

surveillance loop. Nouveau Amman was often characterized as being quite libertarian.

THE KAFER WAR

The first phase of the war saw extensive troop landings, along with orbital bombardment. Nearly 50% of the planet's population perished. Towards the end of the second phase, when human ships were driving the Kafers back, Nous Voilà was visited for a second time. On this occasion, the remaining fleets took the opportunity to drop off all their damaged vessels, along with landing craft, vehicles, anything that would slow them down. They then proceeded to level every single human settlement they could spot from orbit, including the dam upriver from the main settlement. The surface of the planet was pounded by Kafer orbital strikes for the better part of a week before human fleets broke through and drove them from the system. By this time, nearly 90% of the planet's prewar population was either dead or had fled towards Earth. The colonial infrastructure was gone, and nearly 100,000 Kafers had been abandoned, along with their weapons and equipment. The human survivors only barely outnumbered the Kafers.

Efforts since the war have largely been trying to find the survivors and convince them to get off-world. French military units continue to hunt the Kafers, but Nous Voilà is a pleasant enough world that many of them will survive. Given Kafer breeding rates, the population on Nous Voilà could pose a serious threat within a few decades. In any case, with its devastated infrastructure, coupled with the Kafer threat, Nous Voilà is no longer suitable for human habitation.

There is another danger to Nous Voilà. The extensive Kafer bombardment kicked large quantities of dust and soot into the upper atmosphere, and the world is starting to cool off. It is possible that this cooling could trigger a return to the world's former glaciated state. Some feel that this wouldn't necessarily be a bad thing, as the world could be re-terraformed once conditions stabilized, and the temporary ice age may well eliminate the heat-loving Kafers.

RESCUE RACE:

The French government, along with aid agencies like Zapamoga and the Life Foundation, periodically launch rescue missions to the wilderness of Nous Voilà, hoping to find survivors. Anytime they find hopeful signs, they set down with a small flotilla of landing craft and rotons, and take off everyone they can find. During these missions, they employ teams of soldiers and/or mercenaries to scout the neighborhood and eliminate any Kafer threat. The steadily worsening weather is hampering these rescue efforts, however, and they may have to be called off soon.

DUNKELHEIM/DM+36 2393

Not every colony world has necessarily developed a society which mirrors that of Earth. Dunkelheim is a good example of the sort of differences that can happen.

SYSTEM DATA

STELLAR DATA

- Primary Name:** DM+36 2393
- Spectral Class:** M2 V
- Magnitude:** 9.1
- X, Y, Z Coordinates:** -23.5, -10.4, 18.5
- Number of Planets:** 3
- Number of Asteroid Belts:** 0

PLANETARY DATA

PLANET DATA

- Name:** Dunkelheim
- Distance from Primary:** 0.21 AU
- Year Length:** 76.65 days
- Size:** 7100 km in diameter
- Day Length:** 13.25 hours
- Core Type:** Rocky
- World Type:** Garden
- Surface Gravity:** 0.60 G

Atmospheric Pressure: 0.61 atm

Climate: Temperate

Water Presence: 48%, 12% available (Most is locked up in kamelinsekt habitats)

Atmospheric Composition: N₂ (81%), O₂ (17%), Trace (2%)

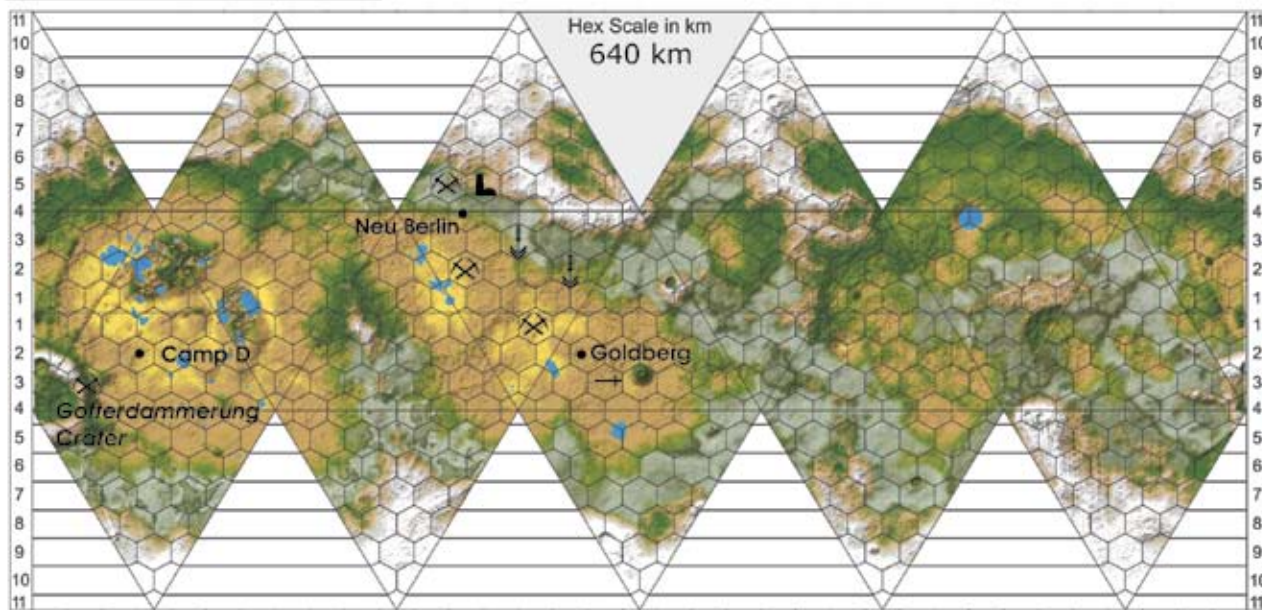
Dunkelheim is a near-desert world in the outer reaches of the French Arm. Agriculture is difficult at best, but the world is a rich source of valuable ores.

Kamelinsekten: These tiny insects occupy enormous colonies consisting of billions of individuals. They create hive-like habitats that can be over a kilometer in diameter, where they excrete a resinous material to cement the sandy soil into a honeycombed habitat up to ten meters deep. After a few seasons, they move on, leaving the abandoned habitats to collect water like a giant rocky sponge. It is very difficult to extract water from the habitats, which have locked up close to half of the planet's water supply. Unfortunately, these little insect-analogs have no predators due to an ecological catastrophe over a millennia ago, and they have grown in number to the limit of the local vegetation's ability to support them.

COLONIAL DATA

- Colony Name:** Dunkelheim
- Colony Population:** 955,000
- Date Founded:** 2224
- Nationality:** German

Dunkelheim



Legend		
• Major City	⊗ Mining	⌒ Fusion Plant
⊕ Spaceport	↓ Farming	☐ Solar Power Rectenna
→ Catapult	⚡ Military Base	⚙ Heavy Industry
🌿 Kamelinsekt Habitat		

Life Expectancy: 108 years

Major Cities: Neu Berlin (425,000), Goldberg (127,000), Zapamoga Camp D (17,500)

Currency: German Taler

Government Type: Elected government responsible only for internal matters (4)

Law Level: Moderate. Light Assault Weapons Prohibited (4)

Tech Level: (10)

Trade Data: Po, NI

Interface Capability: Catapult (B)

Resources: Farming, Mining

Military Presence: Defense Installation, Naval Base

Other Bases: None

Services: Fusion Plant, University, Powernet (78%), Road Net (55%), Rail Net (72%), Link Network (56%), Orbital Terminal

Dunkelheim is a fairly unpleasant world, and served for a time as a Bavarian penal colony. At the time of colonization, Bavaria and several of her terrestrial allies were having a problem with vice crime, things like prostitution, drug users and dealers, pornographers and the like. The Bavarian treasury was strained by the effort of incarcerating these people, but at the same time the Bavarians needed colonists for the relatively unpleasant world just opened up on the edge of the frontier: Dunkelheim.

The Bavarian government, along with some other European nations, offered remission of prison sentences to anyone who agreed to emigrate to the new colony. This offer was only made to those who had some skills needed by the colonial startup, and soon the new world had its share of lawyers, doctors engineers and other professions.

As the program progressed, the colonization efforts were so successful that the Bavarian government expanded the program to include criminals with less education or work experience. Violent criminals, of course, were never sent as colonists, but many of the descendants of the original colonists pretend in a facetious way that this was the case.

Naturally, the present government of Dunkelheim is not composed of lawbreakers and the judicial order on Dunkelheim proceeds apace much as it does on other colonies. The only noticeable difference in the legal structure of the world

Diebwoche:

The so-called "Week of Thieves" is a festival that commemorates the founding of the colony. During the festivities, revelers "steal" small items from restaurants and shops; careful shopkeepers leave out special items just for this purpose, just so more valuable items are not taken. Parties are held, and invited guests must crawl through windows or descend through skylights to gain entrance.

is a strong libertarian tint. Most of the "crimes" for which the original colonists were charged are not illegal on Dunkelheim. The government knows well enough not to try to poke its nose into the daily lives of its citizens.

In addition, Dunkelheim does not have any professional license laws. Anyone who wants can set themselves up as a doctor, lawyer, engineer, or any other profession. However, market forces usually force these practioners to be at least competent, and the local custom of dueling is a way to deal with dishonest operators.

Writing with a Dunkelheim Pen:

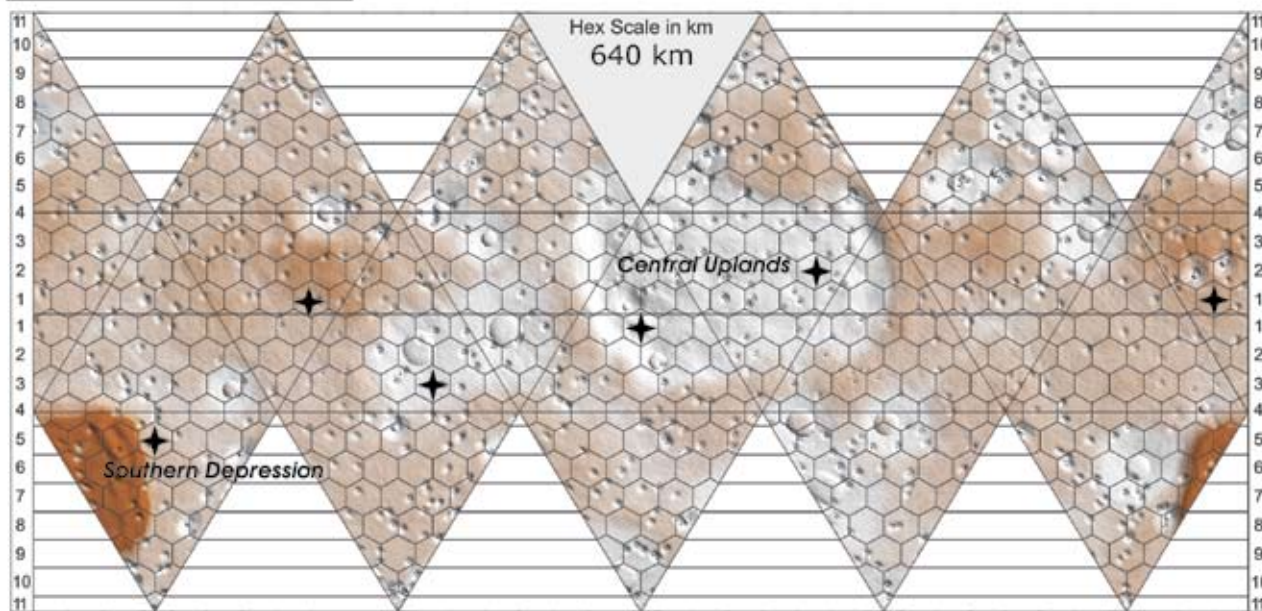
In 2286, political scandal rocked this colony, as it was found out that pens used by many of the government offices were transmitting both sound and pen-strokes to the interstellar trading company of Hofstader. The resulting uproar shut the company down, and nearly caused a change of government in the colony.

The Kafer War

The first phase of the war ended with the famous "Operation: Overlord" as human forces relieved Dunkelheim of its Kafer invaders. Damage to the colony wasn't as severe as elsewhere, as the Kafers weren't overly concerned with the unorganized human resistance. The second phase went differently, though. The Over-Suzerain and its advisors had no desire to leave any worlds behind them in their drive on Earth, and subjected Dunkelheim to extensive orbital bombardment. However, here a tactical error on the part of the Kafers actually favored the human inhabitants. The kamelinsekt habitats registered as artificial constructs to the Kafer's sensors, and the aliens subjected the dense, resinous terrain to a series of kinetic and nuclear attacks. This freed up roughly 22% of the planet's water that had been trapped in the habitats, and were now in open bodies of water in the impact and detonation zones. Some of it is unusable, but it could very well usher in an agricultural revolution on the planet, even as the temperature drops due to the dust and water vapor in the air.

Like most worlds attacked by the Kafers, Dunkelheim suffered tremendous losses in lives and property. The German government back on Earth has done much to alleviate the suffering the war caused, in a marked contrast to the efforts of the French Imperial Government on their devastated colonies. Part of this assistance has been the construction of a new orbital terminal, with an attached defense installation and naval base. The mines are starting to reopen, and emigration has slowed to a trickle, in part due to the realization that the refugees have nowhere to go. There are a large number of refugees on Dunkelheim, but most of them are Dunkelheim natives, eager to return to their homes and rebuild. Zapamoga is assisting with the process, and runs a camp for refugees near Goldberg.

Hochbaden



Legend

• Major City	⚡ Mining	⌚ Fusion Plant
⊕ Spaceport	↓ Farming	☰ Solar Power Rectenna
→ Catapult	🏠 Military Base	🏭 Heavy Industry
★ Ruins		

124

HOCHBADEN/DM+2296

SYSTEM DATA

STELLAR DATA

Primary Name: Hochbaden**Spectral Class:** K6 V**Magnitude:** 7.5**X, Y, Z Coordinates:** -24.9, -12.6, 14.3**System Nature:** Binary

On the very edge of the French Arm lies Hochbaden, a K6 star with a family of four worlds. Explorers will tell us that such a system has a fair chance of containing a garden world, but in the case of Hochbaden this is not the case – none of the four worlds have spawned life of their own nor are they capable of supporting life transplanted there. Hochbaden is a naturally barren system.

There are apparently one or two empty orbits in the system, since the first world, Hochbaden (the name of both the star and the planet in this system) orbits just outside the life zone of its parent star. The second orbit is held by a rogue, Stein, obviously a captured body, orbiting 30° out of the plane of the ecliptic. Stein has been visited, and has been noted as having substantial iron deposits, but these have yet to be tapped. The third planet in the system is the gas giant Sturmwelt, an enormous world racked by powerful winds

and terrific lightning displays. The final world is a frozen ice ball called Hoffman, after its discoverer. Though never visited, Hoffman is almost certainly without value.

PLANETARY DATA

PLANET DATA

Name: Hochbaden**Distance from Primary:** 0.4 AU**Year Length:** 138.75 days**Size:** 7158 km in diameter**Day Length:** 15.2 hours**Core Type:** Rocky**World Type:** Desert**Surface Gravity:** 0.29 G**Escape Velocity:** 3.23 kps**Atmospheric Pressure:** 0.31**Climate:** Cold**Water Presence:** >1%**Atmospheric Composition:** CO₂ (67%), N₂ (29%), Ar (4%)

Hochbaden is defined as a desert world. It has a very thin atmosphere which can cause erosion and occasional dust storms, but which cannot support human life. Aside from some micro organisms found around the fringes of poles, Hochbaden is a world without life. Even these microbes are presumed to have been transplanted here by a meteor strike,

since they probably could not have evolved under these conditions. Hochbaden has been likened to Mars in many scientific circles.

COLONIAL DATA

To commemorate the seventy-fifth anniversary of the founding of the ARI in 2219, Bavarian government officials announced that a "model star city" would be built in the Hochbaden system, which had no garden worlds to colonize. This daring effort was recognized on Earth as an attempt to prove that Bavarian technology was superior to that of the French.

A 12-year period of planning began, and with the cooperation of the ARI, construction of Kolonie Zwei was started by the Bavarians in 2231. Moving a sufficient quantity of goods to the new colony was a costly and difficult undertaking, but the Institut's scientists solved it by planning "Kleinfabriken," or small factories, built in their entirety on Beta Canum Venaticorum and carried to Hochbaden via starship. The Kleinfabriken were designed to immediately produce actual parts of the Kolonie Zwei facility, using ores imported from Dunkelheim, the German colony next door at DM+36 2393.

Hochbaden was planned as a model colony, and though the early construction had a few setbacks, it was rapidly developing into one of the most advanced colonies in human space. Then the Kafers came.

THE MEMORIAL:

When Kommodore Wilhelm Lutke first visited this world in 2303, after the end of the first phase of the war, he went down to the surface, to the largest of the many colony domes. He was only accompanied by two of his most trusted aides. On his return, he is said to have carried with him a child's toy, which he set up in a small shrine in his office. No one has ever revisited that city, and it is now simply called Memorial.

Hochbaden was a collection of surface domes and space stations in an otherwise uninhabitable system, and hideously vulnerable to space attack. When the Kafers attacked in 2301, they had little interest in capturing the world, and simply blasted from orbit any structure they could find. The space stations fared no better, despite the defense installations hurriedly put into place by the German government. Before the Kafer attack, the colony had over four million inhabitants. Afterwards, despite extensive searches using the most advanced equipment, not a single survivor was found.

Now Germany retains a military outpost in the system, as do Britain, France and America. Germany has recently announced its plans to scale back its military operations, and is closing down the last station.

Nibelungen, in concert with Freihafen, is looking at rebuilding the colony, this time more secure and defensible. The only response from terrestrial Germany to this proposal was a request to leave the dead buried, and if the two new nations must reopen Hochbaden, then do so by building anew, not by reopening the ruins of the old.

AURORE Eta Bootis

The moon of a gas giant, Aurore is a colony world at the edge of Kafer space. Though ravaged by the War, it recovered sooner than many other worlds, and it is the base.

SYSTEM DATA

STELLAR DATA

Primary Name: Muphrid (Eta Bootis A)

Spectral Class: G0 IV

Magnitude: 2.72

X, Y, Z Coordinates: -26.8, -14.3, 10.2

Number of Planets: 5 (Hesperus, Tithonus, Laodemon, Theia, and Astraeus)

Number of Asteroid Belts: 2

Companion Data

Primary Name: Rubis (Eta Bootis B)

Distance from Primary: 3.7 AU

Spectral Class: M5 V

Magnitude: M0 V

X, Y, Z Coordinates: -26.8, -14.3, 10.2

Number of Planets: 0

Number of Asteroid Belts: 0

Notable Planets: Tithonus, the largest of the Eta Bootean planets, is actually a small brown dwarf. Over five times more massive than Jupiter, Tithonus radiates far more heat than it receives from the local suns. It is thus able to sustain a narrow habitable zone at a distance of 3.6 planetary diameters.

PLANETARY DATA

PLANET DATA

Name: Aurore

Distance from Primary: 930,000 km

Year Length: N/A

Size: 9450 km in diameter

Day Length: 60.888 hours (tidally locked)

World Type: Garden

Surface Gravity: 0.73 G

Atmospheric Pressure: 0.77 atm

Climate: Warm

Water Presence: 55%

Atmospheric Composition: N₂ (79%), O₂ (19%),

Ar(1%)

Biodiversity: Diverse; unusable (dextro amino acids)**Natural Resources:** 8**Satellites:** N/A

Aurore is young, as planets go. Eta Bootis A, a young sub-giant rather than a main-sequence star, and its attendant planetary system are probably no more than two billion years old. Aurore itself is the moon of a brown dwarf, and depends on the super-Jovian world it orbits for life-sustaining warmth.

The greater in-fall of radiation has produced a lively mutation rate, and has resulted in the rapid evolution of plant- and animal-analogs, along with a third group occasionally called "anifungus."

Most of the plants and animals on Aurore are actively poisonous, and at best simply provide no nutritional value. Auroran life is based on right-handed amino acids, and thus unusable. Many of the animals and the creatures of the anifungus regnum also secrete an acid, which is usually more dangerous as a systemic poison than for any corrosive effects.

Auroran plants are blue to grey in color, and unlike the trees and plants of most worlds, more resemble large fungi than anything else. Many plants are also carnivorous, or at least saprophytic (consume dead organic matter).

The human colonies on Aurore have been steadily replacing the native life in selected areas with imported Earth crops. Where terrestrial strains have grown wild in places, they have generally failed in competition with native Auroran forms, and colony farms must be carefully and patiently worked to maintain the balance of their miniature and artificial terrestrial ecosystems. Auroran soil is incapable of supporting Terrestrial life, and must be carefully sterilized and cultured before human crops can be grown.

The tidally-locked world has a Hot Pole, with the region surrounding I known as the Hotback, and a Cold Pole, with the surrounding region simply known as La Glaciere.

The Pyramid:

Off the coast of the French colony, in about 300 meters of water, is a five-sided pyramid of extreme age. The stone-like material shows no signs of weathering or erosion, and investigation of the structure turned up an artifact of the Enemy, the race that was at war with the Medusae so long ago. This knife is detailed further in the Chapter 15: Alien Technology.

COLONIAL DATA

First Colony:

Colony Name: Novoa Kiyev**Colony Population:** 2.1 million**Date Founded:** 2244**Nationality:** Ukrainian**Life Expectancy:** 76 years**Literacy:** 99%**College Education:** 61%**Major Cities:** Novoa Kiyev (271,000)**Currency:** Ukrainian**Government Type:** Military Governor (6)**Law Level:** Low. High energy weapons prohibited (2)**Tech Level:** (4)**Trade Data:** NI**Principal Trading Partners:** Aurore, Tanstaaf, Ukraine**Interface Capability:** None (X)**Resources:** Farming, Mining**Military Presence:** Military Base**Other Bases:** None**Services:** Powernet (15%), Road Net (20%), Rail Net (12%), Link Network (12%)

In 2240, on the return of the survey vessel *Le Chercheur* to Earth, data from the survey were disseminated among ESA member states. The Ukraine, though not a member nation, had close political and scientific treaty ties with the European Space Agency and was intensely interested in establishing an out-world colony. In 2241, in exchange for promised development royalties, the Ukraine received an ESA charter to exploit the commercial potential of Eta Bootis IIc. Three years later a Ukrainian colonial expedition headed by Vasily Martos and Polkovnik Yuri Leonovich Kamarov arrived in the Eta Bootis system aboard a leased colony transport converted from the aging French bulk freighter *Sans Façon*.

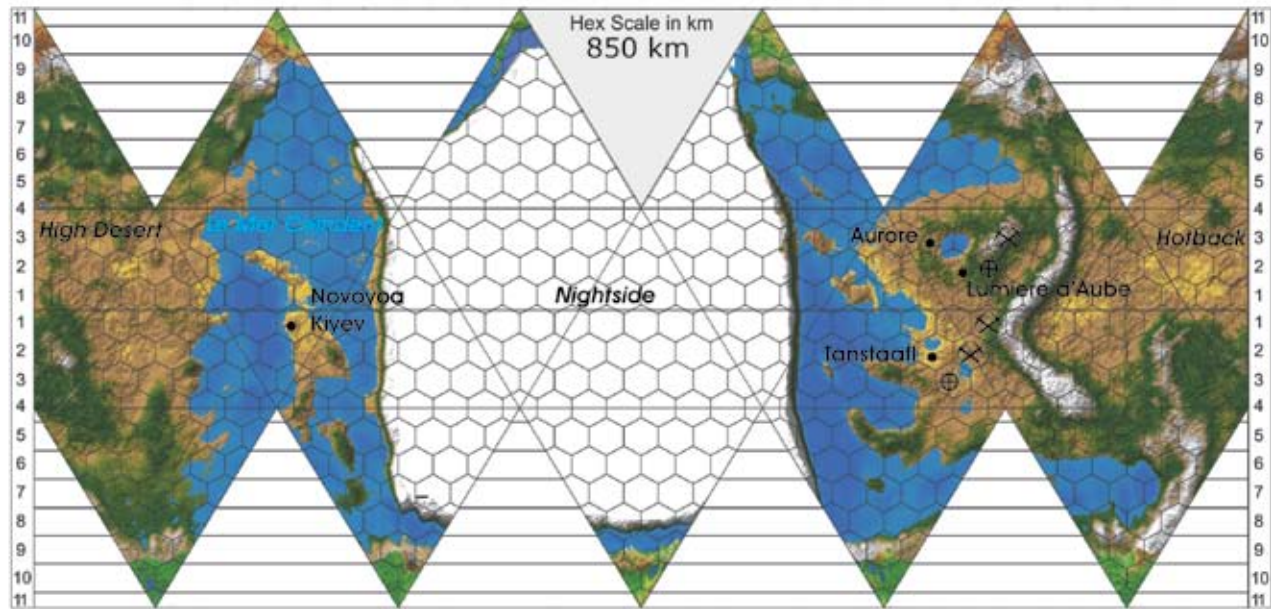
The site chosen for the new colony was a mountainous island continent astride the equator in the eastern hemisphere which offered some shelter from the world's fierce storms. World, continent, and colony all were named "Novoa Kiyev."

The colony was heavily damaged during the Kafer War, and was occupied by Kafer forces from 2298 to 2307, when a contingent of Ukrainian troops, along with Australian special-forces units, relieved the colony. It took several weeks of house-to-house fighting before the capital city was cleared of Kafer forces, and several thousand of the aliens are believed to be at large in the uplands of the island-continent.

Second Colony:

Colony Name: Aurore**Colony Population:** 3.2 million**Date Founded:** 2246**Nationality:** French**Life Expectancy:** 74 years**Literacy:** 94%**College Education:** 63%

Aurore



Legend

- Major City
- ⊕ Spaceport
- Catapult

- ⊗ Mining
- ↓ Farming
- 🏠 Military Base

- ⌚ Fusion Plant
- ☰ Solar Power Rectenna
- 🏭 Heavy Industry

Major Cities: La Cité d'Aurore

Currency: French Livre

Government Type: Representative Democracy (4)

Law Level: Low. Military weapons prohibited (3)

Tech Level: (11)

Trade Data: Ri

Principal Trading Partners: France, Nouvelle Provence

Interface Capability: Spaceplane (C)

Resources: Farming, Mining

Military Presence: Military Base, Naval Base

Other Bases: None

Services: Powernet (91%), Road Net (85%), Rail Net (72%), Link Network (49%), Airship Net, Weather Satellites, Communications Satellites, Orbital Terminal

Promises of rapid commercial exploitation of Novovia Kiyev's mineral resources proved too optimistic. The Terran Ukrainian government was unable to expand funding of the colony to meet unanticipated losses of equipment and development costs. In 2245 the French decided to establish a colony of their own in the planet's western hemisphere. The settlement of La Cité d'Aurore was established late in 2246.

During the Kafer War, Aurore was the de facto headquarters of the human naval elements protecting the system. This multi-national force consisted of French, Ukrainian, American, German and Australian units. As the war dragged on, they provided a needed respite for the beleaguered de-

fenders of some of the other French frontier worlds, with raids being staged against the Kafer garrison forces at Adlerhorst, Nous Voilà and further down the Arm towards Earth. While these raids didn't have much of a material effect on the Kafers, they were kept unbalanced and were unable to effectively consolidate their positions.

The French colony saw only sporadic orbital bombardment, and saw very little ground action against the Kafer invaders.

KAFER ROT:

During the long years of the war, the Kafers introduced a fungal weapon that devastated Human crops, until 2308, when the Pentapods developed a counter-agent. The Kafer Rot attacked terrestrial plants and animals, but left native varieties alone. Kafers have never shown this level of sophistication in bio-weapons, either before or since.

Third Colony:

Colony Name: Tanstaaf

Colony Population: 1.4 million

Date Founded: 2257

Nationality: Independent

Life Expectancy: 71 years

Literacy: 96%

College Education: 59%

Major Cities: Tanstaafll City (134,000),
Currency: Tanstaafll Dollar
Government Type: Representative Democracy (4)
Law Level: Low. High Energy Weapons prohibited (2)
Tech Level: (9)
Trade Data: Po
Principal Trading Partners: Adlerhorst, America, Texas
Interface Capability: Spaceplane, ROTON (C)
Resources: Farming, Mining
Military Presence: Military Base
Other Bases: None

Services: Rectenna, University, Powernet (22%), Road Net (30%), Rail Net (25%), Link Network (72%), Airship Net

In 2257, a third colony was established south of the tidal fissure called "Le Gouffre." Its backers were a multinational cartel of North American and European corporations interested by survey reports which suggested that large deposits of rhenium and other metals might be present in the area in commercial quantities. The American, Texan, and German colonists had already heard of the difficulties encountered by the French and the Ukrainians in establishing profitable mining operations, however, and with wry humor elected to name their colony "Tanstaafll" – a very old acronym for "There Ain't No Such Thing As A Free Lunch."

When the cartel broke up the following year due to the bankruptcy of two of its members, and corporate assets were frozen by the American courts, Tanstaafll declared its independence and applied to the colonial authorities both of Aurore and of Hochbaden in the neighboring system for favored trade status. Presented with a fait accompli and the possibility of broken relations with Bavaria, the United States of America became the first Terran government to formally recognize the independent colony of Tanstaafll on February 12, 2258.

During the long years of the war, Tanstaafll forces were instrumental in hunting down Kafers left on the surface. The Tanstaafll military established a reputation for brutally-effective tactics, and was the first military force in recent Human history to use nuclear weapons.

Tanstaafll was hit hard by the ravages of the war, and saw an effective 50% casualty rate. As the Kaffer fleet fled back

THE TANSTAFL FREE LEGION:

One of the most famous mercenary forces in history, the TFL sports more than a regiment (2000 soldiers), and at the height of the war consisted of a heavy division (8,000 soldiers). Most of these troops have let their contracts expire, and have taken up the land promised to them by the Tanstaafll government. Most of the remaining division hires itself out to off-planet interests as security and cadre troops, with a few left behind for internal security.

to Kaffer space, several thousand ground troops joined the Kafers already besieging the colony to bring the planetary Kaffer population in the colony to over 10,000. Today, that figure is at least doubled, as the Kafers hide in the hostile environs of the Hotback and breed more Kafers.

FREILAND

Freiland is notable for several reasons. It is the newest colony in human space, barely 3 years old, and also the first colony established by a former colony, now an independent nation.

SYSTEM DATA

STELLAR DATA

Primary Name: DM+10 2531
Spectral Class: G0 V
Magnitude: 4.65
X, Y, Z Coordinates: -39.6, -13.3, 7.1
Number of Planets: 6 (1, 2, Freiland, 4, 5, 6)
Number of Asteroid Belts: 1

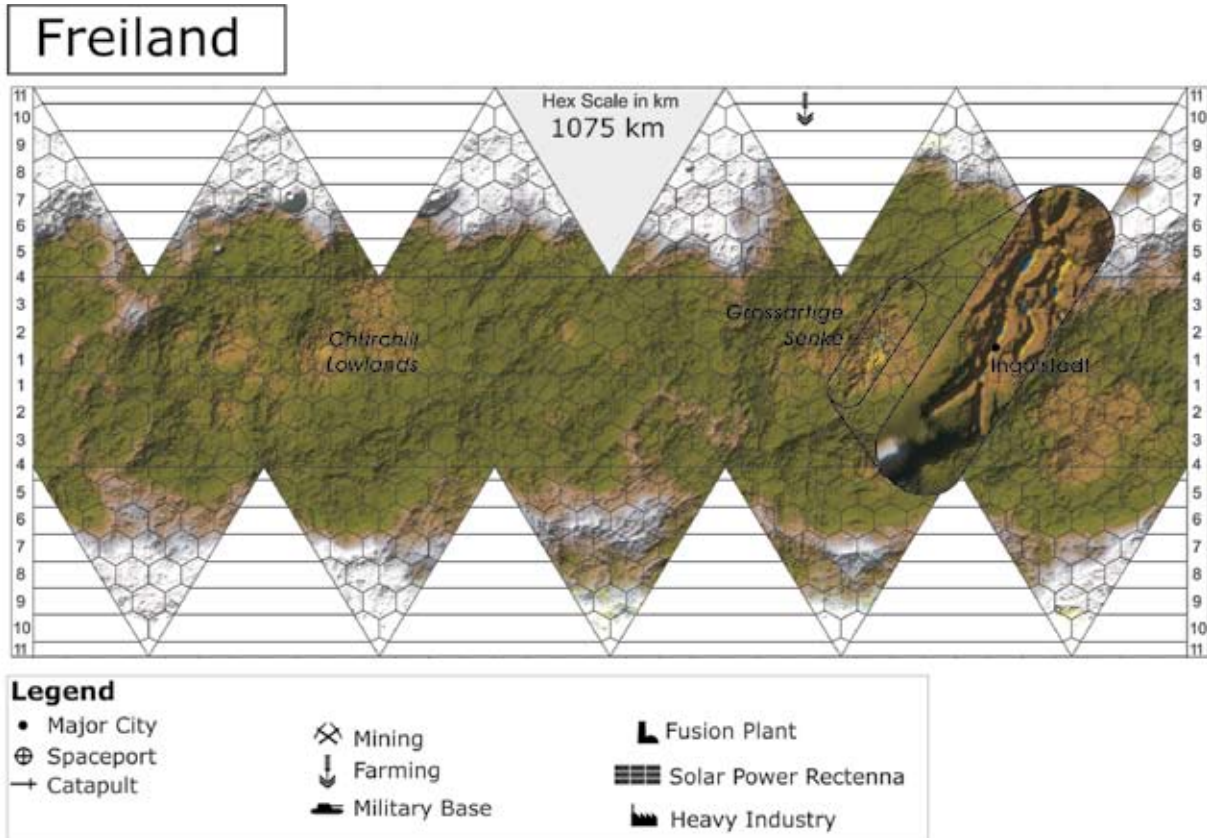
PLANETARY DATA

The sixth orbit contains a small gas giant, about the size of Neptune in the Sol system. Two of its 12 moons have an atmosphere, one very thin, the other very dense, similar to Titan.

PLANET DATA

Name: Freiland
Distance from Primary: 0.89 AU
Year Length: 307.11 days
Size: 8300 km in diameter
Day Length: 31.45 hours
World Type: Desert
Surface Gravity: 0.67
Atmospheric Pressure: 0.21, 0.85 at the bottom of the Grossartige Senke
Climate: Chilly, Temperate at the bottom of the Grossartige Senke
Water Presence: 2%
Atmospheric Composition: N₂ (74%), O₂ (22%), Ar (3%)
Biodiversity: Diverse; useable
Natural Resources: 6
Satellites: 1 (Kleiner Bruder)

The world of Freiland is a cool, mountainous world with extensive tectonic activity. The thin atmosphere is only breathable at very low altitudes, and the 1800 km trench system of Grossartige Senke provides the lowest terrain on the planet, up to 4500 meters below the surrounding terrain. Pressure is nearly normal at the bottom of the trench, and almost all the



world's water rests here as well. The trench system supports a well-developed biosphere, with some of the vaguely insectoid animals reaching lengths of 3-4 meters.

COLONIAL DATA

Colony Name: Freiland

Colony Population: 22,000

Date Founded: 2317

Nationality: Freihafen

Life Expectancy: 97 years

Literacy: 99%

College Education: 76%

Major Cities: Ingolstadt (12,000)

Currency: Freihafen Mark

Government Type: Appointed Governor (6)

Law Level: Moderate. Light Assault weapons prohibited (4)

Tech Level: (3)

Trade Data: NI

Principal Trading Partners: Freihafen, Tanstaafli

Interface Capability: Spaceplane, roton (C)

Resources: Farming

Military Presence: None

Other Bases: Science

Services: Road Net (5%), Orbital Terminal

Freihafen began survey operations of this world in 2298, just before the outbreak of the Kafer War. They later returned to this remote planet to begin planning their colony. Freihafen sees the establishment of a colony as a final proof of their

standing as an independent nation. The efforts of the initial colonists and survey crews on this world constantly make the nightly 3V news back in Freihafen.

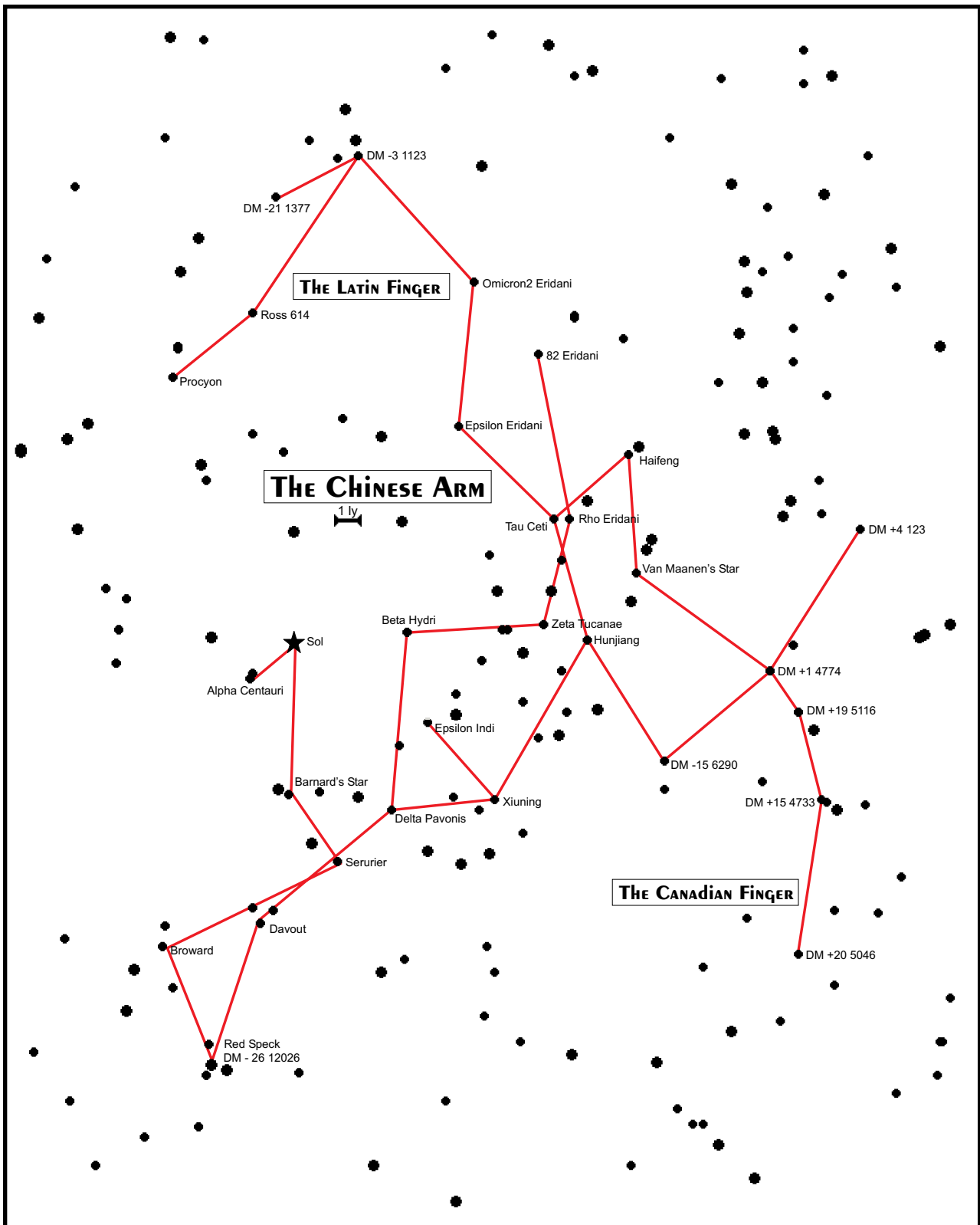
The colony itself is still quite small, clustered around the town of Ingolstadt and its rudimentary spaceport. Freihafen has big plans for this colony, and is quietly building up the infrastructure needed to rapidly expand the colony.

The nearby colony of Tanstaafli has contributed technical expertise to the colony, and a small trickle of migrants have left the harsh world of Aurore for the greener pastures of the Grossartige Senke.

Nibelungen has also expressed an interest in a colony on this world, and are working closely with the Freihafen government to ensure that everything goes smoothly. The lack of usable land is a big limiting factor for any new colonies.

The Ameisenhund (Ant-dog):

One of the animal forms on Freiland has generated considerable controversy. It is a communal animal building large communities that extend tens of meters above and hundreds of meters below the ground. The creatures themselves are about 1.5 meters long, and some scientists maintain that they are intelligent. Most, however, consider them to have more in common with Terran social insects, in developing a complex community that doesn't require sentience. The creatures are very territorial, however, and there have already been clashes between colonists and surveyors and the large hives of these creatures.



THE CHINESE ARM

The Chinese Arm begins at Delta Pavonis and extends in two directions. One reaches to Beta Hydri, Zeta Tucanae, Rho Eridani, and 82 Eridani, all prime colonization territory. The other reaches through two red dwarf systems (Xiuning and Hunjiang) to the garden worlds of Tau Ceti, Epsilon Eridani,

and Omicron2 Eridani.

Exploration and settlement of the arm proceeded smoothly until the establishment of an outpost at DM+1 4774 in 2247. Shortly thereafter, a Manchurian exploratory mission was sent to DM+4 123 and returned with the electrifying news that the star system was inhabited by an indigenous intelligent race, the first to be encountered by humanity. Most

nations of the Earth hastened to open a variety of diplomatic and cultural contacts with the race the Manchurians named the Sung. (In common with all intelligent races encountered by humanity, their own name for themselves, Ak-char'al-woon, translates roughly as "thinking being.") The discovery of another intelligent race in the Stark system led directly to the events of the Slaver War, recounted in Chapter 2: Background.

During this same period (the mid-23rd century), explorers and colonists in the Beta Hydri branch of the Chinese Arm discovered the ruins of a colony established some 4000 years previous. Another ruined colony was found at Rho Eridani a few years later.

A few years later, an exploratory mission of the United Arab Republic visited 82 Eridani-3 and discovered the Ebers. Considerably less advanced than humankind, the Ebers were nevertheless open to limited contact. Since then, two major colonial enclaves have been established on Kormoran, the Eber homeworld.

Colonization of the Chinese Arm has, overall, been very successful, and there are plenty of systems that have yet to be explored and colonized. Terrorist actions have long been a problem on the Chinese Arm, with a wide variety of groups claiming responsibility, from the universal scapegoat of Pro-Volution to such fringe groups as the Daughters of Mao. These attacks tend to be small and localized, though there are indications that something big is going to happen soon. Of course, people have been saying that for twenty years.

Another ongoing issue faced by the worlds along the Manchurian Arm has been the influx of refugees from the Kafer War. Denied asylum by Core worlds fearing biological and cultural contamination, and allowed only limited access to the American Arm, the refugees found a home with the Manchurians, long-time rivals of the European powers, particularly France. Even Cold Mountain allowed a couple of small resettlement camps, for those willing to brave the "demons" of that world's lethal biosphere.

Life on the worlds of the Chinese Arm tends to be rougher than the other Arms. The longer distances involved in the twisting routes of this Arm mean fewer trips, with priority going more to colonists and animals than to heavy equipment and infrastructure. There is much more reliance on animal power on the worlds of the Chinese Arm, especially the Manchurian colony worlds, which see the lowest level of infrastructure support, and are expected to succeed under primitive conditions with little aid from the mother country. The Inca Republic is in largely the same situation, without even the limited resources available to the Manchurians. Their success is largely due to their tendency to piggy-back on Texan colonies.

The Canadian Finger: Canadian explorers were the first to chart the system of DM+20 5046 (Kanata), a distant

but attractive system. In order to support a colonization effort, Canada found it necessary to establish a series of outposts (DM+19 5116 and DM+15 4733) to service ships traveling there. The series of systems is called the Canadian Finger. The finger also leads to Eriksson, a relatively pleasant planet at AC+17 534-105, currently the subject of the first Sung colony, a joint venture with Canada and the Scandinavian Union.

The Latin Finger: Extending from Epsilon Eridani is a finite branch which reaches as far as Procyon before dead-ending. Paradoxically, the route to Procyon (so very close to Earth) is one of the longest in general use. The expedition to colonize Omicron2 Eridani was jointly funded and supported by Mexico and Argentina, and the world is a gateway to the Latin worlds: DM-3 1123 (the Inca Republic, Texas, and the Life Foundation), and Procyon (Brazil). Stutterwarp tug technology offers the opportunity of much faster travel times to these worlds, but so far the technology has been unavailable. All the nations involved are attempting to secure licensing from either the Trilon corporation or the Pioneer Society, but so far negotiations are stalled, and they lack the resource to develop the technology themselves.

The Life Foundation has constructed an alternative tug technology, which requires a pair of large space stations equipped with full-size shipyard-style drive tuners, to substitute for the much more compact drive tuners used by Trilon and the Pioneer Society. These stations are expected to begin full operations late in 2320.

Worlds of the Chinese Arm

COLD MOUNTAIN/Delta Pavonis

The only world to evolve life in the Delta Pavonis system has truly outdone itself. Cold Mountain boasts some of the most exotic alien life forms in all of explored space outside of the halogen-based biosphere of Oiseau. These lifeforms contribute to making Cold Mountain one of the most dangerous worlds in explored space.

SYSTEM DATA

STELLAR DATA

Primary Name: Delta Pavonis

Spectral Class: G8 V

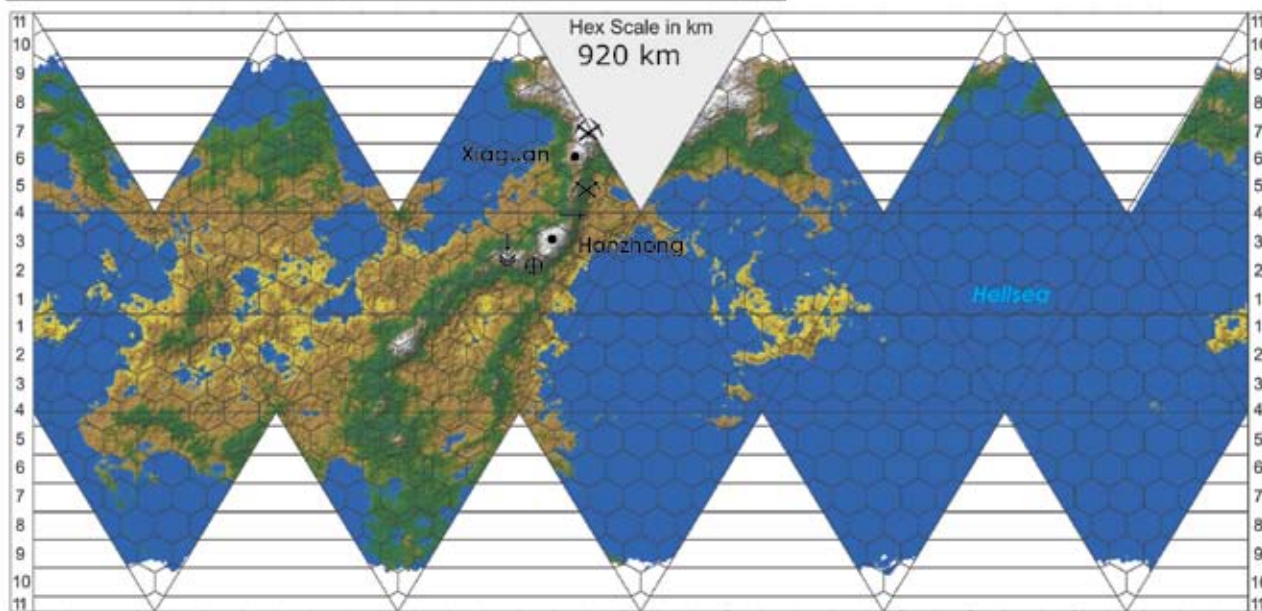
Magnitude: 4.76

X, Y, Z Coordinates: -3.79, -6.50, -17.10

Number of Planets: 2 (Cold Mountain, Jade Emperor)

Number of Asteroid Belts: 2

Han Shan (Cold Mountain)



Legend

• Major City	⚡ Mining	⌚ Fusion Plant
⊕ Spaceport	↓ Farming	☰ Solar Power Rectenna
→ Catapult	🏰 Military Base	🏭 Heavy Industry

132

PLANETARY DATA

The inner asteroid belts have been the target of a small community of Belters, hoping to strike it rich. There have been a few modest strikes so far, but indications are that the belts should be quite rich. These independent miners get their supplies and sell their ore through the Libertine trader network, and are not connected with the Manchurian colony on Cold Mountain.

The facility on the largest of the inner asteroids, Sky Mountain, is a shielded dome and tunnel system in one of the permanently shadowed craters at the worldlet's North Pole.

PLANET DATA

Name: Cold Mountain
Distance from Primary: 1.2 AU
Year Length: 442 days
Size: 10,246 km in diameter
Day Length: 25 hours
World Type: Garden
Surface Gravity: 0.83 G
Atmospheric Pressure: 0.806 Atm
Climate: Temperate
Water Presence: 55%
Atmospheric Composition: N ₂ (56%), O ₂ (39%) CO ₂ (2%)

Natural Resources: 7**Biodiversity:** Abundant; unusable**Satellites:** 0

Technically, Cold Mountain is a garden world, but its human inhabitants would hardly agree.

Due to an excess of oxygen in the atmosphere (39 percent), settlements are impossible below three thousand meters elevation. This excess poses a direct health risk, and it puts strict limits on the type of equipment that will function below this altitude. Any spark or backfire starts a conflagration which will spread wildly. Excess oxygen has, over time, led to an acidification of the atmosphere, the water table, the seas, and the soil. Metals corrode and oxidize rapidly at sea level, often within hours. The oxygen problem leads to another, perhaps more dangerous problem. A fire on Cold Mountain is never a trivial event. Lightning, volcanic activity, and other natural forms of ignition create firestorms which spread rapidly over the surface of the planet. Some of these firestorms are large enough to be visible from the orbit. At any given time, some part of the planet will be burning out of control. At higher altitudes, these conflagrations lose force and become as fierce as the worst of terrestrial forest fires.

The lower one's altitude on Cold Mountain, the more hostile the world and its organisms become. Only robotic expeditions have ever gone down to sea level, and even these machines didn't last long against a combination of the acidic atmosphere and the exceptionally hostile animal life. The seas

DON'T PULL THAT TRIGGER!

Guns are outlawed on Cold Mountain for several reasons. There are political reasons, of course, but more important than that, the muzzle flash from most firearms can easily explosively ignite flammable objects in the high-oxygen atmosphere. In addition, the most dangerous of the animals aren't very susceptible to gunfire, as the bullets just right through with causing significant trauma.

themselves are highly acidic and extremely poisonous, and nothing is known about whether life exists under their waters.

Native Life: Cold Mountain exhibits a wide variety of exceptionally hardy lifeforms. All organisms have a high pH value, reflective of the acidity of the world's water supply. Only the plants show any complexity of structure, with the animals being relatively undifferentiated. Nothing on the planet is edible by humans or by Earth-derived organisms. In root plants and tubers, this acidity reaches intensely poisonous levels.

The animal life on Cold Mountain never evolved into complex organisms, perhaps due to the harsh environment. The circulatory systems and centralized nervous systems characteristic of animals elsewhere never developed. In spite of this, some of these animal forms grow to be very large. Specimens of Flying Blinds have been observed measuring 20m long, while an unverified report has a p-shark at close to 30m. Cold Mountain animals are colonies of undifferentiated cells, similar in some way to terrestrial creatures like the Portuguese Man o' War. They creatures are very thin in order to ensure that oxygen reaches all the cells despite the lack of a circulatory system. This structure also allows direct access to nutrients without a complex digestive system. Every animal form on the planet uses selected cellular waste products to build sharp edges, which are as strong as some contemporary composite materials. These edges aid the creature in accessing the nutrients stored in plants and other animals. The remaining surface of the creature consists entirely of ingestion surfaces, which are coated with powerful digestive enzymes. Some of the animal forms also use these waste products to build protective coverings. Due to their high rate of oxygenation, they are always hungry. Food input accelerates their highly efficient metabolisms. This "acceleration" lasts until the food is metabolized. The animals move faster and faster in an effort to maximize the nutrient input. The growth rate of these animals during and immediately after these periods is nothing short of astonishing. Obviously, they are very hard to kill. So far, only five major forms have been identified: Flying Blinds, Razor Flies, Pseudoshark, sandworm and screwworm. Each comes in many variations and sizes and is found almost everywhere on the planet. The only areas which are

clear of animal life are the polar caps and the mountains above 8000m altitude.

COLONIAL DATA

Colony Name: Han Shan (Cold Mountain)

Colony Population: 10.3 million

Date Founded: 2201

Nationality: Manchurian

Life Expectancy: 71 years

Literacy: 92%

College Education: 45%

Major Cities: Xiaguan (2 million), Hanzhong (1.2 million)

Currency: Manchurian Ruble

Government Type: Dynastic house responsible to the Empress (A)

Law Level: Moderate. Light assault weapons prohibited (4)

Tech Level: (8)

Trade Data: Ri, Hi

Interface Capability: Spaceplane, catapult (C)

Resources: Farming, Mining

Military Presence: Naval Base

Other Bases: Foundation (NARL), Science

Services: Powernet (24%), Road Net (20%), Airship Network (100%) Link Network (12%), Orbital Terminal, Weather Satellites

Cold Mountain was colonized by Manchuria in 2201 during a period of intense nationalism. Due to the statistical similarities between Sol and Delta Pavonis, Cold Mountain was considered prime real estate. The remains of Japan's failed colony (2190) can be found on the big continent.

Ancestors of today's colonists were drawn by the almost irresistible prospect of homesteading their own land. The current colonists are aware of the support Manchuria has supplied them in the past and are fiercely loyal to her, despite the harsh conditions of their new world.

None of the surviving settlements are below 3000 meters elevation. Most settlements consist of a protective bar-

DEMONS:

The adversarial relationship the colonists of Cold Mountain have with their new home is personified by the animal life of this planet. Highly dangerous, hard to see, and even harder to kill, they have become more than animals in the minds of the settlers, and have transcended to the status of demons. Practically all colonists know someone who was killed by a demon, and many colonists suffer scars from chance encounters. Firearms are largely useless against many of them, and the colonists have fostered a strong martial tradition based around swords and long-bladed polearms.

rier (usually a stone wall, architecturally similar to the Great Wall of China- Manchurians have not forgotten their united past): terraced farmland, consisting of mostly rice paddies; residential and urban areas, set low on the slopes; and the residences and work places of the upper and ruling classes, set high on the slopes.

To protect themselves and their valuable terrestrial imports, the settlers used locally mined stone to erect walls separating the lower elevations from the higher. The walls were strung with wire nets to keep out the flying blinds and the large razoflies. Out of necessity, colonists still perform "watch duty" on the walls, armed with polearms, swords, and air rifles. Being selected for guard duty is considered a great honor, despite the hazards.

Colonization of Cold Mountain was costly. Over half of the original 12,000 settlers were lost to local dangers. But this was Manchuria's first colony world, and every effort was made to make certain it survived, even at a severe cost to the Manchurian homeland. New colonists were sent to replace those killed and to broaden the population base. To this day, Manchuria supports a strong emigration policy to Cold Mountain. The prospects are tempting enough for would-be colonists to ignore the inherent dangers. This strategy has prevented the development of local dialects, while strengthening planet-wide gratitude toward and honoring of Manchuria.

To colonists, the mountain and its environment represent "Heaven Above," an attainable goal of beauty, safety and happiness. Fire, of course, portends disaster. As mentioned previously local life forms, especially the animals, are understandably seen by settlers as devils and demons, intent on destroying the lives and happiness of the colonists. The colonists see the local life forms as the enemy, to be defeated at all costs. The animals and plants are killed preemptively, without remorse. Settlers are also rather callous toward injury or death as a result of the actions of local fauna. For them, it has become a way of life. Otherwise, death by illness, or accident, or (rarely) old age is mourned as in any culture. Visitors are often shocked by this dichotomy.

Colonists usually undergo some sort of rigid martial training involving primitive and modern weapons adapted to

The Xu Dynasty:

And at the top of it all, on a peak so tall that the buildings have to be pressurized, lives the court of the Xu Dynasty. Subordinate to the Manchurian Empress, the Xu's otherwise have complete power over this world. They take their duties seriously, and the Xu's palace lacks the sort of ostentatious style ascribed to it by popular press and entertainment features. From here, the Xu's and the bureaucracy govern this world, always aware of the importance Manchuria places on her oldest colony.

PROPER COLD MOUNTAIN ATTIRE:

Normal outdoor clothing on Cold Mountain is a relatively lightweight but fairly thick suit with metal reinforcement at vulnerable areas. Headwear is a padded hood, along with a large, conical metal hat, to protect the head and shoulders from attack by blinds or razor flies. A fine mesh made of metal links hangs down from the hat to drape across the shoulders as further protection. All footwear has metal inserts in the sole of the boot, rendering them somewhat inflexible but immune to sandworms and screwworms.

Nation: Cold Mountain

Weight: 5 kg

Area Protected: All

AR: Torso:2 (Rigid) **Head:** 2 (Rigid) **Arms and Legs:**1 (Non-rigid)

Signature: 0

Max Dex Bonus: +7

Armor Check Penalty: -2

Price: Lv75

All citizens over the age of twelve are encouraged to carry the local long sword or long-bladed spear.

better defeat local animals. Their padded clothing is often armored against sudden attacks.

After 50 years of instability, the survival of the colony was finally assured. A loose dynastic government was set up to manage local affairs and trade. The constant influx of newcomers insured cultural integrity. The social structure of the colony tends toward the rigidity of status, but as in all frontiers, there is room for some upward mobility. Furthermore, there is great potential for lateral mobility within one's station.

(From a news conference given in Melbourne on the eve of the 2319 anniversary of the ratification of the Melbourne Accords) We at NARL have noted with a great deal of concern the Manchurian proposals for the use of nuclear devices on their colony of Cold Mountain. While it is true that the animal life of that forbidding planet is hostile to an almost unimaginable degree, the idea of using nuclear weapons to control them is absurd. There is no consideration given in any of these proposals as the long-term effect on the climate and the biosphere of this world...

Colonists view and treat tourists with disdain. However, new colonists are quickly accepted by the more experienced ones and "shown the ropes." This includes the influx of refugees given asylum at Cold Mountain by the Manchurian government. Though displeased at the arrival of non-Manchurians, the colonists did their best to help the new settlers adapt. As there were relatively few refugees (<10000), and the government made sure to disperse through all the settled

areas, they are expected to fade and blend in with the general population in a relatively short period of time.

For many reasons, visitors to this world are advised to adopt the local style of dress, or provide themselves with protection that is as effective. Note that most personal armors won't stop the razor-like attacks of Cold Mountain's Demons.

DAIKOKU/BETA Hydri

Daikoku is an important transportation hub along the Chinese Arm. The Eber ruins uncovered there made quite a ripple in the scientific community, and still yield up new secrets, even after over 70 years of exploration.

SYSTEM DATA

STELLAR DATA

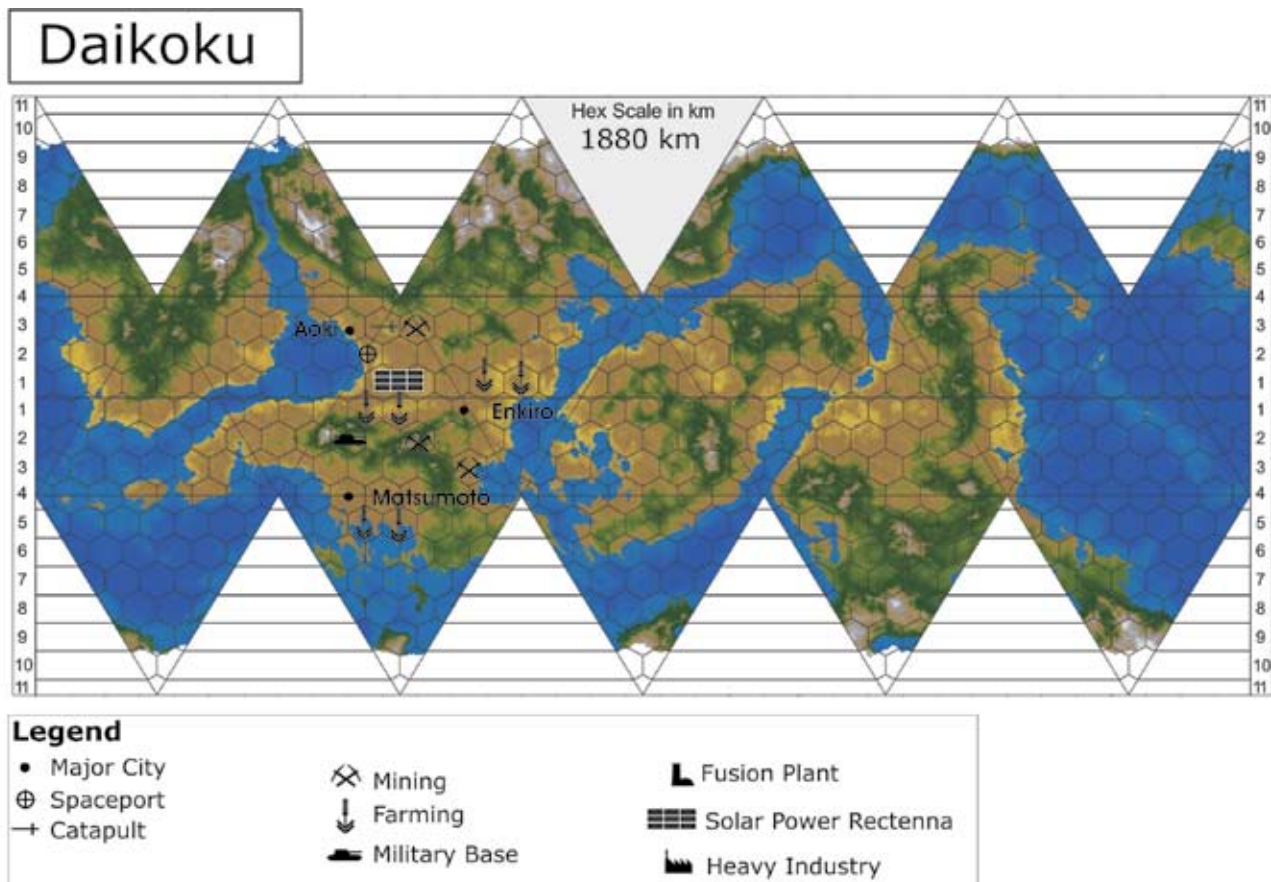
- Primary Name:** Beta Hydri
- Spectral Class:** G1 IV
- Magnitude:** 3.8
- X, Y, Z Coordinates:** 4.4, 0.4, -20.1
- Number of Planets:** 10
- Number of Asteroid Belts:** 0

PLANETARY DATA

PLANET DATA

- Name:** Daikoku
- Distance from Primary:** 1.601 AU
- Year Length:** 199.07 Days
- Size:** 20,994 km in diameter
- Day Length:** 25.82 hours
- World Type:** Garden
- Surface Gravity:** 0.659
- Atmospheric Pressure:** 0.66 atm
- Climate:** Hot
- Water Presence:** 39%
- Atmospheric Composition:** N₂ (69%), O₂ (23%), Trace (6%)
- Natural Resources:** 5
- Biological Diversity:** Diverse; usable, though unpalatable
- Satellites:** 3 (Gamera, Gojira, and Mothra)

Seasonal temperature variations are more extreme on Daikoku than on Earth, with winter temperatures averaging -20° to 20° Celsius, and summer temperatures averaging 35° to 55° in the temperate zones. Seasons are shorter on Daikoku than on Earth, being roughly half as long as their Terran counterparts.



COLONIAL DATA

By consensus of the survey teams, the sole garden world in the system was named Daikoku, after the goddess of prosperity in Japanese mythology. As a colony world, Daikoku would require effort to prove profitable, but, in all probability, it would be worthwhile to colonize in the long run.

The Ruins:

In 2249, the ruins of an ancient technological culture was discovered near the Arabian colony. This was evidence for a second interstellar civilization, though the ruins had been abandoned for a least a few thousand years.

Further evidence for this civilization was found on Heidelshiemat in 2253, and in 2256, the Ebers, who had colonized those worlds thousands of years ago, were first contacted on a planet orbiting 82-Eridani.

Study of the ruins is ongoing, and even with the live Ebers to study, new discoveries are being made at both ruins sites on Beta Hydri. Both the Institut des Etdudes Xenobiologique and the Astronomischen Rechen-Institut maintain facilities, as does an unusual off-shoot of the Accademia del Lincei, to everyone's annoyance.

COLONIAL LIFE

Japan's colony is a relatively happy and productive one, serving as a base of operations for Japanese mining activities in the Beta Hydri system as well as being a major producing colony in its own right. The governmental authority is respected and obeyed by virtually all the Japanese colonists (as is required by traditional Japanese ethics). Ultimately answerable to the Japanese emperor and his government on Earth, Daikoku's Japanese government is essentially organized the same as that on Earth.

Colony Name: Daikoku

Colony Population: 11 million

Date Founded: 2167

Nationality: Japanese

Life Expectancy: 99 years

Literacy: 100%

College: 92%

Major Cities: Aoki (2.2 million), Enkiro (1.5 million), and Matsumoto (720,000)

Currency: Yen

Government Type: Representative Democracy (4)

Law Level: Moderate. Personal concealable firearms prohibited (5)

Tech Level: (11)

Trade Data: Ri, Ag

Interface Capability: Spaceplane, shuttle, catapult (B)

Resources: Farming, Mining

Military Presence: Orbital Defense Installation, Military Base, Naval Base

Other Bases: Foundation (IEX)

Services: Solar Power Satellite, Rectenna, University, Powernet (71%), Road Net (72%), Airship Net (80%), Rail Net (75%), Link Network (88%), Weather Satellites, Communication Satellites, Orbital Terminal

The Japanese colony on Daikoku is essentially self-sufficient, with most of the population living comfortably (only a very few could be said to be living affluently). Most colonists work for companies, rather than being self-employed. These companies vary greatly in size, from small companies based exclusively in Daikoku to large corporations which may have headquarters off-world. Employees of these companies are hard-working and fiercely loyal to their employers.

Colony Name: Far Riyadh

Colony Population: 7.4 million

Date Founded: 2245

Nationality: Arabian

Life Expectancy: 97 years

Literacy: 100%

College: 78%

Major Cities: Al-Fredoun (1.1 million)

Currency: Rial

Government Type: Appointed council responsible to King of Arabia (6)

Law Level: Moderate. Light assault weapons prohibited (4)

Tech Level: (8)

Trade Data: Ri, Ag

Principal Trade Partners: Arabia

Interface Capability: Spaceplane (C)

Resources: Farming, Mining,

Military Presence: Military Base

Other Bases: Foundation (ARI, Accademia del Lincei)

Services: Rectenna, Powernet (53%), Road Net (58%), Rail Net (97%), Link Network (67%), Orbital Terminal

Since its founding 75 years ago, the Arabian colony on Daikoku has done well for itself. Also essentially self-sufficient, the Arabian colony engages in trade both off-world and with the Japanese on-world, dealing mostly in textiles, handcrafts, petroleum products (notably synthetic materials), and perfumes.

FOUNDATIONS ON Daikoku

The ARI, the IEX and a somewhat radical branch of the Accademia del Lincei maintain outposts on Daikoku. All have facilities near the Eber ruins, which are the reasons for their interest in the world. The ARI is interested in the ruins from a scientific standpoint, but the reasons for the presence of

The Prayer Crisis:

All devout Moslems must pray in the direction of the holy city of Mecca. The vast majority of Muslims who travel off-world have adopted the convention that anywhere in the general direction of Earth counts as long as everyone in a given location is consistent ("Allah is very understanding." – Imam Muhammad Achmed Al-Risuli).

On Far Riyadh, however, the colonists were from a highly conservative and fundamentalist group, and this led to a crisis early in the formation of the Arab colony. The solution was unique: with the blessing of the holy men, a small fragment was gently removed from the holy Black Stone at the Ka'aba in Mecca, and shipped to Daikoku. There it was duly enshrined in a newly built mosque, now called "the Mosque of the Stone."

antiquarian Accademia are less understood.

Apparently, this off-shoot of the Accademia is convinced that the long-vanished Ebers of this world were some sort of Christian-equivalent sect, and is searching for clues to substantiate that hypothesis. So far, the only relics recovered have been cruciform shapes of unknown purpose, but still they look, much to the annoyance of the ARI and their Arab hosts.

HAIFENG/L 1159-16

Almost entirely covered by water, this world has baffled Manchurian planners for over 60 years. There are resources there, but exploiting them would require a different approach than any other Manchurian colony.

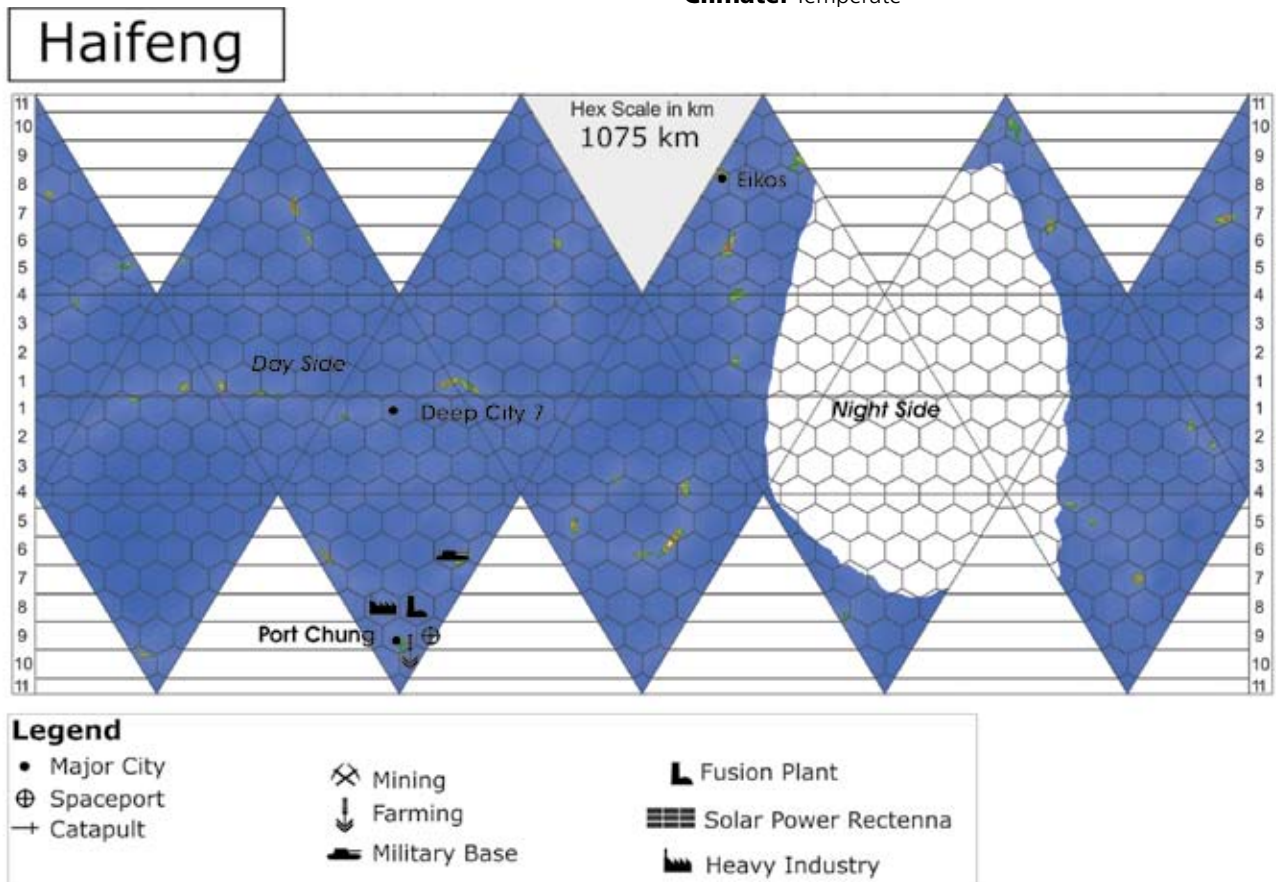
STELLAR DATA

Primary Name: L 1159-16
Spectral Class: M8 V
Magnitude: 13.91
X, Y, Z Coordinates: 13.0, 7.3, 3.3
Number of Planets: 3
Number of Asteroid Belts: 2

PLANETARY DATA

PLANET DATA

Name: Haifeng
Distance from Primary: 0.11 AU
Year Length: 45 days
Size: 11,990 km in diameter
Day Length: 54 days (tidally locked)
World Type: Ocean
Surface Gravity: 0.89 G
Atmospheric Pressure: 1.21 atm
Climate: Temperate



Water Presence: 98%

Atmospheric Composition: N₂ (81%), O₂ (17%), CO₂ (2%)

Biodiversity: Diverse

Natural Resources: 3

Satellites: 0

Haifeng is almost completely covered by deep oceans, which range down to 30 kilometers deep in some spots. The few scattered islands are all volcanic in origin, with the largest group being scarcely larger than the Hawaiian Island chain on Earth. Many of the volcanoes are still active. This tidally-locked world orbits close to its primary, and the temperature differential between the hot and cold sides of the planet keep a steady stream of hurricane-sized storms blowing across the equatorial regions from the cold side to the hot side. The polar latitudes are relatively free of such major storms, though they do get a few per year. The high atmospheric pressure is partly responsible for the world's surface temperature, despite the anemic star it orbits. The dense atmosphere also provides some flare protection.

The waters of Haifeng are fresh enough to drink, and indeed one of the major problems with colonization on this world is a lack of critical salts needed to sustain terrestrial life. The plant and animal life is quite edible, though in addition to the mineral supplements some vitamin supplements are required. The native life is equally capable of eating terrestrial life as well, and in the case of some of the larger ocean predators, is fully capable of eating the ship that life happens to be sitting on.

These large life forms are the primary source of the wealth of this new colony world, as some of them synthesize some very unusual and valuable chemicals as part of their metabolic processes. It is possible to harvest these chemicals without killing the animal, but very difficult – far easier to kill them.

WHALES TO THE SLAUGHTER:

NARL wasted no time in drawing parallels between the Manchurian harvest operations and the ancient practice of hunting and killing whales on Earth. There are often protests at Manchurian embassies throughout many Tier 2 and 3 nations on Earth. Manchuria countered that stunning a 2,000-ton animal isn't very feasible, and farming them would be even worse.

COLONIAL DATA

Colony Data

Colony Name: Heaven's Waters

Colony Population: 135,000

Date Founded: 2307

Nationality: Manchurian

Life Expectancy: 92 years

Literacy: 94%

College Education: 74%

Major Cities: Port Chung (75,000), Eikos (25,000) Deep City 7 (12,000)

Currency: Manchurian Ruble

Government Type: Appointed Governor (6)

Law Level: Moderate. Personal concealable firearms prohibited (5)

Tech Level: (6)

Trade Data: Ni

Principal Trading Partners: Cold Mountain, Syuhlam, Manchuria

Interface Capability: Space Plane (C)

Resources: Farming, Heavy Industry

Military Presence: Military Base

Other Bases: Foundation (Life Foundation), Science

Services: Fusion Plant, Link Network (20%), Weather Satellites, Communications Satellites, Orbital Terminal

The Manchurian colony of Heaven's Waters is situated on Cheju Do, the largest island of the Great Wall chain near the world's north pole. The first outpost on this world went into operation in 2267, after Emperor's Gift, a Manchurian survey vessel, discovered the world in 2254.

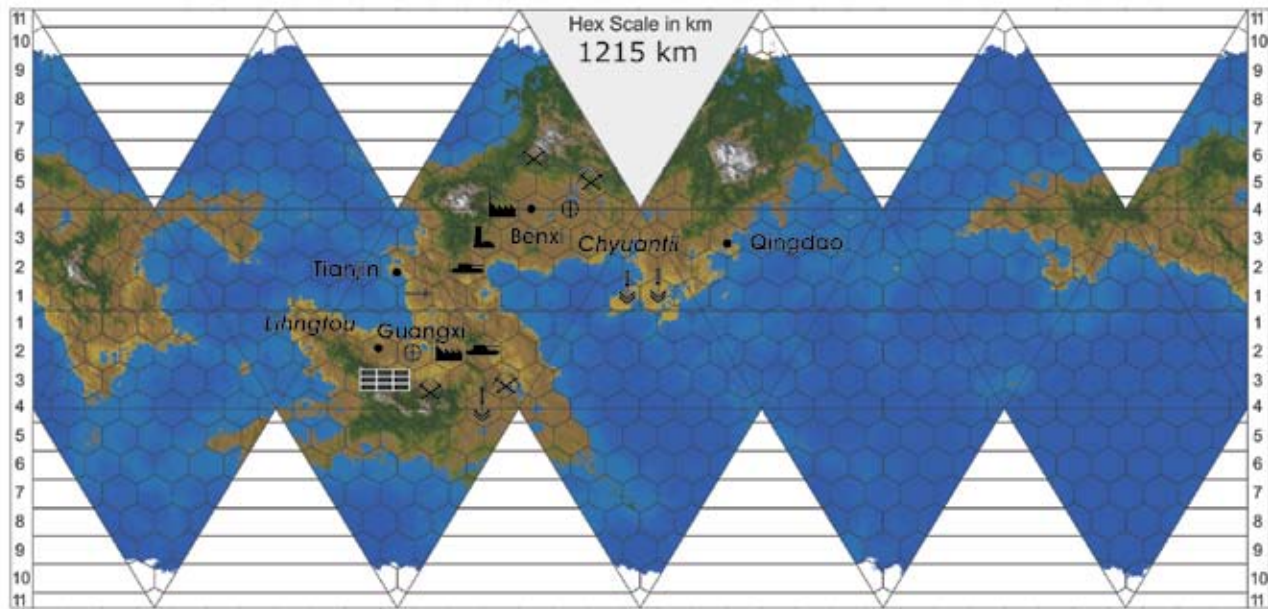
The first permanent settlement was by the Life Foundation performing an experiment, and that outpost went into operation on one of the islands of the south polar Dragon Scale chain.

The colony was built in cooperation with Korea, which provided the ship-building expertise for the giant processing vessels. Nearly 35% of the colony's population are Korean immigrants, even though the colony itself is under Manchurian control.

THE DEMARCHISTS:

In 2301, the Life Foundation established an outpost-level facility on Haifeng. The isolated facility was the site of an experiment in absolute electronic democracy. The 5200 adult staff of the Eikos facility were outfitted with implanted communications devices and displays, and every major decision for the station was put to a vote. The administrative staff was all non-elected professionals, whose job was to carry out the will of the population. Nineteen years later, the outpost is a small, thriving city, providing support to the new Manchurian colony on the world. This electronic democracy, the Demarchists, is still going strong, and the 21,000 adults of the city all have their implants to ensure their participation in the settlement's unique form of government. The Life Foundation is considering the establishment of this form of government at all its off-Earth facilities.

Syuhlam



Legend

- Major City
- ⊕ Spaceport
- Catapult

- ⚡ Mining
- ↓ Farming
- 🏠 Military Base

- ⌚ Fusion Plant
- ☰ Solar Power Rectenna
- 🏭 Heavy Industry

In 2307, during the Kafer War, the Manchurian government decided to upgrade the world's facilities. Foremost amongst these upgrades was the construction of a sheltered harbor and construction facilities for large, ocean-going vessels. These vessels were to become the core of the harvesting fleet, pursuing and killing as many of the huge sea creatures as they could in every season. Along with the ship-building facilities, the Manchurians constructed a small fusion plant and a catapult launch facility.

Many of the colonists to Haifeng come from Cold Mountain, another Manchurian colony. Some are looking for new adventure, but some are here because they can't deal with the stress of living with Cold Mountain's demons.

SYUHLAHM/ZETA TUCANAE

Struggles for power between nations have not been completely left behind on Earth, and conflicts on Syuhlahm have been commonplace for some time. The different Chinese nations vying for power here have often turned to warfare to settle their differences.

SYSTEM DATA

STELLAR DATA

Primary Name: Amah
Spectral Class: G2 V
Magnitude: 4.96

X, Y, Z Coordinates: 9.7, 0.7, -21.2

Number of Planets: 4 (Gaaumouhjeung, Syuhlahm, Yahnhaak, Hongaangge)

Number of Asteroid Belts: 0

The Zeta Tucanae system was both a disappointment and a pleasure to its first explorers. Its G2 V star promised a garden world, and the first sweep through the system confirmed that promise. But the system delivered little else: merely two gas giants and a failed core. Rarely does a G-type star produce such a small brood.

PLANETARY DATA

PLANET DATA

Name: Syuhlahm
Distance from Primary: 1.1 AU
Year Length: 412 days
Size: 13,550 km in diameter
Day Length: 17.67 hours
World Type: Garden
Surface Gravity: 1.02
Atmospheric Pressure: 1.10 atm
Climate: Temperate
Water Presence: 67%
Atmospheric Composition: N₂ (78%), O₂ (19%), Trace (3%)
Biodiversity: Diverse; useable

Natural Resources: 5

Satellites: 1 (Twilight's Daughter)

Syuhlahm proves that an Earth-like world need not have an Earth-like biosphere. The biological mechanisms of this world are very different from those encountered elsewhere. All of Syuhlahm's higher organisms are advanced symbiotes based on a limited number of common parts: limbs, leaves, sensors, and organs.

COLONIAL DATA

CHYUANTII, THE MANCHURIAN COLONY

When the initial colonization of a system begins, the survey squadron has effectively finished its job. When the Manchurian colony at Delta Pavonis was established in 2201, the Manchurian survey squadron in the Chinese Arm was dispatched to the next prospect on the list: the Zeta Tucanae system. It spent the next decade carefully investigating the worlds of the system and their potential for colonization.

Colony Name: Chyuantii

Colony Population: 3.1 million

Date Founded: 2241

Nationality: Manchurian

Life Expectancy: 89 years

Literacy: 96%

College Education: 59%

Major Cities: Tianjin (372,000), Benxi (78,000), Qingdao (55,000)

Currency: Manchurian Ruble

Government Type: Appointed Governor (6)

Law Level: Moderate. Personal concealable firearms prohibited (5)

Tech Level: (10)

Trade Data: Ri, Hi

Principal Trading Partners: Cold Mountain, Manchuria, Lihngtou

Interface Capability: Spaceplane, shuttle, catapult (B)

Resources: Farming, Mining, Heavy Industry, Orbital Industry

Military Presence: Orbital Defense Installation, Military Base, Naval Base

Other Bases: None

Services: Fusion Plant, Powernet (27%), Road Net (35%), Rail Net (78%), Link Network (41%), Airship Net, Weather Satellites, Communications Satellites, Orbital Terminal

Chyuantii was Manchuria's third extra-solar colony, and has seen rapid industrial development since it was founded.

The Manchurian colony specializes in heavy industry. Ironically, one of its biggest customers is its sometime rival,

Lihngtou.

LIHNGTOU, THE CANTONESE COLONY

Canton selected Syuhlahm as the site for its first colony because of available and fertile land, the existing (although rival) Manchurian colony, which at least shared a written language with them, and the mineral potential of the proposed territory.

Colony Name: Lihngtou

Colony Population: 7.2 million

Date Founded: 2259

Nationality: Cantonese

Life Expectancy: 97 years

Literacy: 97%

College Education: 69%

Major Cities: Guangxi (639,000)

Currency: Cantonese Yuan

Government Type: Colonial Governor (6)

Law Level: Low. High Energy Weapons Prohibited (2)

Tech Level: (9)

Trade Data: Ag

Principal Trading Partners: Chyuantii, Canton

Interface Capability: Spaceplane, shuttle, catapult

Resources: Farming, Mining, Heavy Industry

Military Presence: Orbital Defense Installation, Military Base, Naval Base

Other Bases: Science

Services: Solar Power Satellite, Rectenna, Powernet (67%), Road Net (78%), Rail Net (91%), Link Network (78%), Airship Net, Weather Satellites, Communications Satellites, Orbital Terminal

Canton negotiated with Manchuria between 2240 and 2255 to arrange placement of a colony during a period when the two nations had relatively friendly relations. Since Manchuria would be unable to prevent the placement of a Cantonese colony on Syuhlahm, it was to their advantage to participate in the planning of a new colony, regardless of who placed it.

Chyuantii and Lihngtou have a long-standing rivalry which dates from the first establishment of Lihngtou. Although both colonies depend on each other economically, culturally they are great rivals and occasional enemies. The recent events on Earth are doing little to help this situation. Chyuantii calls Lihngtou Nan Man Chi Yuan, or "The Farness of the Southern Barbarian."

Colonial Interaction: The economies of the two colonies on Zeta 2 are inextricably intertwined. Chyuantii's burgeoning population is rapidly straining the food production ability of its farm system; at the same time, Chyuantii's industry has excess capacity that needs to be utilized. Lihngtou's farms and mines are an excellent source of supply for Chyuantii, and there is a continuing interdependence between the

two colonies that both recognize and accept.

Chyuantii has staked out the northern hemisphere while Lihngtou has claimed the southern. Each acknowledges that it is impossible to control an entire hemisphere, let alone a world; instead the colonies' laws and controls apply only to their own settled territories. Beyond their immediate boundaries, there is no law and no civilization. As a result, there are two interfaces between Lihngtou and Chyuantii.

The formal interface is a single point on the equator where trade goods are exchanged, visitors cross the border, and diplomatic notes are presented. A highway leads from the interface to each colony; a rail link is planned for some point in the future. Chyuantii has constructed its orbital catapult just north of the interface. Both governments station officials at the interface to handle the bureaucratic details of imports, exports, and travellers. Lihngtou and Chyuantii, by agreement, share a single orbital terminal. The informal interface is a wide swath of territory between the two colonies, officially dubbed 'no-man's land' and claimed by neither. However, prospectors and fortune-hunters from both colonies make forays into the zone, and there are often clashes between the various groups. Government forces from both colonies are being increasingly called upon for assistance in these clashes, and its only a matter of time before open war breaks out.

Syuhlahm Walkers:

Combat walkers first made their appearance on Zeta Tucanae by an expensive accident. During the Slaver War a shipment of two-legged walkers was misdirected to Syuhlahm. They were never returned to orbit before the end of the war, and were later sold as surplus.

These first walkers on Syuhlahm were only a novelty, but they engendered an industry, and then a revolution, in combat walkers. The new designs appearing on Syuhlahm were no longer the complex, humanoid designed, but lower, sleeker two- and four-legged pod vehicles, where the operator could recline in enclosed comfort.

The technology transfers from Chyuantii to Manchuria were the basis for most of the Manchurian combat walker systems utilized in the Central Asian War (2282 to 2287). Chyuantii remains the best-known producer of walker vehicles, although few are physically exported; instead, the designs are license-produced on a variety of worlds.

HEIDELSHEIMAT/Rho Eridani

Heidelsheimat is a world teeming with its own life forms, basking in the warm climate provided by its orange sun. The nations which have settled here have found an abundance of resources and opportunities for growth.

SYSTEM DATA

STELLAR DATA

Primary Name: Rho Eridani
Spectral Class: K2 V
Magnitude: 6.67
X, Y, Z Coordinates: 10.7, 4.8, -17.8
Number of Asteroid Belts: 0
Number of Planets: 5

STELLAR DATA

Companion Name: DM-56 328
Distance from Primary: 59.25 AU
Spectral Class: K5 V
Magnitude: 6.83
X, Y, Z Coordinates: 10.7, 4.8, -17.8
Number of Asteroid Belts: 1
Number of Planets: 2

PLANETARY DATA

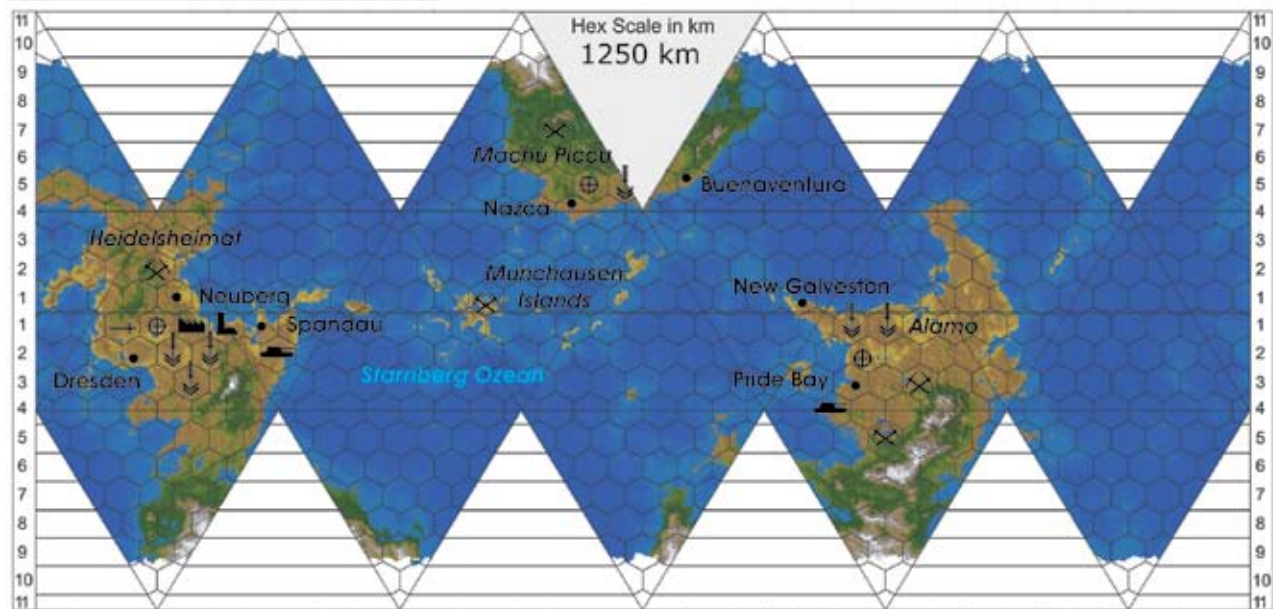
PLANET DATA

Name: Heidelshemat
Distance from Primary: 0.348 AU
Year Length: 112 days
Size: 13,997 km in diameter
Day Length: 31.2 hours
World Type: Garden
Surface Gravity: 0.44 G
Atmospheric Pressure: 0.68 atm
Climate: Temperate
Water Presence: 68%
Atmospheric Composition: N₂ (81%), O₂ (16%), Trace (3%)
Biodiversity: Diverse; unusable (dextro amino acids)
Natural Resources: 4
Satellites: 2 (Rock, Pebble)

For consistency of dates, local Heidelshematian time is referenced to Terran standard time. With an axial tilt of 13.3°, seasonal variation of the hours of daylight on Heidelshemat is not as great as on Earth. The differences in temperature between winter and summer on Heidelshemat are also less pronounced than on Earth, giving rise to a more temperate climate in general at the middle latitudes.

Native Life: Life on Heidelshemat has evolved to levels of complexity comparable to those on Earth. Much of the land-based life takes advantage of Heidelshemat's low gravity and comparatively dense atmosphere, and are either gliders or true flyers. Some of the gliders, like the Sky Jumper, leap from a height, either a tree or cliff, while other, like the bush bunnies, leap 3-4 meters into the air and glide from there.

Heidelsheimat



Legend

● Major City	⊗ Mining	⌚ Fusion Plant
⊕ Spaceport	↓ Farming	☰ Solar Power Rectenna
→ Catapult	🏠 Military Base	🏭 Heavy Industry

142

Though Terran and Heidelbergian biologies are incompatible, some of the local wildlife has been known to gorge on Human crops, only to die of starvation with their bellies full.

The Heidelbergian plant life has a number of interesting adaptations, most of which are simply annoying to the colonists. Umbrella trees release large, parachute-like seeds that can drift for many kilometers, occasionally coming to rest on some of the carefully-planted terrestrial plants. Others shoot their seed in response to external stimuli, like being stepped on, while many others have sticky/hooked seeds that can be difficult to remove from clothes, vehicles and buildings.

COLONIAL DATA

Colony Name:	Heidelsheimat
Colony Population:	13.1 million
Date Founded:	2228
Nationality:	Independent
Life Expectancy:	101 years
Literacy:	100%
College Education:	72%
Major Cities:	Spandau (1.1 million), Dresden (792,000), Neuberg (512,000)
Currency:	Heidelsheimatian Mark
Government Type:	Democratic Republic (4)
Law Level:	Moderate. Personal concealable firearms prohibited (5)

Tech Level: (12)

Trade Data: Ri, Hi

Principal Trading Partners: Freihafen, France, Daidokoku

Interface Capability: Spaceplane, shuttle, catapult (B)

Resources: Farming, Mining, Heavy Industry, Orbital Industry

Military Presence: Orbital Defense Installation, Military Base, Naval Base

Other Bases: Foundations (ARI), Science

Services: Fusion Plant, University, Powernet (92%), Road Net (92%), Rail Net (81%), Link Network (91%), Airship Net, Weather Satellites, Communications Satellites, Orbital Terminal, Civilian Shipyard, Military Shipyard

The Heidelbergian nation contains both the former colony at Rho Eridani, and the former Bavarian mining outpost of Geroellblock at DM-56 328. The combination of the two settlements has produced a very powerful new nation, one with the resources it needs and a pleasant world to work with. Food for both is imported from the Japanese at Beta Hydri, but the government is looking to end its dependence on foreign sources.

Until relatively recently, the Bavarians of Heidelberg had been wrestling with the issue of whether or not to join the other Bavarian colonies and accept German control. For years the question bounced back and forth between Earth

and Heidelshiemat, until in 2306, at the height of the Kafer War, the Heidelshiemat government put it to a referendum. The result was overwhelmingly in favor of independence. In 2308, along with the outpost of Geroellblock, Heidelshiemat declared its independence. This was recognized first by France, then by most of the other Tier 2 and Tier 3 powers. Germany did not acknowledge the colony's independence until well after the end of the Kafer War.

Since to formally declared independence in 2307, Heidelshiemat has been quietly building up its military forces, both ground-based and space-based. Most of the designs seem to be imported from Freihafen, though a few new spacecraft appear to be of local design. Heidelshiemat currently has the largest ground military in the Chinese Arm, and one of the largest, and most advanced, space navies.

The Texan Colony

Colony Name: Alamo

Colony Population: 3.1 million

Date Founded: 2244

Nationality: Texan

Life Expectancy: 99 years

Literacy: 98%

College Education: 62%

Major Cities: New Galveston (220,000), Pride Bay (37,000)

Currency: Texas Dollar

Government Type: Participatory Democracy (2)

Law Level: Low. Military weapons prohibited (3)

Tech Level: (9)

Trade Data: Ri

Principal Trading Partners: Austin's World, Texas, Kormoran

Interface Capability: Spaceplane

Resources: Farming, Mining

Military Presence: Orbital Defense Installation, Military Base

Other Bases: None

Services: Fusion Plant, Powernet (100%), Road Net (100%), Rail Net (100%), Link Network (98%), Airship Net, Weather Satellites, Communications Satellites, Orbital Terminal

The year 2244 saw the arrival of a Texan expedition and the establishment of a Texan outpost on a continent well away from the one that the Bavarians settled on. Intending the outpost to be a stepping stone to the 82 Eridani system (still unexplored), the Texans moved in without giving the Bavarians much advance notice, nor even really asking their permission. Although the Bavarians had no really good reason for trying to keep the Texans off Heidelshiemat, the fact of the Texans moving in so blithely without consulting the Bavarians left a bad feeling in the minds of many of the

Eber Ruins:

In 2253, a group of Texan explorers scouting out the region to the south of their outpost discovered what appeared to be ruins of a sentient culture. Though the remains on the ground were little more than rubble, orbital surveys showed recognizably artificial foundation patterns. Further research, and comparison with the ruins on Daikoku, showed the Rho Eridani ruins to have been built by the same culture: the Eber.

Though the ruins were demonstrably Eber, there are marked differences between the Daikou and Rho Eridani sites, most notably in the layout and the artifacts so far discovered. The current hypothesis is that the two worlds were settled by different Eber groups, perhaps different nations.

Bavarian colonists. Consequently, the Bavarian colony does its best to keep contact with the Texans to the barest minimum.

For the past ten years, the Texans and the Heidelshiematian's have been fighting a low-scale "range war" over mineral and oil deposits on a chain of islands in the ocean between the two colonies. Heidelshiemat claims the territory, but has never occupied it, saving it for "later expansion." The Texans countered that, under the Melbourne accords, they had to develop any claimed territory within 10 years, or it reverts back to the common pool. So far the war has been largely between small prospecting groups, but rumors that the Heidelshiematian firm of Carrida has brought in off-world mercenaries to enforce its claim. This action may lead to the colonial governments getting involved, and possibly open war.

The Incan Colony

Colony Name: Machu Picchu

Colony Population: 1.3 million

Date Founded: 2289

Nationality: Incan

Life Expectancy: 92 years

Literacy: 91%

College Education: 58%

Major Cities: Nazca (348,000), Buenaventura (284,000)

Currency: Incan Peso

Government Type: Feudal (5)

Law Level: Moderate. All firearms prohibited (8)

Tech Level: (9)

Trade Data: Ri

Principal Trading Partners: Incan Republic,

Interface Capability: Roton (D)

Resources: Farming, Mining

Military Presence: None

Other Bases: None

Services: Road Net (78%), Airship Net, Weather Satellites, Orbital Terminal

If it were not for the Texans and their colony, the Incas would probably not have been able to plant a colony on Heidelshemat. A relatively poor nation, the Inca Republic had a space fleet comprised of a few second hand ships purchased from other nations. The Texans, who had given the Inca Republic moral support throughout their struggles with the Brazilians, despite the political differences, suggested to the Incas that they try establishing colonies on the same worlds that the Texans had settled on. This would help to promote the Inca Republic as a legitimate member of space-faring society, and it would allow the Texans to help the Incas build their colonial settlements.

The first Incan precolonization expedition arrived in 2280. Ill-equipped to perform much in the way of useful surveys, the Incas found that they had to call on the Texans for equipment and aid. The Texans provided both on the condition that such assistance was temporary. The Incas set about selecting a site for their colony (in an area well to the north of the Texan colony), and, by 2285, they had begun work on some facilities for it. In building their colony, which was formally established in 2289 (even though at this time, it was little more than an outpost with a large spaceport), the Incas relied heavily on the Texans for technical support. The Texans grudgingly acquiesced, thought he feeling was that the Incas should be able to do the work themselves. The Incas felt betrayed by this sentiment, as Texas had originally offered support to the fledgling Incan program. This engendered hard feelings in both camps, leading to a state of hostility between the two colonies today. The Incas are leaning towards the Heidelshematians for support, which the former Bavarian colony is happy to provide.

CHENGDU/Epsilon Indi

The moderate climactic conditions on Chengdu have attracted a productive population of Manchurian settlers. Their efforts will likely turn the Epsilon Indi system into one of Manchuria's most important off-world possessions within the century.

SYSTEM DATA

STELLAR DATA

Primary Name: Epsilon Indi

Spectral Class: K5 V

Magnitude: 7

X, Y, Z Coordinates: 5.2, -3.1, -9.4

Number of Planets: 6

Number of Asteroid Belts: 2

PLANETARY DATA

The outermost world of this system is a large brown dwarf, and provides a convenient discharge point for ships moving past.

PLANET DATA

Name: Chengdu

Distance from Primary: 0.45 AU

Year Length: 249.23 days

Size: 11,980 km in diameter

Day Length: 20.13 hours

World Type: Garden

Surface Gravity: 1.12 G

Atmospheric Pressure: 1.19 atm

Climate: Temperate

Water Presence: 68%

Atmospheric Composition: N₂ (75%), O₂ (21%), Trace(4%)

Biodiversity: Diverse; useable

Natural Resources: 7

Satellites: 2

Chengdu is similar to Earth in many ways, though the land is more rugged and the weather is more mild. Though the world has a somewhat higher gravity than Earth, and is somewhat cooler, it has a great of potential as a colony and a provider of resources for the sponsoring nations and foundations.

COLONIAL DATA

Colony Name: Chengdu

Colony Population: 22 million

Date Founded: 2208

Nationality: Manchuria, Canada, Nigeria, Life Foundation

Life Expectancy: 97 years

Literacy: 99%

College Education: 77%

Major Cities: Shaoguan (2.1 million), Anyou (980,000),

Currency: Manchurian Ruble

Government Type: Democratic council responsible to Manchurian Empress (4)

Law Level: Moderate. Personal concealable firearms prohibited (5)

Tech Level: (11)

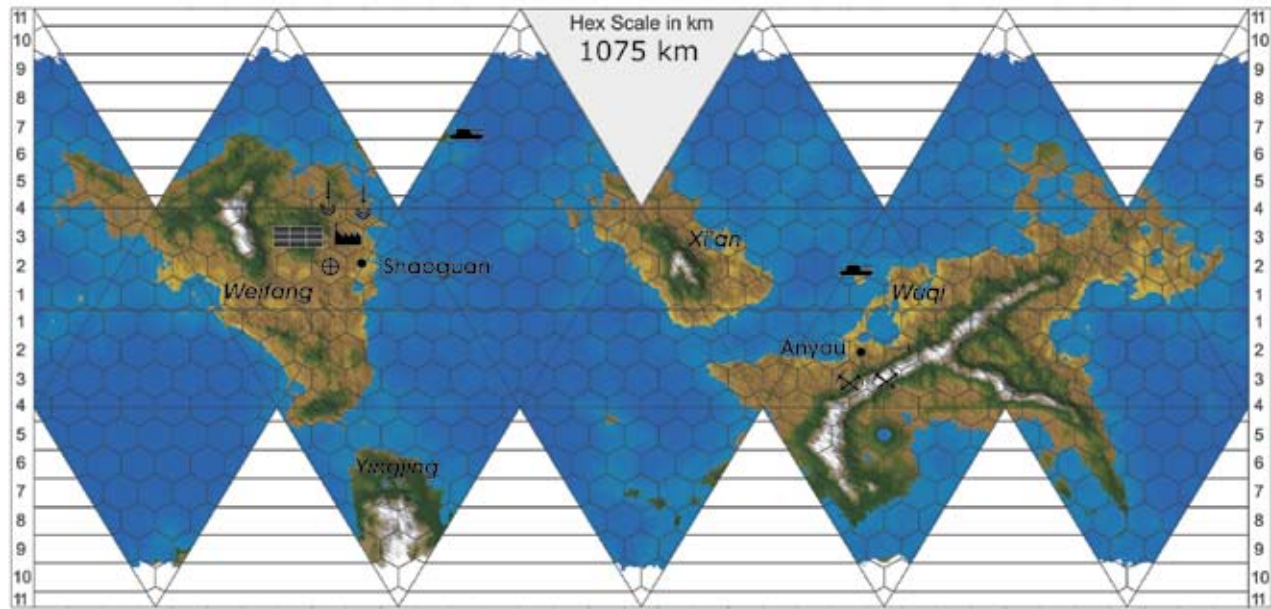
Trade Data: Ri

Principal Trading Partners: Manchuria, Canada, Nigeria

Interface Capability: Spaceplane, shuttle, catapult (B)

Resources: Farming, Mining, Heavy Industry, Orbital

Chengdu



Legend

- Major City
- ⊕ Spaceport
- Catapult

- ⚡ Mining
- ↓ Farming
- 🏠 Military Base

- ⚡ Fusion Plant
- ☀️ Solar Power Rectenna
- 🏭 Heavy Industry

Industry

Military Presence: Military Base

Other Bases: Science

Services: Solar Power Satellite, Rectenna, University, Powernet, Road Net (92%), Rail Net (89%), Link Network (93%), Airship Net, Weather Satellites, Communications Satellites, Orbital Terminal, Civilian Shipyard

Colonization of Chengdu occurred in two phases. The first phase, centered on what is now the city of Anyou, was dedicated to resource exploitation, and at first did not include industry or farming. The second phase, centered on the city of Shaoguan, was jointly sponsored by the Manchurian government and the Life Foundation, along with participation by both Canada and Nigeria. It took longer to organize, and it wasn't until 2241 that the first ships carrying the colonists for the new colony. This second phase of the colonization effort was aimed at providing the more intangible elements of a successful community, such as a university, along with manufacturing and farming.

After 112 years, the colony is fully self-sufficient, and has an economy equal to most Tier 3 nations. There is a large independence movement, which has led to large demonstrations on several occasions. However, Manchuria is not about to let go of its most successful colony, and only the presence of Canadian and Nigerian nationals has prevented the Manchurian colonial government from cracking down harshly on the independence movement. Even then, there are numerous

stories of pro-independence people "disappearing" or being arrested by Manchurian authorities.

Despite the occasional heavy-handedness of the Manchurians, the colonies are known for their relatively open governments, particularly when compared to other Manchurian colonies.

For a time, Chengdu was host to a Sung enclave, but the higher gravity prevented the aliens from being able to fly freely, and over time that led to psychological problems for them. They abandoned the site in 2305, ceding it to the Manchurian authorities. The Manchurians did nothing with it until after the Kafer War, when they resettled refugees of German extraction from the French Arm. This small camp of refugees is determined to make a go of it with little or no government support, though they do get some aid from Heidelberg.

Illegal Opportunities:

Political unrest on Chengdu has diverted security forces, and there are enhanced opportunities for smuggling and other economic crimes.

KANATA/DM+20 5046 (Doris)

Canada's entry into the interstellar community has been a recent one, but the Canadians' efforts on Kanata have been impressive, and their continued success in space seems inevitable.

SYSTEM DATA

STELLAR DATA

- Primary Name:** DM+20 5046 (Doris)
- Spectral Class:** K5 V
- Magnitude:** 13
- X, Y, Z Coordinates:** 19.6, -12.1, 8.8
- Planets:** 4 (Delisle, Kanata, Achilles, Pontus)
- Asteroid Belts:** 0

PLANETARY DATA

Of the other three worlds, only Achilles, a small, slightly irregularly-shaped world, is of any interest. Achilles is third in DM+20 5046's orbital hierarchy, at an orbital distance of .39 AU from its primary. This lumpy, 1000-kilometer-diameter worldlet provides the foundation for a complex of domes making up the system's Royal Canadian Armed Forces base. A contingent of about 1500 men and women maintain this facility on a rotating basis, with relief crews arriving from Earth once every 11 months. A small squadron of stutter-

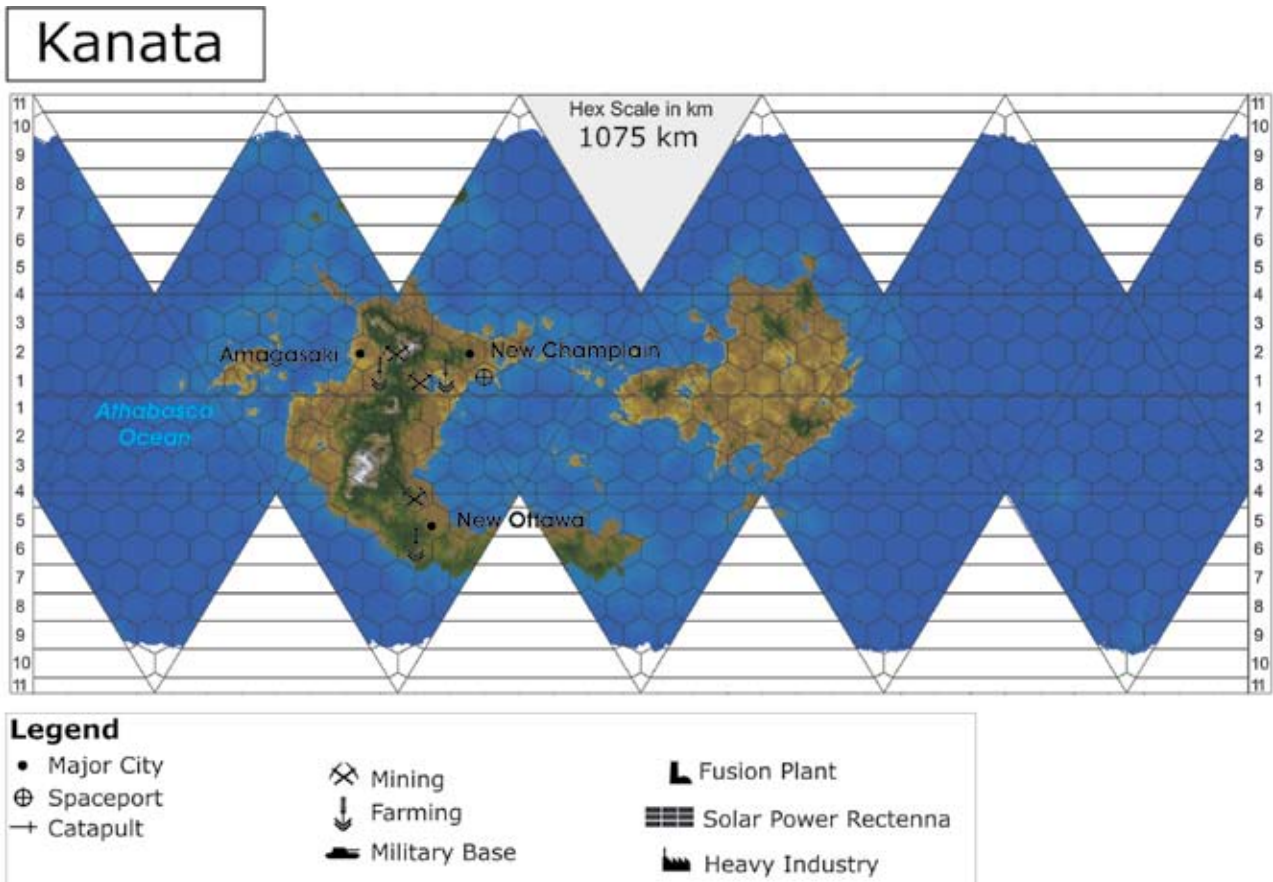
warp-equipped vessels are stationed on Achilles, including a dozen fighters along with a few larger vessels and cutters.

PLANET DATA

- Name:** Kanata
- Distance from Primary:** 0.26 AU
- Year Length:** 33 standard days
- Size:** 12,000 km in diameter
- Day Length:** 22.5 hours
- World Type:** Garden
- Surface Gravity:** 0.85
- Atmospheric Pressure:** 0.87
- Climate:** Temperate
- Water Presence:** 80%
- Atmospheric Composition:** N₂ (77%), O₂ (21%), Argon (2%)
- Satellites:** 0, + Nereids ring system

The Nereids ring system is a dense, stony ring, with an anomalous origin, as it is outside the Roche limit for Kanata. The largest object in the ring is a two-kilometer juggernaut named Ellesmere. This rock serves as Kanata's orbital terminal.

Planetary old age, coupled with the lack of any significant tidal stresses, has left Kanata's core in a solid state. Danger to the colonists arises from this condition as Kanata cannot generate a magnetic field to trap outbursts of high energy particles given off by stellar flares.



In the 47 years since colonization, there have been eleven major stellar flares. The radiation levels rise dangerously on such occasions. The observatory at the orbital terminal gives warning to the best of its ability, sirens are activated, and the populace dives for shelters. For the safety of those caught out in the wilderness, members of the Royal Canadian Mounted Police are equipped with kits which include explosive tunneling charges. Given favorable terrain, they can create a moderately effective shelter in 10 to 15 minutes after receiving radio warning from Ellesmere observatory, though this is often a token safety measure at best.

The atmosphere has an unfortunate sour smell from the so-called "sour yam" plant, which is quite common worldwide. Many find the smell hard to get used to.

In addition to the complex coastline biosystem, with its mats of vegetation that gradually transition from deep-water to shoreline, Kanata presents a Terra-like complexity of variety of environments inland. Some 20 percent of its land surface is covered by the desert and tundra of the equatorial regions. These areas are characterized by a large number of impact craters spread across the surface. Many of these have become lakes, but others have become a remarkable haven for a wide variety of life. With spring-fed pools at their bottoms and their walls covered with a mat of intertwined vegetation, they are like little jungles in the tundra. Although one two-man team has already been lost to unknown hazards in one such "crater garden," some of the most fascinating archaeological finds have been coming out of them, indicating that were the product of intelligent design. Some even speculate that the crater gardens are leftovers from some ancient Medusan colony, though there is no evidence to support that link.

COLONIAL DATA

Colony Name: Kanata

Colony Population: 373,000

Date Founded: 2273

Nationality: Canadian

Life Expectancy: 91 years

Literacy: 100%

College Education: 81%

Major Cities: New Champlain (55,000), New Ottawa (21,000), Amagasaki (14,000)

Currency: Canadian dollar

Government Type: Appointed Governor (6)

Law Level: Moderate. Light Assault Weapons prohibited (4)

Tech Level: (9)

Trade Data: Ni

Principal Trading Partners: Canada, Stark

Interface Capability: Spaceplane (C)

Resources: Farming, Mining

Military Presence: Military Base, Naval Base

Other Bases: Science

Services: Solar Power Satellite, Rectenna, University, Powernet, Road Net (100%), Rail Net (100%), Link Network (98%), Airship Net, Weather Satellites, Communications Satellites, Orbital Terminal

The Canadian colony at Kanata has brought the nation the respect and prestige it was looking for, and the resources available on this distant world make it look likely that the investment will pay off economically as well.

Kanata's resources have been the source of the only unrest in the colonies, as independent prospectors and the major corporations square off against each other. This has usually resulted in victory for the independents, though there is some pressure being brought to bear on the government in Ottawa to relax restrictions on the corporations.

In addition to the Canadian colony, there is a small Japanese enclave on this world, largely concerned with the ongoing biological and archeological studies of the crater gardens.

ERIKSSON/AC +17 534-105

SYSTEM DATA

STELLAR DATA

Primary Name: AC +17 534-105

Spectral Class: M4 V

Magnitude: 11.27

X, Y, Z Coordinates: 15.9, -12.6, 6.3

Number of Planets: 3 (Eriksson, Mackenzie, McDonald)

Number of Asteroid Belts: 1

PLANETARY DATA

PLANET DATA

Name: Eriksson

Distance from Primary: 0.22 AU

Year Length: 127.8 days

Size: 9700 km in diameter

Day Length: N/A (tidally-locked)

World Type: Garden

Surface Gravity: 0.74

Atmospheric Pressure: 0.72

Climate: Temperate

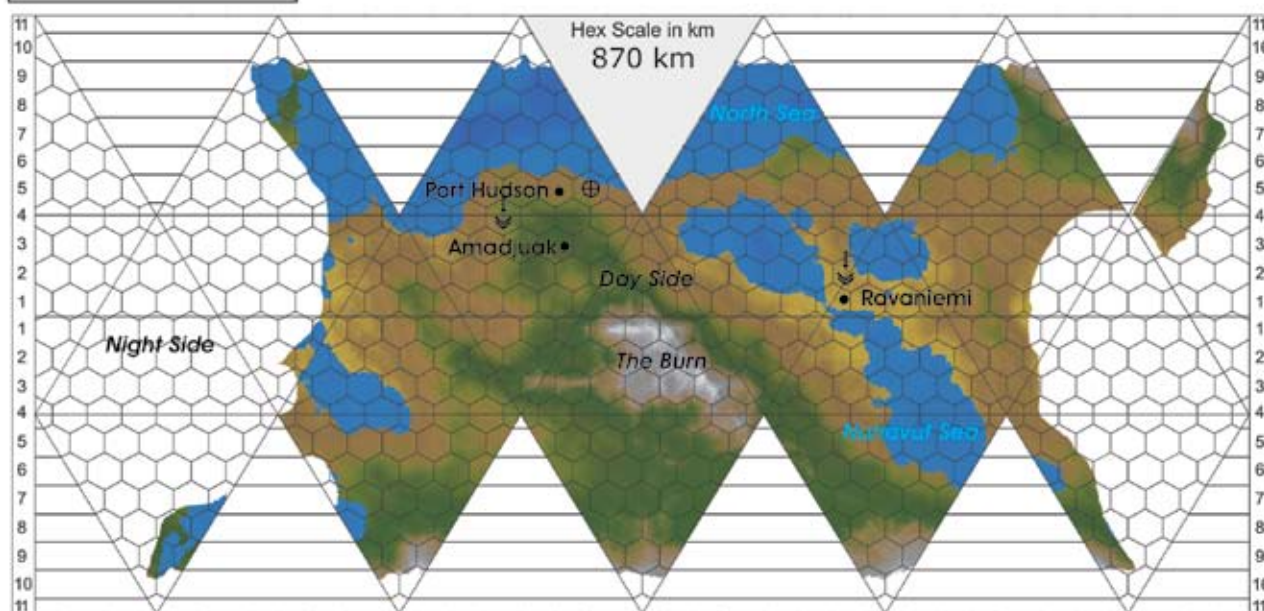
Water Presence: 35% (55% including glaciers)

Atmospheric Composition: N₂ (79%), O₂ (18%), Trace (3%)

Biodiversity: Diverse; usable

Natural Resources: 5

Eriksson



Legend

• Major City	⚡ Mining	⌚ Fusion Plant
⊕ Spaceport	↓ Farming	☰ Solar Power Rectenna
→ Catapult	🏠 Military Base	🏭 Heavy Industry

Satellites: 0

Eriksson is a pleasant world, if a little cooler than Kanata. Much of the world's water is locked up in the large darkside icecap. This small world is tidally-locked to its primary, and orbits quite closely in. This makes it susceptible to flare activity, but the red dwarf star it orbits seems to be unusually stable. The planet's magnetic field would help attenuate any radiation, but being on the surface during a flare would be dangerous.

Of particular interest on Eriksson is a colossal patch of melted and scorched rock near the center of the dayside. The origin of this 1200 km diameter scar is unknown, but most theories are that it was a scar left by a particularly energetic flare. If it was, that event likely came close to exterminating all life on this small world.

The most diverse ecosystem on the planet is actually found in the glaciers. Several species of large, warm-blooded "worms" burrow beneath the ice in search of food. They exploit weaknesses in the glacier to help them with their tunnels, and have a slow metabolism to help them in the cold. Their tunnels form the basis for a complex, largely self-contained ecosystem.

As it is, life on Eriksson is curiously undifferentiated. Only a few small niches in the local ecology are filled, and even in the few short years of colonization, the other niches have started to fill up with transplanted terrestrial creatures. This lack of differentiation supports an extinction theory, and Mc-

Gill University has established an orbital observatory to study the star.

The temperate zone is geologically active, with a high number of geysers and even a few volcanoes. The dayside is actually quite comfortable, but due to the risks of possible flare activity it is avoided as a place of habitation.

COLONIAL DATA

Eriksson has two parallel histories. The first is the official version, as told by the Canadian government, and supported by the Scandinavian Union and the Sung colonists. The second is told by the separatists and radicals who claim to be the first settlers on Eriksson, which they called Wolverine. They settled the world first, but were pushed aside by the official colonization program.

The official colony is a joint effort with the Scandinavian Union and the Sung, and is growing quite rapidly with the combined investment. The Canadian contingent includes a substantial number of Innu natives, while the Scandinavian colony possesses a considerable number of Laplanders. They've even imported a reindeer herd. Likewise, the Sung colonists hail from the northern regions of their home world, and have an unusual tradition of connectedness with their land. Unusual for Sung, that is.

Colony Name: Eriksson

Colony Population: 25,000 (17,000 human, 8000

SEPARATISTS:

Canada has always had a problem with separation sentiments, either in the western provinces or in Quebec. By 2320, the issues that led to these feelings have largely been addressed, so the separatist movement, whether east or west, has mostly been relegated to the radical fringes. The separatists of Eriksson left Earth in an attempt to build their version of Canada, only to have Canada follow them out.

The settlement on Eriksson consists of only just over 5000 individuals, who reside near the south pole in the temperate zone.

Sung)

Date Founded: 2313

Nationality: Canadian, Scandinavian, Sung Akcheetoon

Life Expectancy: 100 years

Literacy: 99%

College Education: 72%

Major Cities: Port Hudson (2200), Amadjuak (2000), Ravaniemi (1500)

Currency: various

Government Type: Appointed lieutenant governor (6)

Law Level: Moderate. Personal concealable firearms prohibited (5)

Tech Level: (4)

Trade Data: Po

Principal Trading Partners: Kanata, Cold Mountain,

Interface Capability: Roton (D)

Resources: Farming

Military Presence: None

Other Bases: Science

Services: Road Net (5%), Rail Net (2%), Link Network (8%), Airship Net, Weather Satellites, Communications Satellites, Orbital Terminal

The main colony is so far primarily concerned with start-up operations. Several promising sites have been identified for mining, and expect to be up and running within a year. The hydroponic farms were a high priority, along with the geo-thermal heat and power plants that supply the main communities. Now that those are up and running, work can be done on expanding the colony's infrastructure.

Eriksson is one of the newest colonies in human space, and unique in that it's the only joint human-alien colony so far. Manchuria is thought to be approaching the Sung nation of Ya'jeera to discuss a joint venture on Haifeng.

The Sung on Eriksson are extremely diffident towards their human counterparts, a legacy of their system of

Sos'soon'atkachar. However, the humans are under strict instructions to not take advantage of it, but to cooperate and show their alien partners everything they want to see.

KWANTUNG TAU CETI

After a shaky beginning, the Manchurian and Mexican colonists on Kwantung enjoy the benefits of peaceful coexistence. In this respect, Kwantung is a shining example of cooperation in space.

SYSTEM DATA

STELLAR DATA

Primary Name: Tau Ceti

Spectral Class: G8V

Magnitude: 5.72

X, Y, Z Coordinates: 10.1, 4.8, -3.3

Number of Planets: 7 (Lupei, Kwantung, Taonan, Foshan, Sanhsing, Shuangcheng, Hsifeng)

Number of Asteroid Belts: 0

PLANETARY DATA

PLANET DATA

Name: Kwantung

Distance from Primary: 0.72 AU

Year Length: 225.41 days

Size: 10,000 km in diameter

Day Length: 35 hours

World Type: Garden

Surface Gravity: 0.93 G

Atmospheric Pressure: 0.93 atm

Climate: Temperate

Water Presence: 67%

Atmospheric Composition: N₂ (76%), O₂ (19%), Ar (5%)

Biodiversity: Diverse; unusable

Natural Resources: 8

Satellites: 2

Kwantung is a wealthy planet with abundant mineral reserves. Agriculture is difficult, however, due to a microorganism that fixes nitrogen into a form that is unusable by Terran plants. Thus farming got off to a slow start until plant-life could be engineered to deal with conditions on this distant world. One of the side-effects of this problem is that there are no diseases or parasites on this world that attack humans or their animals, though the engineered plants are susceptible.

COLONIAL DATA

Kwantung was first settled by the Manchurians, and their policy of using drafted convicts for labor led to a serious

crises within the young colony. The outcome of the crises led to the colony being granted an unusual degree of autonomy and democratic government, matched only by Chengdu amongst Manchurian colonies. In fact, the local council has to be consulted on all matters relating to the colony, and even has the ability to stall or block Manchurian plans and proposals.

In 2258, when Mexico approached the Manchurians about setting up a colony on Kwantung, the local council intervened, saying they wanted only an agricultural colony to share the world with them, as the world's weird agricultural conditions and the Manchurian's emphasis on mining had made the need for more agricultural production quite acute. Mexico, however, wanted a mining colony, as minerals were what they needed, not produce. Eventually, a compromise was reached, allowing the Mexicans to settle on the condition that 20% of the colony's output be agricultural. Mexico agreed, and set up a colony in 2263.

At first, there was considerable wariness between the "old" colonists and the Mexican colonists. To a large extent, this was due to the differences between Manchu Chinese and Mexican cultures. The newcomers soon proved themselves to be a hardworking and helpful addition to the planetary economy. The additional effort in agriculture soon turned the planet from a net food importing planet to an exporting planet.

Oddities:

Quite possibly one of the oddest-looking creatures on any colony world, el alto rana (tall frog) is a vaguely frog-like beast more massive than an African elephant, with a tall, thin neck that can reach over 15 meters. It's name comes from the batrachian look of it's wide-mouthed, pop-eyed head.

COLONIAL LIFE

Colony Name: Kwantung

Colony Population: 22 million

Date Founded: 2219

Nationality: Manchurian

Life Expectancy: 96 years

Literacy: 98%

College Education: 64%

Major Cities: Changpei (2.5 million), Chupei (1.1 million)

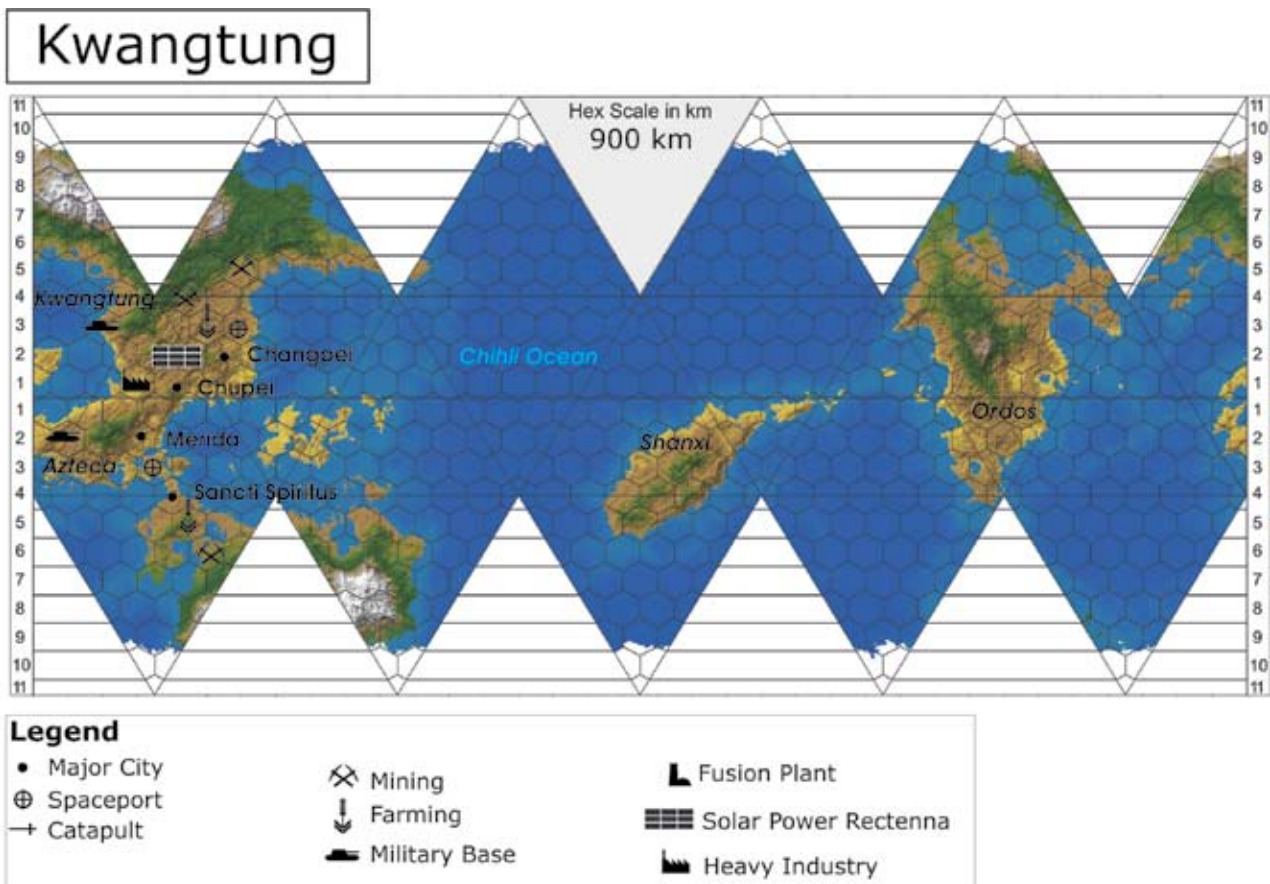
Currency: Manchurian Ruble

Government Type: Elected Congress subordinate to Manchuria (4)

Law Level: Moderate. Personal concealable firearms prohibited (5)

Tech Level: (11)

Trade Data: Ri, IN,



Principal Trading Partners: Azteca, Chengdu, Manchuria

Interface Capability: Spaceplane, shuttle, catapult (B)

Resources: Farming, Mining, Heavy Industry, Orbital Industry

Military Presence: Orbital Defense Installation, Military Base, Naval Base

Services: Solar Power Satellite, Rectenna, University, Powernet (49%), Road Net (55%), Rail Net (68%), Link Network (94%), Airship Net, Weather Satellites, Communications Satellites, Orbital Terminal

The ongoing extensive cooperation between the two colonies has created an interesting linguistic shift. The Mexicans were at first obliged to learn the Manchu language, since they were the newcomers and in the minority. This was the source of some resentment, but as the Mexican colony grew and became a business center, more Manchus began learning Spanish. Now the Spanish of the colony are acquiring some of the tonal characteristics of Chinese, while the Chinese vowels are opening out to the pure Latin sounds. Both languages are sounding more musical all the time as the two cultures mix, and all in less than the forty years since the two cultures were forced to work together. With the increased mixing and cooperation, joint cultural projects have started to increase markedly, including the building of a joint center for the performing arts. The Pengtao Center for the Performing Arts has several stages and concert halls which are used by both colonies. The Center is located in the city of Choupei on Choupei Island, equally accessible by water to both colonies.

Colony Name: Azteca

Colony Population: 3.5 million

Date Founded: 2263

Nationality: Mexican

Life Expectancy: 98 years

Literacy: 99%

College Education: 63%

Major Cities: Sancti Spiritus (1.1 million), Merida (945,000)

Currency: Mexican Peso

Government Type: Elected council (4)

Law Level: Moderate. Personal concealable firearms prohibited (5)

Tech Level: (10)

Trade Data: Ri

Principal Trading Partners: Kwantung, Montana, Mexico

Interface Capability: Spaceplane, shuttle, (C)

Resources: Farming, Mining, Heavy Industry

Military Presence: Military Base

Other Bases: None

Services: Solar Power Satellite, Rectenna, Powernet (52%), Road Net (55%), Rail Net (60%), Link Network (78%), Airship Net, Orbital Terminal

Kwantung is, at this time, fully self-supporting, and exports many items to younger colonies in the Chinese Arm. Metals and machinery are the single largest export items, with rum, art objects, and clothing making up another large portion.

The excessively long day had caused the Chinese to adopt the siesta long before the Mexicans had arrived. A sleep period of four hours in the middle of the daylight period is universally observed, so there is no use trying to conduct any business at this time. Standard hours are still used for timekeeping, as they are all over known space (for what would happen to physics if the time unit changed in length?), but clocks are specifically made for local time and the few spare minutes at the end of the day are "thrown away" by a special resetting program in the clocks. Thus the day is always exactly 35 hours long, and noon does not wander through the day as the solstice used to wander through the year in old calendars.

DUKOU/Epsilon Eridani

Potentially wealthy biologicals were the original impetus for colonization on Dukou, a world in the Epsilon Eridani system. However, being a chilly, high-gravity world, Dukou cannot be listed among the more hospitable colony worlds.

SYSTEM DATA

STELLAR DATA

Primary Name: Epsilon Eridani

Spectral Class: K2 V

Magnitude: 6.13

X, Y, Z Coordinates: 6.4, 8.4, -1.9

Number of Planets: 4 (Dukou, Chongqing, Zigog, Yibin)

Number of Asteroid Belts: 1

Companion Star

Companion Name: Epsilon Eridani UC

Spectral Class: M0 V

Magnitude: 13

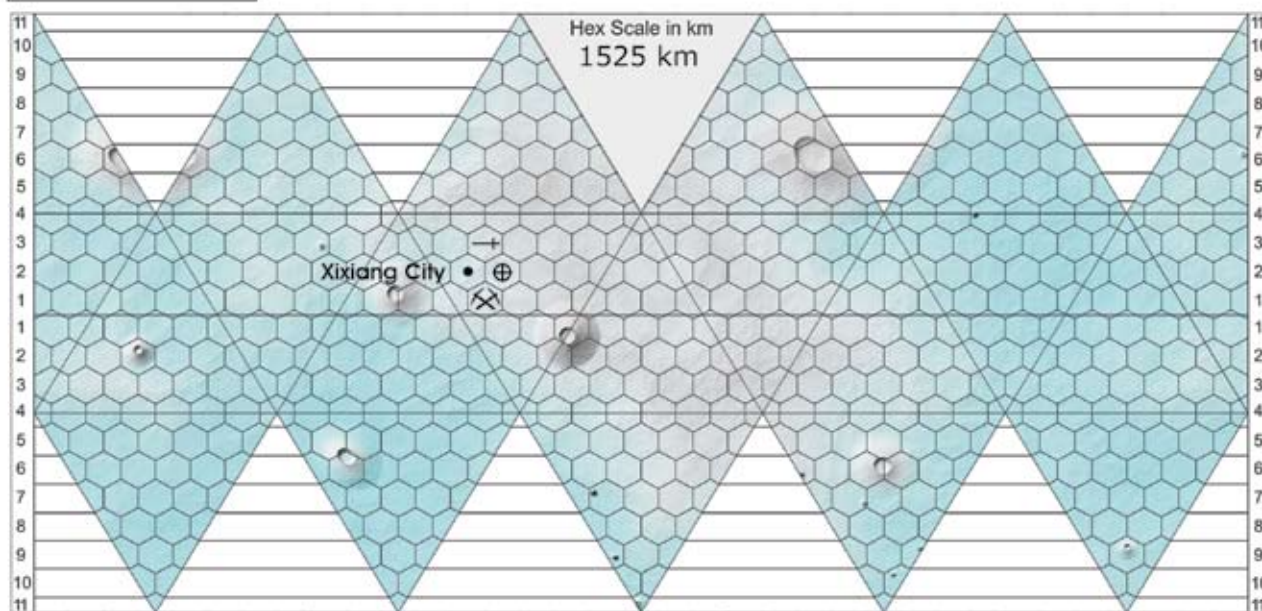
Distance from Primary: 135 AU

X, Y, Z Coordinates: 6.4, 8.4, -1.9

Number of Planets: 0

Number of Asteroid Belts: 0

Dukou



Legend

• Major City	⚒ Mining	⌒ Fusion Plant
⊕ Spaceport	↓ Farming	▦ Solar Power Rectenna
→ Catapult	▬ Military Base	⚙ Heavy Industry

152

PLANETARY DATA

PLANET DATA

Name: Dukou
Distance from Primary: 0.24 AU
Year Length: 240.3 days
Size: 17,000 km in diameter
Day Length: 37.2 hours
World Type: Glacier
Surface Gravity: 1.51 G
Atmospheric Pressure: 1.22 atm
Climate: Cold
Water Presence: Ice world (100% covered in ice)
Atmospheric Composition: N₂ (81%), O₂ (15%), Ar (4%)
Biodiversity: Minor
Natural Resources: 3
Satellites: 0

COLONIAL DATA

History Of Colonization

The first planet of Epsilon Eridani, though inhabitable, is only marginal, and would never have been settled were it not for an incredible find beneath the thick mantle of ice that sheathes the world. Pai-leng, a pseudo-fungus, was found to

have remarkable antibiotic properties, more potent than any of the Terran-derived varieties in use.

However, the planet was so inhospitable that the Manchurian government could not find more than a handful of people willing to settle there to exploit the pai-leng.

During these initial planning phases a minor functionary at the Manchurian court came up with the idea of using the world as a penal colony. This enabled the Manchurian government to get around the difficulties in getting people to settle on this forbidding world.

By the year 2294, Xixiang's status as a penal colony had changed. The operation had expanded to the extent that it was necessary to send more colonists than the prisons could provide. The Xixiang Company opted to begin recruiting colonists from the general public and no longer accepted convicts. The official status of the colony was changed from "penal colony" to "semi-penal colony." Those colonists still under sentence would still be required to serve them, but once the last of the sentences had been completed, Xixiang would become a regular colony.

Life On Dukou

Dukou is a difficult, hostile world. Though it lacks the lifeforms that make many colony worlds inimical, it makes up for that with its environment. The bitter cold, the endless expanses of ice and snow, and the oppressive gravity make this world truly unpleasant. Dukou has one of the highest suicide

rates in Human space.

Colony Name: Xixiang

Colony Population: 224,000

Date Founded: 2235

Nationality: Manchurian

Life Expectancy: 67 years

Literacy: 92%

College Education: 54%

Major Cities: Xixiang City (184,000)

Currency: Various

Government Type: Corporate Control (1)

Law Level: High. All weapons prohibited (A)

Tech Level: (8)

Trade Data: Ri, Hi

Principal Trading Partners: Manchuria, Cold Mountain, Syuhlahm

Interface Capability: Spaceplane, Catapult (B)

Resources: Mining

Military Presence:

Other Bases: None

Services: Fusion Plant, Link Network (22%), Weather Satellites, Orbital Terminal

The Xixiang colonists today number 217,000. Fully 90 percent of those colonists are Manchurian, the rest being of mixed nationalities, primarily Mexican and Canadian. The majority of those colonists are no longer convicts, with only a few left to work off their sentences. Many of the convicts who completed their sentence on Dukou opted to stay on and continue working at the colony, finding that they have adapted to the conditions well enough to continue living there.

The remainder of the colonists at Xixiang are either descendants of convicts or regular citizens who decided to come to Dukou of their own free will. Although the living conditions are somewhat less than optimum, the pay is very good. Workers are now paid through direct salary and profit-sharing incentives, and the starting annual income is Lv9,000.

But being a "semi-penal" colony, Dukou is often low on the list for receiving consumer goods manufactured on Earth or elsewhere in the arm. Consequently, there is very little for colonists to spend money on. The only things of interest at the colony are the pai-leng mines and refinement plants. Since there are no industries or farms on Dukou, there are very few luxury items available. Those wanted must be imported along with food and machinery and everything else necessary to keep the colony running. The reputation of "doing without" has spread and gone a long way toward slowing the flow of willing colonists to the planet.

The colony itself is made up of a series of buildings all connected by tubular passageways. The passages are included to avoid constant exposure to the harsh temperature.

The exceptions to this rule are some of the newer pai-leng mine installations, which are located too far away from the original facility to make these connections practical. Workers commute to and from these installations on winter-adapted trains.

The buildings and equipment in use by the colony are generally of poor quality, and have many jerry-rigged patches and repairs. The colony is low on the list for new equipment and supplies, which has led to a thriving black-market trade with the occasional Libertine merchant vessel that makes orbit. It isn't pai-leng that is the basis of these transactions, however, but another fungal organism that grows in the vicinity of pai-leng, called o-lang. O-lang is a moderate narcotic, along with being a potent hallucinogenic, and fetches a sizeable prices on the black market all over human space. It even has some effect on the Sung.

MONTANA/OMICRON 2 ERIDANI

Mexican and Argentinean interests in space have traditionally been linked. Their joint colonization of Montana is to date their most successful achievement.

SYSTEM DATA

STELLAR DATA

Primary Name: Omicron 2 Eridani

Spectral Class: K1 V

Magnitude: 5.99

X, Y, Z Coordinates: 7.0, 14.0, -2.2

Number of Planets: 6 (Phaeton, Montana, San Martin, San Pedro, Gaberiel, Nieve)

Number of Asteroid Belts: 2

Companion Name: Omicron 82 Eridani C

Distance from Primary: 400 AU

Spectral Class: M4 V

Magnitude: 12.73

X, Y, Z Coordinates: 7.0, 14.0, -2.2

Number of Planets: 0

Number of Asteroid Belts: 1

Omicron 82 Eridani C has a white dwarf companion at 34 AU.

PLANETARY DATA

PLANET DATA

Name: Montana

Distance from Primary: 0.34 AU

Year Length: 155.44 days

Size: 11,347 km in diameter

Day Length: 36 hours

World Type: Garden
Surface Gravity: 0.98 G
Atmospheric Pressure: 0.965 atm
Climate: Temperate
Water Presence: 90%
Atmospheric Composition: N₂ (76%), O₂ (21%), Trace (3%)
Biodiversity: Diverse; useable, though unpalatable
Natural Resources: 6
Satellites: 1 (La Luna)

Native Life: The majority of native animals are small and cold blooded, diurnal in habits and hibernating in cold weather. A few large carnivores can be dangerous to humans if disturbed, but none will hunt humans by choice. Though the local animal life is digestible, it is unpalatable to most, and Terran livestock is the preferred food source.

COLONIAL DATA

Montana was settled in 2245 as a joint effort by Argentina and Mexico. Colonists were recruited by a massive public campaign in both countries, appealing to curiosity, patriotism, greed, and anything else the PR men could use to entice the populace. In more recent years, both countries have been funneling increased funds and resources to the world as the Latin Finger becomes more developed. Montana lies at the gateway to this minor branch of the Chinese Arm.

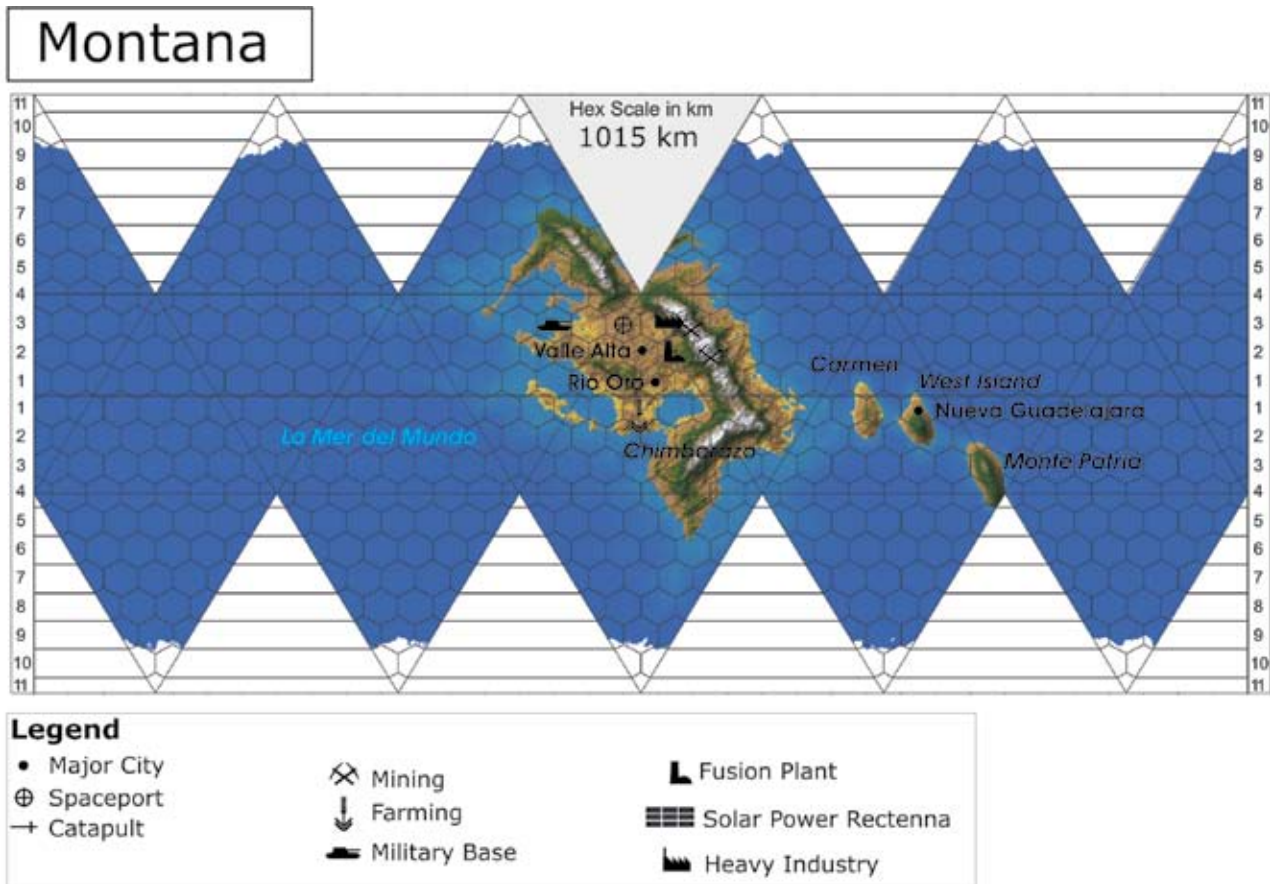
Population: 8.4 million

Nationality: Mexican, Argentinean
Life Expectancy: 98 years
Literacy: 98%
College Education: 73%
Major Cities: Rio Oro (1.3 million), Valle Alta (320,000), Nueva Guadalajara (110,000)
Currency: Peso
Government Type: Limited Democracy (4)
Law Level: Low. Military Weapons Prohibited (3)
Tech Level: (9)
Trade Data: NI, Ag
Major Trading Partners: Mexico, Argentina, Manchuria
Interface Capability: Spaceplane (C)
Resources: Farming, Mining, Heavy Industry
Military Presence: Military Base
Other Bases: None

Services: Fusion Plant, University, Pownet (17%), Road Net (20%), Rail Net (35%), Link Network (17%), Weather Satellites, Communications Satellites, Orbital Terminal

Many of the Argentinean colonists on Montana were imported as indentured laborers, who worked off their cost of their transport in service to the colony and a few large land-owners.

The dynamics of colonization on Montana created a situation where men outnumber women by about 3-to-1.



Though the situation is evening out as the colony matures, the problem still exists, and has led to an unusual solution: polyandry, or multiple husbands for one wife. This has some additional benefits, like being able to bring more hands to bear on work, and ensures that children won't be orphaned by a sudden accident. This solution flies in the face of the normal colonial conservatism, but was the only choice for the first-generation colonists. The current generation, often brought up in these homes, is starting to lean towards group marriages, which have all the benefits of polyandry for a more even gender distribution. Needless to say, the Church is horrified by these trends, but can do little to stop them.

There is a long-running problem on Montana of the indentured laborers taking off before fulfilling their contracts. They often turn to a life of banditry, banding together to form larger, more survivable groups. These groups, while rare, are the terror of the rural populace.

Local police are the only official militia, but a citizen posse can be quickly formed any time renegades threaten an outlying area. The governor tries to insist that bandits arrested by posses be shipped by rail to a population center for trial, but this plan is not always carried out in the case of more serious crimes. A fair number of bandits have been hanged or thrown from cliffs in the outback. If a retrospective investigation proves the accused guilty, the citizens responsible are not punished.

While Argentina and Mexico originally placed two separate colonies within cooperating distance of each other, the distinctions have long since vanished. Even newcomers to the colony sense that planetary and not colonial attitudes prevail. Three major cities have grown up: two near the fusion plant, in the area of the original colonies, and one on West Island, where a university has been started by the Life Foundation.

Religion in the Colonies:

On many colony worlds, religion serves a two-fold purpose. One is the purely religious, but the other, and often more important, purpose is social. In many small communities, the church has once again become the social center, with dinners, dances, and socials providing a means for neighbors to get to know one another. Religion in remote areas tends to more ecumenical as well, with the question of denomination, or even faith, seldom coming up.

AUSTIN'S WORLD/DM-3 1123

Having emerged as its own nation centuries ago, Texas has done well for itself in the world community. Its colony on Austin's World is a vital link along the Latin Finger.

SYSTEM DATA

STELLAR DATA

Primary Name: DM-3 1123

Spectral Class: M1 V

Magnitude: 9.12

X, Y, Z Coordinates: 2.5, 18.9, -1.3

Number of Planets: 2 (Montana, Hermano Mayor)

Number of Asteroid Belts: 0

PLANETARY DATA

The second planetary orbit holds a moonless gas giant in a highly elliptical orbit with a 48-degree inclination to the system's ecliptic. Obviously a captured world and not originally formed with the star system, this adopted world swings from a perihelion of 1.5 AU to a maximum orbital distance of 3 AU. Some atmospheric probes have been dropped into the clouds of this curious 45,000-kilometer-diameter planet, but the data received showed nothing of any import.

PLANET DATA

Name: Austin's World

Distance from Primary:

Year Length: 41.2 days

Size: 16,250 km in diameter

Day Length: 16 hours

World Type: Garden

Surface Gravity: 1.25

Atmospheric Pressure: 1.31

Climate: Temperate

Water Presence: 90%

Atmospheric Composition: N₂ (71%), O₂ (20%), Ne (9%)

Biodiversity: Diverse; useable

Natural Resources: 6

Satellites: 2 (Matagorda, Padre)

Austin's World has an extreme axial tilt of almost 90°. This has the planet passing from pointing one pole at the sun for several days at a time, as it swings around to point

DAY OR NIGHT:

The day/night cycle on Austin's World is quite variable, and is extremely difficult for people to adapt their circadian rhythms to this world. As a result, the colonists use a great deal of artificial light and create their own schedules, often around a 28-hour cycle.

the other pole at the sun. The uneven heating of the opposite poles produces violent winds that shift directions approximately every twenty days, with frequent heavy rains. The slightly thick atmosphere packs a lot of kinetic energy and can flatten transplanted Terran crops or trees in unprotected areas.

New Austin lacks extensive tectonic activity, and many of the land-raising and creation processes that take place on other worlds are absent here. As a result, the land is gradually eroding away. The lack of any plant cover exacerbates the situation, and the limited amount of land surface grows smaller each year.

Austin's world has no land plants, so preventing erosion is a universal concern of all the colonists. Several types of spreading ground cover from half a dozen worlds has been imported to keep the erosional detritus (it cannot properly be called soil, although the locals often refer to it as such) of the lowlands from being blown away. The essentially sterile soil is ideal for recreating Earth's land ecology, but everything has to be imported, from microbes to earthworms to grass, and the project demands a considerable share of each colony's budget.

All native life is primitive by the standards of most other life-bearing planets. The principal plant life is algae-like, with 53 cataloged genera, including several multi-celled types. Long-leaved seaweeds can be harvested for food and fiber. Tiny creatures feed on the algae and are eaten by larger swimmers. There are no vertebrate forms. Only in shallow waters near the islands and continent are any bottom-feeding varieties to be found. The deep sea waters apparently harbor no life at all; every form found so far inhabits the upper 50 meters of the ocean. A coral-like colony animal is building on the shallower rocky bottoms and will eventually produce small new islands.

All forms of Austinian sea life are edible by humans, though some are scarcely palatable. The aforementioned seaweed is the tastiest of the vegetables, and visitors to the world have spoken highly of one of the bottom-feeders. Colonists, especially of the Life Foundation, have learned to relish most of the possible foods from the sea. However, the only source of vitamin C is Earth fruits.

COLONIAL DATA

In 2258, Texas and the Life Foundation sent separate colonizing groups to Austin's World with quite different goals. For the Texans, the foundation of this colony signified the culmination of a multi-year plan to settle a planet of their own. This action would serve to elevate their status in the national community on Earth, especially since the comprehensive colonization program for Austin's World was conceived and executed entirely by Texas. With limited resources, Texas carried out the initial planetary surveys in 2253, then followed

through by delivering 15,000 colonists to the world in January of 2258 in surplus transport ships, including a pair of old British Yorks.

The Life Foundation colony established later that year outraged the Texans. Their whole aim in the colonization of New Austin was to prove that they could conquer this untamed world by themselves. The arrival of the Life Foundation hurt their pride, and they raised protests at several levels, but the Melbourne Accords were quite clear, and they lost the appeal process. They responded by upgrading the outpost on Heidelberg to a colony, and thus were able to claim the establishment of two colonies in one year. This feat seemed important only to them, however.

Although the Texans had a rocky start with the Life Foundation, a sense of cooperation, partially born out of necessity, grew between the two colonies. The primary motive behind the Life Foundation members' ("Lifers") efforts were to experiment with oceanic colonization techniques. To this end, their activities were restricted to the archipelagos.

In 2294, the Inca Republic, aided by the Texans, set down a colonial population in the central highlands of New Tarrant. This being their second colonial venture, they were eager to prove their legitimacy as a nation of high standing, especially in the face of Brazil. Regardless of their colonies' existence, most were aware that, in both cases, they would be mere pipe dreams without the aid of the Texans.

Most agriculture is carried out in heavily-built greenhouses and utilizes soil which has been enriched with Terran bacteria. Orchards are shielded by rock walls in all directions, so the landscape from the air looks like a set of postal cubbyholes. Grains and other grasses have been engineered to have shorter, stronger stems to survive the occasional cold spells and high winds.

The difficulties of agriculture on the coastal plains are magnified on the high ground inland and are handled in much the same way. However, in the face of all these problems, there is one advantage to farming on Austin's World: there are no weeds. There is no competition whatsoever, nor any pests to destroy crops, because Austin's World has never developed any land life.

The individual colonies on Austin's world are very different entities. Each deserves further, unique explanations, which are given below.

The Life Foundation Colony

Colony Name: Cousteau

Colony Population: 762,000

Date Founded: 2258

Nationality: Life Foundation

Life Expectancy: 89 years

Literacy: 100%

College Education: 81%

Major Cities: New Cambridge (220,000)
Currency: Life Foundation scrip
Government Type: Participatory Democracy (2)
Law Level: None. Nothing Prohibited (0)
Tech Level: (9)
Trade Data: Ri
Principal Trading Partners: Trinity Flats
Interface Capability: Roton (D)
Resources: Farming, Mining
Military Presence: None
Other Bases: Foundation, Scientific

Services: Solar Power Satellite, Rectenna, University, Powernet (45%), Road Net (10%), Rail Net (5%), Link Network (100%), Airship Net, Weather Satellites, Communications Satellites, Orbital Terminal

The Life Foundation Colony is located in the islands off the coast of New Travis, several hundred kilometers from the Texan and Inca colonies. It is the first full colony constructed by the Life Foundation, though they have several outposts and enclaves across human space. It was constructed as an experiment in ocean living and farming techniques, and is currently involved in trials for new technologies and methods for the Haifeng outpost, which is slated for expansion in the next few years.

The Demarchist technologies developed at the Haifeng facility are making inroads into the population at Cousteau, in particular with the scientists and Foundation staff. Their implants go a step further than the original implants, and allow near-effortless communication that has been dubbed "artificial telepathy" by the popular press. In their most basic form, they allow all colonists with the implants to access the colony's link network and vote on any of the issues up before the government.

Hydrogen-powered ground cars are the most common ground transportation, though people are not averse to walking a few miles if they have time. Sail- and hydrogen-powered ships ply the straits between New Cambridge and Travisville in the Texan colony on the mainland. Stair University, located in New Cambridge, is open to all inhabitants of the world and is noted for its land management curriculum.

The Foundation services the entire planet's population from its powersat, transmitting to an island rectenna. They are on amiable terms with everyone and try to stay strictly out of politics, whether based on Earth prejudices or colonial problems. They regard the entire ocean as their domain, which is a lot of territory, but they will allow equal access to it if conservation rules are observed. They would resist any effort of one colony to deny another colony use of the ocean and its products.

The Texas Colony

Colony Name: Trinity Flats

Colony Population: 2.5 million
Date Founded: 2258
Nationality: Texan
Life Expectancy: 87 years
Literacy: 99%
College Education: 72%
Major Cities: Crockett City (373,000), Travisville (193,000)
Currency: Texas Dollar
Government Type: Representative Democracy (4)
Law Level: Low. Military Weapons Prohibited (3)
Tech Level: (8)
Trade Data: Ri
Principal Trading Partners: Cousteau, Incan Colony, Heidelshemat
Interface Capability: Spaceplane, shuttle, Catapult (B)
Resources: Farming, Mining, Heavy Industry
Military Presence: Military Base, Naval Base
Other Bases: None

Services: Rectenna, Powernet (46%), Road Net (22%), Rail Net (0%), Link Network (78%), Airship Net, Weather Satellites, Communications Satellites, Orbital Terminal

The Texan colony is a representative democracy based on the old United States' Constitution. The inhabitants are divided into geographic areas and elect representatives for their areas to two houses of Congress. A president is elected every four years, but in this case he is not the highest authority; he is answerable to the government of Texas on Earth. There are local and district courts as well as a supreme court.

Texan colonists are spread along the western coastal plain of the world's one continent. Two major population centers, Travisville and Crockett City, house heavy industry and orbital interface facilities. Much of this industry relies on imported equipment since there are few metals suitable for making factory machinery on Austin's World. A power network distributes electricity from the Lifers' powersat and from several small hydroelectric dams. The orbital catapult lies directly on the equator. A sizable ground terminal has been built to accommodate freight awaiting shipment. Treaties with the Incan Republic and the Life Foundation guarantee access to the orbital facilities.

Trinity Flats is known for its growing beef exports to other worlds along the Chinese Arm. The value of these exports has become high enough to prompt the government to construct a catapult facility in 2312.

The Incan Colony

Colony Name: Sechura
Colony Population: 98,000
Date Founded: 2294
Nationality: Inca Republic

Life Expectancy: 87 years**Literacy:** 97%**College Education:** 67%**Major Cities:** Huancayo (21,000)**Currency:** Peso**Government Type:** Feudal (5)**Law Level:** High. All weapons prohibited (A)**Tech Level:** (6)**Trade Data:** Ag, NI**Principal Trading Partners:** Trinity Flats, Cousteau, Incan Republic**Interface Capability:** Roton (D)**Resources:** Farming, Mining**Military Presence:** Military Base**Other Bases:** None**Services:** Rectenna, Powernet (8%), Road Net (10%), Rail Net (12%), Link Network (55%)

The Incan colony on New Austin is in the midst of turmoil. The feudal structure of their government broke down in 2311, with the appointment of a new governor, Lord Qavali. His demands quickly grew onerous, and he forgot one of the central tenets of a feudal society: the lord receives the supports of the lower-classes, but in turn is obligated to protect them. His taste for young women proved to be his undoing, as several of his retainers were ambushed as they attempted to “persuade” a woman from one of the more remote villages to accompany them back to the governor’s palace.

Using arms smuggled in from Trinity Flats, the peasants rose up in open revolt, and now control the highlands surrounding the colony. The governor’s troops are unable to move effectively in the highlands, but the highlanders have very little in the way of arable land, and depend on covert Texan support.

Conditions in the colony have deteriorated ever since, with the level of repression constantly rising. There is a rumor that the Inca Republic is going to move its own troops in to restore order, and perhaps even remove the governor.

Inca colonists were recruited by offers of land grants and resource rights. On top of this, a patriotic duty was stressed. Not all seem to have been informed of the feudal government set-up, and there has been some unrest, especially among the close-knit mining community.

The Incas inhabit the highlands and valleys in the center of New Tarrant. Snow and ice is not unknown here. Roads to connect the valleys have been constructed, and a power net, with huge arrays of solar cells, supplies some of the power, the rest being purchased from the powersat. The major trade items produced here are minerals for fertilizer and the chemical industries, along with light element ores, used for export to Earth as well as being an on-planet trade item.

QAVALI’S MERCENARIES:

Lord Qavali has recently begun hiring mercenary forces in an attempt to penetrate the highland areas controlled by the rebels. These troops are extremely unpopular with all segments of Sechuran society, from the peasants who hate the new oppression they fear the mercenaries bring, to the regular army, who resent outsiders being brought in to do what they can’t, do the government itself, which resents the costs of hiring the mercenaries.

PAULO/PROCYON

Procyon is a binary star system composed of an F5 subgiant star and a white dwarf, orbiting their center of mass at a mean separation of 15 AU. The solitary dwarf has very little influence of the family of planets orbiting the subgiant star, other than creating a brighter night for about half of their years.

Sitting at a distance of 3.5 AU from Procyon A are the mismatched twins of Pedro and Paulo. The members of the enigmatic double-planet system share many similar characteristics but differ grossly in one respect: Paulo, home of Brazil’s newest colony, is an abundant garden world, while Pedro, its partner, is a barren world with but a trace of atmosphere.

SYSTEM DATA

STELLAR DATA

Primary Name: Procyon A**Spectral Class:** F5 IV**Magnitude:** 2.64**X, Y, Z Coordinates:** -4.7, 10.3, 1.0**Number of Planets:** 4 (Atlanta, Hippomenes, Pedro and Paulo)**Number of Asteroid Belts:** 1

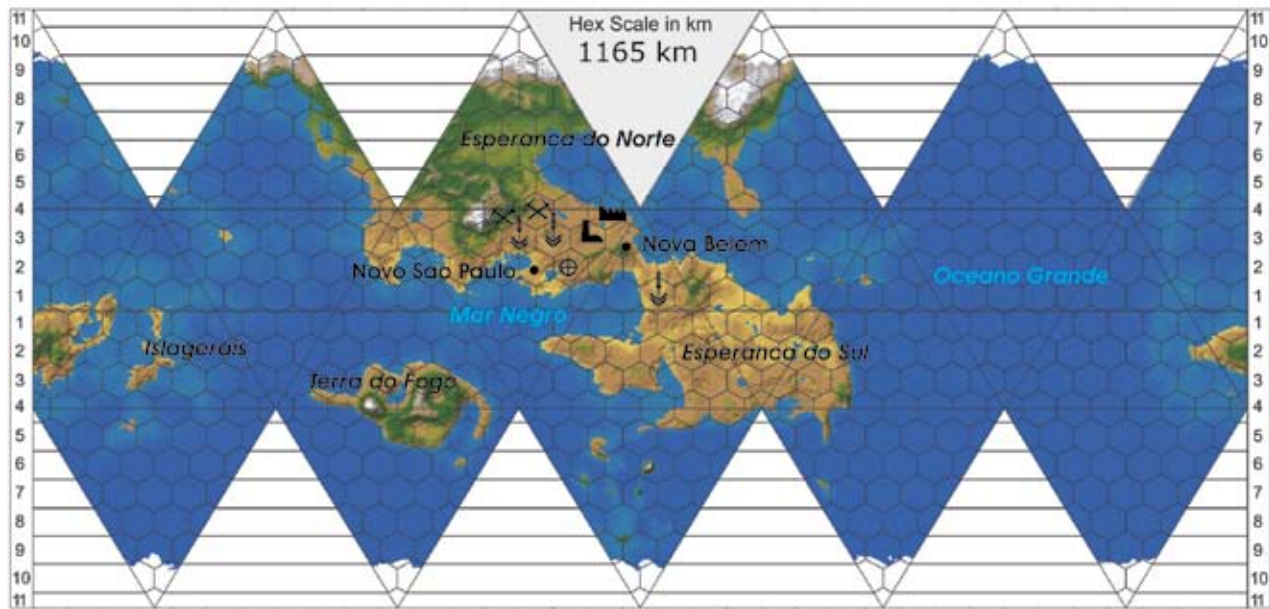
STELLAR DATA

Primary Name: Procyon B**Spectral Class:** F0 VII**Magnitude:** 13**X, Y, Z Coordinates:** -4.7, 10.3, 1.0**Number of Planets:** 0**Number of Asteroid Belts:** 1

RUMOR MILL:

Recently a rumor surfaced on Paulo that the Trilon facility on Pedro is using the corporation’s virtual monopoly on stutterwarp tugs to create a secret direct route to Earth. There is, of course, no truth to these rumors.

Paulo



Legend

- Major City
- ⊕ Spaceport
- Catapult

- ⛏ Mining
- ↓ Farming
- 🏠 Military Base

- ⌚ Fusion Plant
- ☀ Solar Power Rectenna
- 🏭 Heavy Industry

PLANETARY DATA

Paulo is actually part of a double-planet system, with it and its partner Pedro orbiting each other. Pedro is nearly equal to Paulo in mass, yet lacks any sort of appreciable atmosphere.

In 2308, Trilon approached the Brazilian government on Earth and negotiated a mining license for Pedro. One of the conditions of the license is that half of any tantalum belongs to Brazil. The Brazilian government did not consult with the colonial leadership on Paulo over this negotiation, which has caused some hard feelings in the colony. These hard feelings are largely directed at Trilon and its base on Pedro, rather than Brazil. The Trilon facility is large and constantly expanding, employing several hundred locals as well as nearly a thousand imported Trilon employees.

The double-planet system of Pedro and Paulo orbit their common center of mass with a 42-day period, which the colonists of Paulo have adopted as their equivalent of a month. Each month, therefore, the twin planets take turns blanketing each other with an eclipse of considerable duration. Pedro appears about as large as Luna from Terra, and, at 3.5 AU, it covers almost twice as much sky as Procyon A.

PLANET DATA

Name: Paulo

Distance from Primary: 3.5 AU

Year Length: 975.24 days

Size: 12,980 km in diameter

Day Length: 31.2 hours

World Type: Garden

Surface Gravity: 0.99

Atmospheric Pressure: 1.04 atm

Climate: Temperate

Water Presence: 73%

Atmospheric Composition: N₂ (81%), O₂ (18%), Ne (1%)

Biodiversity: Diverse; unusable (dextro-amino acids)

Natural Resources: 6

Satellites: 1 (Pedro)

Life on Paulo evolved utilizing dextro amino acids, thus leaving it of no nutritional value to any Earth-born entity. The planet's environs hold analogues to both terrestrial plant and animal life. Life is slightly more prevalent in Paulo's vast

GATTINHOS DE SEVA:

In addition to being a moderate-sized carnivore, the Gattinhos de Seva were once one of Paulo's more famous exports, a company-sized mercenary unit that had acquired a good reputation for itself. It was virtually annihilated in the short-lived Kimanjano rebellion, as the company held off nearly a regiment of French Foreign Legion troops for several hours before being overwhelmed.

oceans than on its continents. The predominant pattern of vertebrate organisms is eight-limbed. Most forms that live in temperate or frigid zones are warm-blooded and do not hibernate.

Paulo boasts many varieties of plants and animals, from the cervo draku, a plains herbivore, to the notorious gattinhos de seva, a cunning predator which makes its home in the temperate forests and mountains. At 200 kilograms, it is easily large enough to handle the largest herbivores alone, but the gattinho most often hunts in family groups of three to eight, running down its prey in shifts.

Some carnivores and scavengers remain in the colder zones in the winter, and several small creatures are far advanced in the gathering and storage techniques for grains and fruits. The cone jo negro is judged the most intelligent of the food-gatherers and is protected by colonial law.

In Paulo's forests, there is a riot of competing plants, including strangling vines and mobile plants. The latter have two ends that can take root. If one location becomes too crowded or shaded or the soil is exhausted, the plant extends its end to the farthest limit and puts down its roots. The original end loosens itself from the soil and swings up into the air to make another step. This process takes about four standard hours per step. Most astonishing is the sight presented when a whole meadow these andeadores (walkers) finds its soil too poor and goes on migration. Time-lapse films of these migrations have proven to be a big favorite in the mother country.

COLONIAL DATA

Colony Name: Paulo

Colony Population: 1.6 million

Date Founded: 2284

Nationality: Brazil

Life Expectancy: 101 years

Literacy: 99%

College Education: 59%

Major Cities: Novo Sao Paulo (310,000), Nova Belem (180,000)

Currency: Brazilian Real

Government Type: Representative Democracy (4)

Law Level: Moderate. Personal concealable firearms prohibited (5)

Tech Level: (8)

Trade Data: Ag

Principal Trading Partners: Brazil, Libertine Traders (illegal)

Interface Capability: Spaceplane (C)

Resources: Farming, Mining, Heavy Industry

Military Presence:

Other Bases: None

Services: Fusion Plant, Powernet (78%), Road Net (100%), Rail Net (100%), Link Network (98%), Airship Net,

Weather Satellites

Almost three decades after the initial surveys, Brazil planted its colony in the Procyon system. Although they could have set the colony in motion a year earlier, Brazil opted to wait till the year 2284 in order to maximize the affect of the event by its concurrence to the Centennial celebration of Brazil's Tirane colony. Also, Brazil had just completed a complicated exchange with Great Britain in which the South Americans purchased three gigantic York-class colonization vessels, the very backbone of this colonization effort. Colonists were drafted according to a master plan conceived in Brazil to provide a range of skills and ages with physical health and strength a limiting factor. Women and men were sent in equal proportions to avoid later sociological problems.

Paulo is strongly loyal to Brazil. Everywhere one looks, the Brazilian flag is flown, and children are taught national songs in school. The new, elected, planetary government operates on guidelines from Earth, with a constitution that is a virtual carbon copy of Brazil's. Paulo's government sends a representative to the Congress on Earth and was granted statehood in 2306 when the population exceeded 1 million people. Brazil hopes to avoid the difficulties other nations have experienced with colonies making a bid for autonomy. However, human nature may be expected to interfere with this carefully developed plan after a few generations.

Despite the head tax paid to Brazil, and some onerous trade restrictions, life on Paulo is quite satisfying for most of the colonists. A few, however, have recently begun illegal trading with Libertine trader captains, selling the more exotic foods and biologicals in exchange for off-world luxuries. This illegal trade has come to the attention of pirates and raiders, who are maneuvering to get their "fair" share.

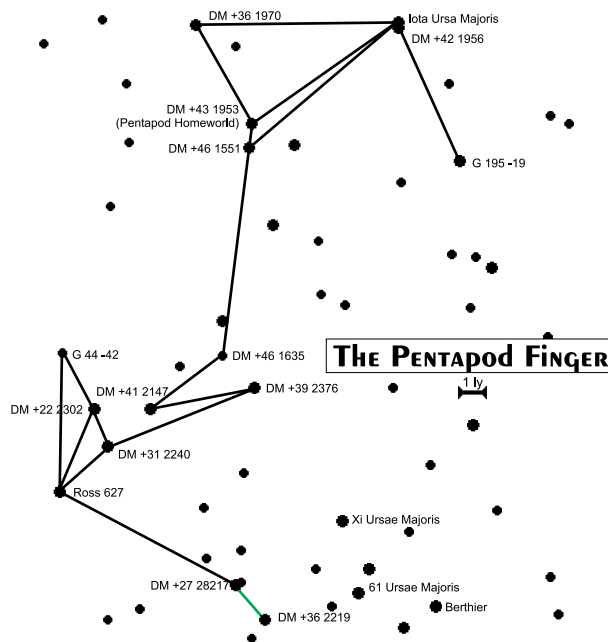
4TH RIO PLATA WAR:

With the onset of the 4th Rio Plata War, Brazil is unable to divert the necessary resources to combat the smuggling problem. They have instead contracted the role out to REBCo SAR, who will provide military, security, and investigative teams to the problem.

ALIEN SPACE

Outside of Human space exist regions that are home to various aliens. Most of these areas are unexplored and unknown, and they are collectively termed Alien Space.

THE PENTAPOD FINGER



This branch of space has been poorly surveyed, aside from the work done by the **Bayern** on its voyage to the Pleiades. It did visit the Pentapod homeworld, but no human ships since have been permitted to journey past the Pentapod trade station at DM +41 2147. The Pentapods lack the naval force necessary to enforce any quarantine, so they have made a strongly-worded diplomatic request. Civilian ships that do not honor this request have been known to disappear.

BODO It is known that there are at least a couple of Pentapod colony worlds in the Finger, in addition to the homeworld, but little is known about them. Pentapod requirements for habitability are not the same as humanity's. In addition to its worth as the home region of the Pentapods, the Finger has additional value in that it connects human space with the worlds of the Bayern Corridor, including the relief efforts at Littleendia, the homeworld of the aliens dubbed "Little Guys" by the **Bayern's** crew.

Psycho-Killer:

The Pentapods have approached the nations of the French Arm to offer an apology. One of their new designs for a defender has apparently gone awry. Several prototype specimens went rogue, and stole a **VoidShark**-class ship. They have been responsible for a string of attacks along the French Arm, moving steadily closer to Kafer Space. The Pentapods have offered their help in stopping the vessel and its crew.

NOTABLE SYSTEMS

DM +41 2147

The second planet of this system is a hot, dry world barely capable of supporting life. The Pentapods have established a station in orbit around the world, and use it as the base for trading expeditions into Human space. Human merchants are like wise welcome here, but few choose to actually stay in the immense, slowly rotating blob of the station for any length of time. Practically any Pentapod biotech device is available here, though prices will be wildly variable. At least two Pentapod **VoidShark** vessels patrol the immediate environs of the station, along with a multi-national (French, German, British) taskforce.

Travel further up the Finger is not permitted.

DM+43 1953

This world is the home of the Pentapods, and was subjected to intense scrutiny by the **Bayern** as it visited here in 2300 before going off to the Pleiades. No Human visit has been allowed since. Further details can be found in the Pentapod section of **Chapter 10:Aliens**.

THE BAYERN CORRIDOR

The Corridor is a linear branch of partially-surveyed systems stretching between the Pentapod Finger and the Pleiades. The Corridor starts at Ross 627, and from there snakes its way into unexplored space. About 20 light years past Ross 627, the Corridor crosses a 15.2 light year gap, a crossing only possible with disposable stutterwarp engines, at least until 2314. In that year, human astronomers, cross-referencing their charts with those of the Pentapods, discovered a small brown dwarf in the gap, able to serve as a partial

bridge. Stutterwarp tugs are still required to bridge the gap, but it is no longer insurmountable. The Corridor consists of 79 systems visited by the **Bayern** on its historic voyage, and stretches out 215 light years towards the Pleiades, stopping at Littleendia, the homeworld of the race known as the "Little Guys." Travel further along the Corridor than this has been forbidden by France, Germany, America and many other colonial powers, for security reasons unavailable to the public. The reason, of course, is the AGRA super-intelligence, and its work of stellar engineering in the Pleiades cluster.

NOTABLE SYSTEMS

ISO 912

ISO 912 is an odd interstellar object. It is a large brown dwarf, generating large amounts of heat through internal processes. One of its 21 moons, ISO 912-2, is sufficiently large enough to possess an atmosphere and is marginally habitable. It is a very dark world, as ISO 917 radiates largely in the infrared. The local plants and animals are adapted for these conditions, but the few Human visitors have found the small, dark world to be very unnerving. ISO 917 and its habitable moon serve as the base for human exploration of the Bayern corridor and the worlds that branch off from it. ISO 917 is 71.2 light years from Earth, slightly off the line to the Pleiades.

ARGYLE 692

The Argyle 692 system was barren and uninhabited, save for a very large vessel seemingly adrift near the larger of the two gas giants. An attempt to investigate the vessel via one of **Bayern's** probes resulted in the destruction of the probe. **Bayern's** captain chose to observe from a distance, and sent no further vessels or probes. All attempts at communication failed. Whether the ship was inhabited or not is unknown. One Alien Cultural and Technologies Expert on Erath who specializes in the Beta Aquilae cluster maintained that the markings seen on the ship before the destruction of **Bayern's** probe resemble writing found in various locations in the Beta Aquilae cluster, but there is no confirmation of his hypothesis.

LITTLEENDIA

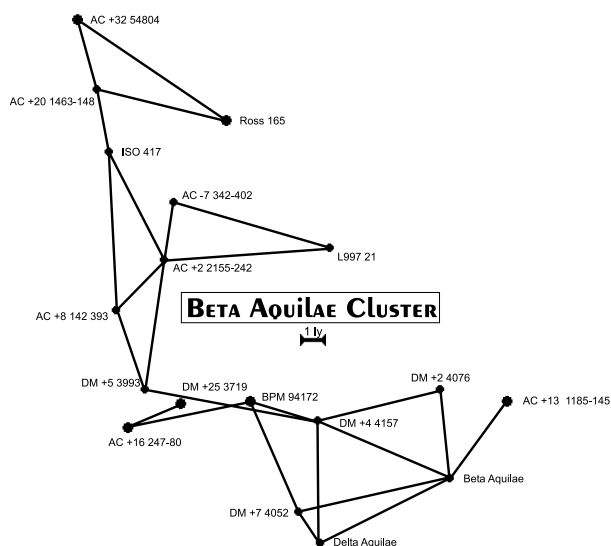
The homeworld of the Little Guys shows the scars of war, and the system itself is littered with abandoned and damaged or destroyed installations and stations. Further information on Littleendia can be found in the Aliens chapter.

DEARBORN 67

Dearborn 67 is a bottleneck system. All traffic from any

charted world along the Bayern corridor has to pass through this system in order to travel further down the Corridor to the Pleiades. American, French and British warships are on station in this system to prevent any vessel from journeying to the Pleiades.

BETA AQUILAE CLUSTER



The region of space known as the Beta Aquilae Cluster lies beyond the standard maximum range of stutterwarp drive ships.

Access to this cluster is through the star system of AC+20 1463-148, which connects to the brown dwarf ISO 417. ISO 417 then connects to both the AC+8 142 393 and AC+2 2155-242 star systems. This connection is popularly known as the Acey-Acey bridge, from the initial letters of the stars' catalog names. The American Extrasolar Colonization Administration (AECA) tightly controls this access point, and has placed a small station in orbit around the brown dwarf. This station has refueling facilities for AECA and other approved ships.

Using stutterwarp tugs, (further explained in Chapter 16: Space Travel), two groups are able to bypass the AECA and its tight controls on access. In 2299, maverick billionaire William Stanton demonstrated the first economical use of stutterwarp tug technology, which increase a starship's range from 7.7 light years to 11.55 light years. Using this technology Stanton and his new-founded Pioneer Society were able to gain access to the Beta Aquilae cluster. In order to fund their work, however, they licensed the Trilon Corporation to use the technology for their own purposes, in return for an undisclosed sum of money and two fast survey vessels, the ISV-5 class. Now both the Pioneer Society and the Trilon Corporation run ships into the cluster, sidestepping the AECA and its network of stations.

The Beta Aquilae Cluster wasn't what anyone first thought it would be, however. The first expedition to reach

DM+5 3993 found an abandoned space station, one of many in this system. Attempts to explore the station met with failure, as several members of the Pioneer society's survey vessel, **The Lady of Brooklyn**, were killed or incapacitated by what appeared to be traps scattered throughout the facility. Further explorations of other systems have revealed yet more ruins and abandoned facilities, all littered with traps. Estimates place the abandonment of these facilities at about 350 years ago. AECA investigators have dubbed the vanished civilization as "The Aquilans" The Pioneer Society, however, calls them "The Hidden," and this name has been picked up by Core-based media as well, much to the annoyance of the AECA. Trilon has never stated an official name for the race, though many suspect it would be "near-limitless profit."

61 Cygni Cluster:

Nearer to Earth than the Beta Aquilae cluster, the 61 Cygni Cluster is likewise only accessible with stutterwarp tugs. It has yet to be surveyed, as neither Trilon nor the Pioneer society is willing to spend the resources on it. It is available as a new frontier should a GM wish to open it up, however.

The AECA attempted to clamp down on these findings, and tried pressuring Trilon and the Pioneer Society to keep silent about these discoveries. However, the ruins carried them the hint of vast fortunes to be made, and by 2305, fortune-hunters were doing their utmost to enter the Sector, spending large sums of money for passage on a Pioneer Society vessel. Trilon, for its part, refused to carry passengers into the sector, likely so it could reap any profits itself.

The American Space Force (ASF) also entered the cluster, in small ships that could be spared from the ongoing war with the alien Kafer. These ships were in place to ensure that any threat that materialized from the seemingly abandoned worlds could be dealt with.

From what can be pieced together, it appears that the vanished civilization of the Beta Aquilae cluster had stutterwarp technology, and was at least the equal of current (2320) humanity in technology. Where they went, or how, is unknown. Some theories have them migrating away in vast fleets for an unknown reason, or dead of some virulent plague. Their traps point to their possible suspicion that others would follow, however.

It is worth noting that the time of their departure roughly corresponds with the time when the first powerful radio signals from Earth would have reached them.

NOTABLE SYSTEMS

Most of the systems in the Beta Aquilae Cluster have not been fully explored. Most have had at best a cursory flyby from an unmanned probe.

ISO 417 AECA BROWN DWARF

ISO 417 has a small system of moons, ranging from a giant the size of Mercury down to pebbles comparable to Deimos and Phobos (the two moons of Mars). In addition, there is a dark dust ring that makes navigation very hazardous. On the plus side, it lacks the intense radiation belts common to gas giants, as without a local sun, its magnetic fields have few charged particles to capture. The AECA maintains a small station here for refueling purposes, with no more than 60 staff.

AC+2 2155-242

This small red dwarf star is the site of the joint ASF-AECA station, constructed from materials brought all the way from Ellis. The system itself is unremarkable, with a couple of rock worlds, a sparse planetoid belt, and a small gas giant with an unimpressive array of moons. The joint station, FAR Station 9, is constructed on a small moon of the gas giant. This moon is barely more than a small asteroid, and the base has a gravity wheel to provide a healthy living environment for the 450 military personnel and AECA researchers stationed here.

No Trespassing:

While exploring one of the empty systems, a Pioneer Society ship came under attack by a Sentinel-type system. Before it fled, its scanners noted the presence of an unusual structure on the surface of the planet below, surrounded by several smaller, and differently styled, structures. The central building was at least 200m long by 120m wide. Some of the smaller ones even resemble Human buildings.

AC+8 142 393

This system has a small array of planets, the most notable of which is Easter, a small world tidally-locked to its primary. It is barely within the life zone of the star, and so is a cold, arid world with barely enough air to breathe. It is admirably suited as a base for the Pioneer society, though, as they lack the resources to put in a space-based forward staging area. Easter even boasts the ruins of small installation from the civilization that inhabited the sector 350 years ago. All attempts to enter the facility have met with failure, and often with casualties. The Pioneer Society has forbidden its members from exploring the abandoned base, as it is too dangerous.

It is notable as the gateway star for both Trilon and the Pioneer society, as they bypass ISO 417 entirely. Trilon has chosen not to make a base in this system, preferring the opportunities inherent in the DM+5 3993 system. They purchase fuel from the Pioneer Society when required, and will make the occasional stop-over here to allow their crews some R & R.

INTO THE GREAT Wide Open:

The Beta Aquilae Cluster is pretty much wide open to many different types of adventure, from corporate intrigue and skullduggery (what is Trilon really up to?) to survey and scouting, to looting the treasures of dead (but still dangerous) worlds.

The outpost at Easter has a population of barely 2200 people, and serves as a forward base for Pioneer Society efforts in the largely unexplored volume of space.

DM+5 3993

The first ruins of the vanished Aquilans were found in this system. While there are no habitable planets, there are hundreds of space stations and habitats, ranging in size from small 120 meter rings all the way up to a colossal O'Neill-style habitat nearly 40 km long and 8 km in diameter. Two of the planets, though hostile to life, also possess numerous structures and installations scattered over their surfaces.

The first casualties of the Aquilae Cluster occurred here, when AECA investigators boarded one of the abandoned stations. They somehow triggered a trap, which killed two of them and injured several more. ASF Marines attached to the exploration vessel as observers and security effected a rescue of the trapped scientists, losing one of their number in the process.

DM+4 4157

This system is heavily-fortified, scattered with autonomous weapons similar to human Sentinel systems, though larger and more capable. There is only a small family of planets, none of which is inhabitable. The major world is a large gas giant, with an extensive system of moons similar to Jupiter in the Sol system. The other three worlds are small rocks or ice balls. Probe flybys of the systems show evidence of space habitats, but no close examination has been conducted.

DELTA AQUILAE A+B

This is the presumed home system of the Aquilans. Due to the risks involved, no in-depth exploration of this system has been undertaken by either the AECA or the Pioneer Society. The AECA sent a long-range probe, which returned with information on a treasure-trove. This system is heavily-developed and fortified, and the probe barely escaped destruction.

What it found was enough to whet the appetites of treasure-hunters across human space. A world, habitable, surrounded by an artificial ring, with at least a score of beanstalks connecting the ring to the surface. A system seemingly empty of intelligent life, save for the defensive weapons and the inevitable traps.

BETA AQUILAE A+B

This system was likely the site of a major Aquilan colony. Again, due to the risks involved, only automated probes have visited this system. It possesses not only two inhabitable worlds, but a third marginally habitable moon around one of the gas giants. Like Delta Aquilae, this system appears to be heavily fortified by automated weapons and drone systems. The second of the four probes sent was destroyed, and the fourth suffered some damage as well. However, all these probes returned good information on the system.

THE KAFER SPHERE

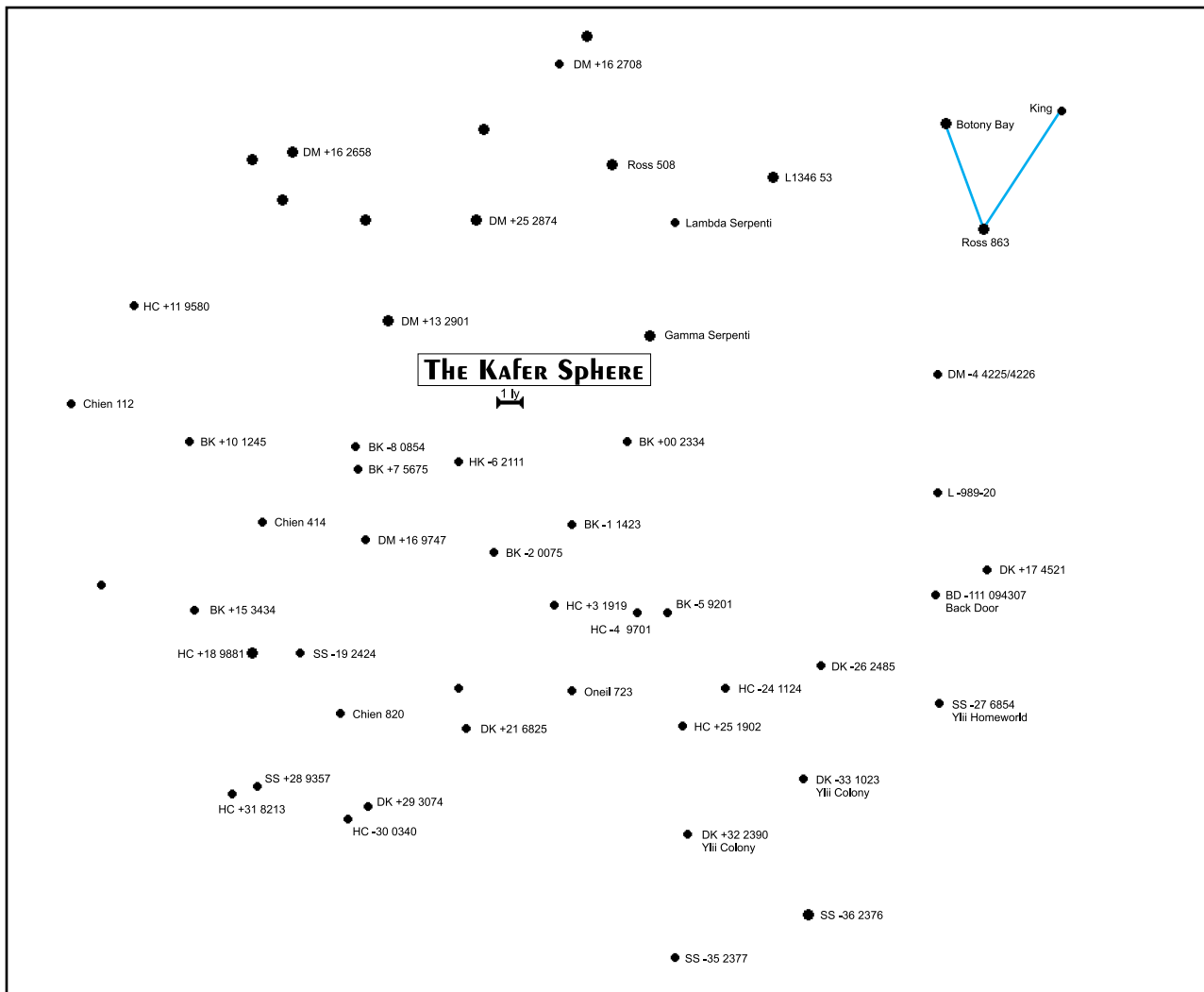
Just past Arcturus, along the French Arm, lies the volume of space known as the Kafer Sphere. This was the home of the Kafer empire, a loose collection of worlds ruled by independent warlords called Suzerains. They attacked human space in 2299, again in 2301, and last in 2306. Their ferocity was unbounded, and their capacity for atrocity truly unimaginable. Since the end of the Kafer War, several of these worlds, including the Kafer homeworld of Gamma Serpentis III, have been occupied by human troops. The Gamma Serpentis system is held as a choke point, restricting access from the worlds beyond. The nature of the Pentapod Revenge, coupled with the reverses of the war, has thrown Kafer space into chaos, with widespread fighting between the remaining factions. The war is expected to boil over into Human space again within the next decade, if not sooner.

NOTABLE SYSTEMS**DM +19 2881**

The second world of this star is very nearly a twin to Earth, and one of the most attractive colonization targets in explored space. When Lutke passed through the system, he destroyed the orbital facilities and dropped a couple of small nuclear weapons on the few surface facilities. There was a small Human presence, consisting of prisoners taken over the years. It was untouched by Lutke's attacks, though it did suffer somewhat from Kafer attacks afterwards. They were rescued in early 2318.

DM +24 2786

This system was the home of Triumphant Destiny, the being who led the initial attacks on Human space in 2297. When Lutke visited the system in 2311, he bombed both inhabited worlds, and destroyed every piece of orbital infrastructure he could find. Total Kafer casualties were in the tens of millions, and are expected to climb higher as famine and nuclear winter effects devastate the remaining population.



GAMMA SERPENTIS

This is the home system of the Kafers, sporting two inhabitable worlds, and is detailed further in the section on Kafers in Chapter 10: Aliens.

Ylii SPACE

Ylii space borders on the Kafer Sphere, and includes only their homeworld and the two colonies that have so far escaped Kafer occupation. They are currently engaged in a clandestine war against the Kafer elements in their area, using human mercenaries armed with Ylii technology. There is a combination tug link/brown dwarf from Ylii space to the American Arm, which gives humanity access to the Ylii without passing through Kafer Space.

NOTABLE SYSTEMS

The Ylii are only barely managing to hold onto three worlds, one of which is their homeworld. The only thing that has saved them is the internal turmoil in the Kafer Sphere, and the efforts of the AAVF against those few Kafer vessels that do veer off to attack the Ylii planets.

Hiring Hall:

The Ylii are constantly recruiting for the defensive force that protects their worlds. To get a job with them, not only does a person have to be a military veteran, but they also have to pass a battery of psychological tests. The purpose of these tests are unknown to the mercenaries, save that they are mandated by the Ylii leaders. Pay rates are very high, with offers of land tied in as well.

SS-27 6854

Called Ssuushni'a (Mother Island), this world is the homeworld of the Ylii. The world looks almost uninhabited from orbit, though the population is in the hundreds of millions.

DK -33 1023

The American-Australian Volunteer Force (AAVF) has received substantial land grant on this world, called Swyahshni'a (Garden Island) by the Ylii. Most of the mercenary group's assets are based out of here. The world itself is small, with a low gravity, but very lush and fertile right up to the edge of the tundra regions around each pole.

The Back Door Route

The Back Door Route, which connects the American Arm to the Ylii home system, is a complicated and somewhat torturous route involving both a brown dwarf and a tug route. The tug vessels are leased by the American military from Trilon, and are used to transport equipment and "volunteers" from Human Space to Ylii space. The American-Australian Volunteer Force, (AAVF) is made up largely of veterans from both nations' militaries, and many of the senior officers and non-commissioned officers are seconded from active duty to "advise" the mercenary group.

NOTABLE SYSTEMS

DM +5 3409 A

This binary system sports a habitable world 0.173 AU from the primary. This world is known as Erie, owing to the canal-like body of water that encircles the world and lies just beyond the day/night terminator. Of particular note are a few small collections of technically-sophisticated ruins, which can be traced to no known alien race.

Erie is the location of a small outpost (4000 people) and may soon see development as a colony, despite the difficulty of reaching this system.

DM -4 4225 AND DM -4 4226

Despite being only 9300AU apart, these two stars do not form a binary pair. They are slated for further investigation within the next few years.

L-989-20

This system contains a garden world (thus far unexplored), in the third orbit. This system is only reachable by tug, and currently the team of two tugs for this route is constantly at work providing carriage for equipment for the AAVF.

BD -111 094307 (Back Door)

The so-called Back Door, this is a large solitary brown dwarf, with no other objects in the system larger than a few hundred kilometers.



ORBITAL FACILITIES

ORBITAL FACILITIES, OUTPOSTS AND ENCLAVES

Most new colonies lack any sort of orbital facilities, largely due to the expense involved in constructing one. Interface transport is either through planet-based spaceplanes or rotons, or else incoming transports have to provide their own. Almost all colonies will have an array of communications, survey and weather satellites, however.

More well-established colonies will typically have some sort of orbital terminal, where cargo and passengers can be transshipped to the world below. These terminals usually do not have any manner of long-term accommodation, nor do they typically provide any sort of artificial gravity. They are simply a collection of habitats, cargo, and utility modules, designed to handle moderate amounts of freight and passengers. Some of these stations have the ability to effect minor repairs, and a rare few even have a drydock facility, though this is often booked for weeks or even months in advance, servicing local traffic.

Major colonies have full-fledged space stations as their orbital terminals, and many may have more than one. These facilities are capable of handling major repair tasks, and often have several orbital dry docks. These stations are equipped with gravity wheels, and may even have multiple habitats to handle large numbers of people. A station like this has considerable long-term capacity, and may well have permanent staff. Gravity on these stations is usually kept at 0.5 to 0.75 G, both to maximize the number of people who can make use of the station, and to reduce the wheel diameter, and thus the cost, of the habitats. These terminals often have extensive warehousing capabilities, and often serve as transshipment points for cargo, both for the world below and for trade to other worlds. A few of these major colonial terminals include the capability to actually construct new ships, in addition to repairing and maintaining extant hulls.

PAPERS PLEASE:

Though conditions on the Frontier are nowhere near as regulated as the Core, certain rules still have to be followed. All visitors to a world have to pass through the orbital terminal and ensure that their identification and travel documents are in order before going down to the surface.

Any world that has a planet-based catapult also has orbital facilities designed to catch the cargos sent aloft by the catapult. Cargo launch is carefully calculated to bring the cargo to its destination as close to at rest as is possible, but there is often some residual velocity. To counter this, most cargo is actually caught in giant nets, constructed of heavy-gauge steel cable. These nets catch the cargo, and cancel out any excess velocity through an array of small plasma or ion rockets.

Some colony worlds also possess asteroid and lunar mining facilities. These are rare for start-up colonies, unless tantalum has been found. In those cases, the colony typically exists to support the mining operations. Many of these mining bases are similar to the various orbital terminals. Most of them make use of prefabricated modules, though the larger mining operations can be equivalent to a full-fledged outpost, particularly if they are based on a moon or other airless world.

Most asteroid mining operations are conducted with purpose-built ships, like Britain's **Dalton**-class vessel and **Andrew Carnegie**-class mining station. These ships can move around the asteroid belt, and conduct their own refining of ore, either holding the resultant metal for pickup or using their onboard mass drivers to fling their cargo to nearby colony worlds.

Lunar mining operations, or mining on other airless worlds, often incorporate a catapult to launch their ores into orbit. These ores are usually not refined on site. On other worlds, where there is no catapult in place, the ore is refined locally, and the metals picked up by regularly scheduled supply vessels.

Outposts

Outposts are usually small colony operations established in hostile systems, where there is no world capable of supporting life, yet the system still has something to offer. In many cases, the system happens to be a convenient resupply and refueling point for ships on their way to other systems. At other times, the system has resources that are attractive to exploit, often tantalum or other rare metals. A few outposts exist for purely scientific reasons, but these are set up and maintained only by the wealthier nations and Foundations. Most outposts have to pay their own way somehow.

Outposts will either be established on available planets, or on small-to-medium-sized asteroids, where the asteroid

can provide the bulk of the raw material required to construct the outpost. Only very rarely will a true, large-scale independent orbital habitat be constructed, due the enormous costs involved.

Outposts are designed for long-duration habitation, so even the asteroid-based stations will have a gravity wheel for long-term health and comfort. These wheels usually only provide 0.3 G to 0.7 G, as they tend to be small. Zero-grav DNAMs are very common for the crew of these outposts, and are often required.

One of the major industries for these outposts, whether space or planet-based, is providing fuel for incoming ships, as most civilian vessels use Magneto-hydrodynamic (MHD) turbines or fuel cells. Often a small fleet of ice mining vessels will be in use to obtain fuel feed stock from icy asteroids or ring systems.

An asteroidal outpost is a maze of fuel tanks, hangers and maintenance bays, temporary habitation and storage modules, solar panels, heat radiators and antennas. From one end juts the gravity wheel, while at the opposite end of the asteroid can be found a power plant, usually nuclear.

Many outposts are based on planets or moons, and burrow deep to escape the harsh conditions of the surface, in particular high levels of radiation. Most planetary outposts are built on a similar scheme: a deep central shaft, with the various components of the outpost ringing the shaft.

The top of the shaft is crowned with a dome, or sometimes opens up into a cavern. At the bottom is found power and warehousing, with utilities above. Continuing up the shaft are residential and commercial levels, a park or two, offices, schools, hospitals and everything the population requires. Several elevators, both personnel and cargo, connect the various levels. Between each level is a heavy-duty door that can slide shut almost instantly in the event of decompression or other problems.

Planetary outposts tend to be much larger than their space-based counterparts, and the staff are much longer term. As habitability is not a concern when selecting these sites, they will be located on worlds where there are available resources, in particular ice or valuable minerals. Helium-3 mining is another major industry for these vacuum worlds, to provide fuel for fusion reactors. Concern for the environment is not a feature of these settlements, and most mines are strip-mines.

SMUGGLER'S PARADISE:

Asteroidal outposts are hotbed of smuggling, as the chaotic exteriors of these facilities makes it easy to hide, and later retrieve, all manner of contraband.

ENCLAVES

Enclaves are defined as small areas settled by groups culturally distinct from the major group. In 2320AD, enclaves can be further defined as human settlements found on, or near, a world controlled by an alien race.

HUMAN ENCLAVES

KORMORAN

Both the Texans and the United Arab Republic have enclaves on Kormoran.

UNITED ARAB REPUBLIC ENCLAVE

The UAR enclave is a trade delegation in the midst of Kormoran's largest city, called F-flat-C by the Eber, and el-Madina el-Adima (Old City) by the UAR delegates.

Though the UAR delegation once numbered over 6000, recent reverses suffered on Kormoran at Texan hands have caused the UAR government to scale back the operation. The former embassy facility of Nasser has been closed down, and the remaining 1200 members of the enclave staff are currently housed in the bottom floor of an ancient skyscraper on the edge of the city.

THE TEXAN ENCLAVE

Colony Name: New Austin

Colony Population: 120,000

Date Founded: 2258

Nationality: Texan

Life Expectancy: 81 years

Literacy: 99%

College Education: 72%

Major City(s): New Austin (30,000)

Currency: Texas Dollar

Government Type: Representative Democracy (4)

Law Level: Low. Personal Energy Weapons prohibited (3)

Tech Level: Low (9)

Trade Data: NI

Principal Trading Partners: Texas, Eber Nomads, Eber Black Sky nation

Interface Capability: Spaceplane, Roton (C)

Resources: Farming

Military Presence: Military Base

Other Bases: Science Base

Services: Rectenna, Pownet, Road Net (55%), Rail Net (20%), Link Network (10%), Weather Satellites, Communications Satellites, Orbital Terminal

The Texans view their holdings on Kormoran as more of a colony, and are developing it that way. Though stuck out in the desert by the UAR and their Manchurian allies, they have

persevered, and even prospered. They have agreements and treaties with several of the nomadic Ebers near their settlement, and are extending their influence into the cities of the civilized Ebers as well.

After the events of 2300-2301, when the United Arab Republic staged a native uprising against the Texan settlement as a response to continued Texan success, the Manchurians allowed the Texans to have their own interface facilities and satellites, including a newly-constructed orbital terminal. This has allowed the enclave to grow much more quickly than in the past.

The Texan enclave currently boasts a population of over 120,000, with much of that coming in the last seven years since the end of the Kafer War. Though the settlement is in the deep desert, Texan deep wells and directed irrigation make the land the most productive on the planet, and Texan agricultural products are becoming much sought after on the tables of Kormoran's Eber elite.

ECONOMIC HEARTBREAK:

With rumors coming in of a possible closure of the Texan settlement, the local population is considering trying to go it alone as an independent colony. This may be possible, but would also entail great hardship for the settlers.

STARK

Stark is the homeworld of the Sung, and is heavily urbanized to support the large Sung population. As part of the reparations after the Slaver War, the Sung Akcheetoon nation provided land and material for the Canadian and Manchurian victors of the war.

THE CANADIAN ENCLAVE

The Canadians decided to put their enclave in the middle of the Akcheetoon capital city, Sosorra. Five of the Sung super-sky-scrapers serve as home and office to the Canadian diplomats and scientists, housing the 7000 members with room to spare. The largest of the buildings is a full 500 stories tall, and that's with the floors sized for a human.

A full company of troops provide security for the enclave, but there has been very little trouble since the conquest of the Akcheetoons. The Canadian Parliament is discussing replacing these troops with conventional RCMP forces, but that decision is still months away.

The Transfic:

A ship thought to belong to the terrorist organization Coyfederacy, the **Transfix**, was recently spotted in Sung space. There is some indication that the organization receives some support from various Sung governments.

Sosorra is in a temperate climate, on a sea coast with mountains inland, and is a very popular diplomatic posting.

On the whole, the Canadian Enclave enjoys very good relations with the Sung, though there is a low-level, but growing, unrest with the pace of technology transfers between the humans and the Sung. Sos'soon'atkachar demands that the uplifting of the losers by the winners takes place in a timely fashion, and its been over 60 years since the Slaver War, and the Sung still can't build their own star drives. They have been allowed to build their own starships, though, albeit with human-supplied drive systems.

THE MANCHURIAN ENCLAVE

The Manchurian Enclave, on the other hand, is in the middle of a wilderness area, and is constructed more like a fort than an embassy. The Manchurians maintain their own spaceport facilities on the grounds of the enclave, and keep at least two companies of troops as security. There have been a few incidents at the Manchurian enclave, mostly arising out of environmental protests at the Manchurian's choice of location, in the middle of what is effectively a national park.

The Manchurians seem to be less of a focus for resentment over Sos'soon'atkachar payments than the Canadian enclave, possibly due to its more remote location, far from any major city, or even any substantial town. As well, the Manchurians seem more forthright about demanding payments for any technology transfer, as opposed to the Canadians who seem to be trying to think through the effects of these technology transfers too much.

GAMMA SERPENTIS III

The Kafer homeworld was subjected to heavy attack, including precision orbital bombardment, before the final landings that seized control of the planet. The world was unpleasant enough to begin with, and it is now well-nigh intolerable. Despite this, Humanity maintains six enclaves on the world's forbidding surface.

The nations of America, France, Germany, Britain, Ukraine, and Japan all have military enclaves on Gamma Serpentis III, located in abandoned Safe Places, old Kafer forts and shelters left behind when the world's population was plunged into chaos. These Safe Places are home to thousands of troops, heavily armed and fortified. From these Safe Places, patrols range out over the landscape of the Kafer homeworld. These patrols also drop off food near any group of Kafers they find, in an attempt at providing some relief for the world's devastated population. Though the troops on Gamma Serpentis are unaware of the release of the Pentapod bioweapon, the behavior of encountered Kafers, coupled with the presence of a Pentapod enclave, has led to a profusion of rumors, centering around bioweapons and conspiracies.

The last Human enclave is located in the ruins of the Kafer Over-Suzerain's palace, located in the center of a burnt-out city. The city itself supports a large population of Kafers, and the civilian enclave does its best to ensure that they have food and water. Along with representatives of the major churches, the North American Research League, the Life Foundation, **Zapamoga** and the **Accademia del Lincei** all have a presence on-world. In addition to providing aid to the Kafers, these organizations are also charged with keeping a watchful eye on the military in order to protect the remaining Kafers on this world. The Foundations know that something is wrong with the Kafers, and are investigating rumors of bio-weapon use.

Ylii Space

DK 33 1023

The oldest of the Ylii colony worlds, called *Swyahshni'a* (Garden Island), is home to the American-Australian Volunteer Force. Ostensibly a mercenary force, the AAVF is largely funded and supported by the two governments as unofficial support for the beleaguered Ylii worlds. The AAVF enclave of Heinlein is home to 12,000 military personnel and their dependents.

ALIEN ENCLAVES

THE PENTAPOD ENCLAVES

With the exception of the enclave on Mars, all the Pentapod enclaves are constructed on or near water. These enclaves typically consist of a series of interlocking bubbles and towers, all constructed of a translucent, resin-like compound. The configuration of these enclaves is never static, with the size and position of the various structures slowly shifting over time to suits the needs, or whims, of their bizarre masters.

BETA CANUM VENATICORUM

This is the site of the first, and largest, enclave in human space. The sprawling facility sits in the waters of La Baie du Sebastien, off the west coast of the French continent. A large part of the complex appears to be unused, and indeed even seems to be falling into disrepair, though the rest of the facility is healthy and growing. It sprawls for many tens of square kilometers on, and under, the waters of the bay.

MARS

Mars is an unusual choice for a Pentapod enclave, as the world is particularly hostile for an aquatic species. However, in 2305 the Pentapods roofed over and sealed off a large

portion of the Labyrinthe Nocturne, and have made conditions inside their bubbles much more hospitable. They are still pushing for a full embassy to be established on Earth, but that doesn't appear likely for the near future.

Qualp:

Qualp is the head of the Pentapod delegation on Mars, and a representative of one of the pro-Human factions in Pentapod society. It has spent the past 50 years studying Humans, and in many ways knows more than most people do about the inner workings of Human society. It would love the opportunity to visit Earth, but it does understand Human concerns regarding contagion, unlike most others of its kind.

Despite being head of the Legation, Qualp isn't entirely in charge. Several other factions have representatives at the sprawling Martian complex, each working to their own ends. Qualp expects at least one of these representatives is from an anti-Human faction, but doesn't know which one.

Qualp itself is rather pleasant to talk to, with a rich, deep voice very unlike the normal piping, sing-song voices of most Pentapods. It is conversant in all aspects of Human popular culture, and seems particularly taken with the music.

GAMMA SERPENTIS III

The Pentapod enclave on the Kafer homeworld is very nearly in the center of the small ocean that covers the world's south pole. In contrast to the bubbles and towers that characterize the other Pentapod enclaves, the one on Gamma Serpentis is barely visible until you are almost on top of it. The rigid, almost skeletal surface of the enclave dome seems to be armored, and the waters around the enclave are liberally salted with defensive constructs.

NIBELUNGEN

The latest Pentapod enclave is on Nibelungen, and was established in 2314 in the swamps bordering the Ostmeer. The Nibelungen government was startled when a Pentapod emissary requested permission to construct the enclave, but quickly acceded. Nibelungen is the Pentapod gateway to the other Arms of human space, and the enclave has contributed a great deal to the world's economic health.

SUNG ENCLAVES

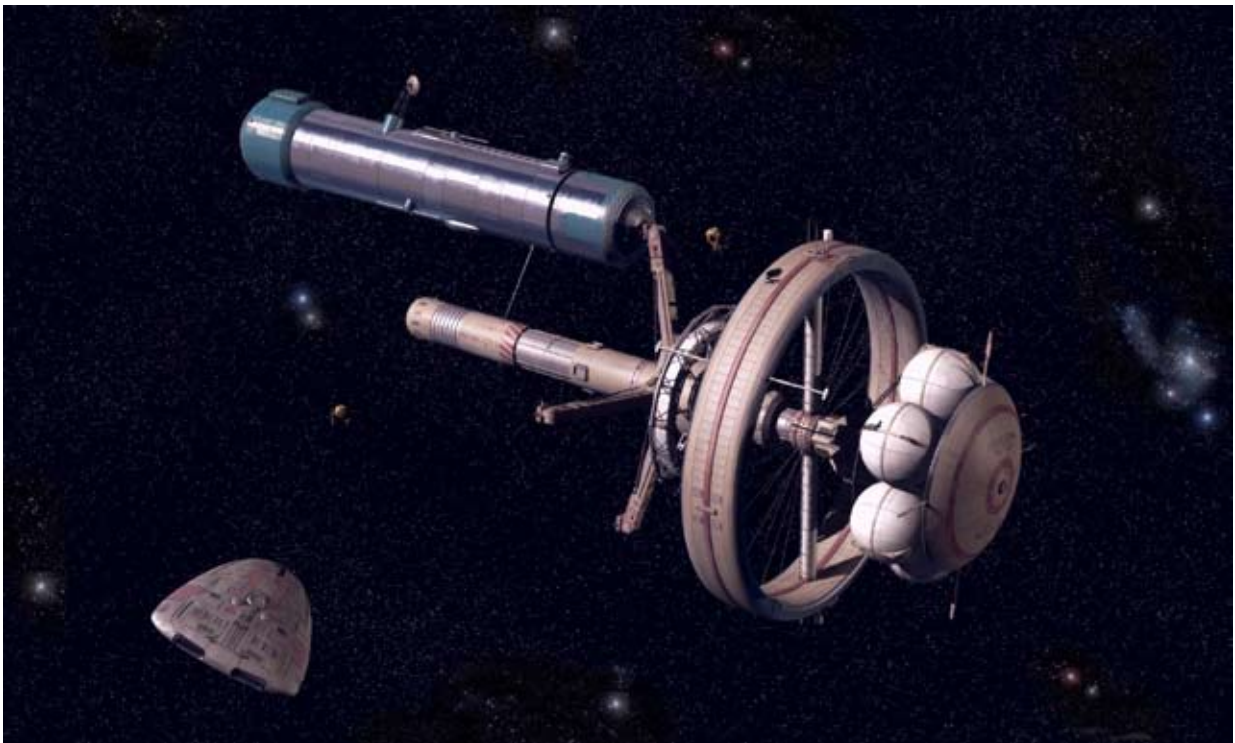
The Sung enclave is typically low-key, as the Sung see their role in these enterprises to be a subservient one. This is starting to change as their Human hosts grow more comfortable with the role they've assumed under *Sos'soonatkachar*.

KANATA

This is a Canadian colony world, where the small Sung enclave serves as a training facility for those Sung wishing to take part in the colony at Eriksson. The Sung train here for six months before moving on to the joint Human-Sung colony. Only about 1000 Sung at a time are ever on world, with each class of trainees having about 120 members.

CHENGDU

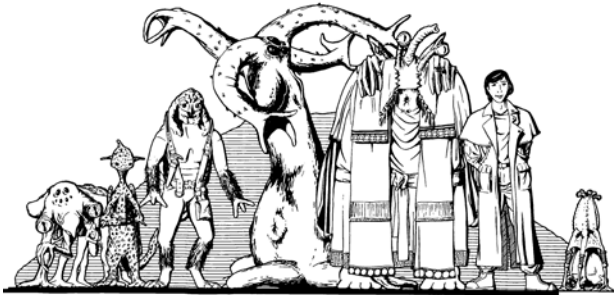
For a time the Sung had maintained an enclave on the colony world of Chengdu. However, the substantially heavier gravity made it very difficult for them to fly, and over time the small population of the enclave started to suffer psychological problems. These problems were found to relate to their inability to fly properly, and the enclave was abandoned in 2305.



ALIEN RACES

By 2320, Humanity has encountered seven other sentient races, from the hostile and murderous Kafers to the bizarre and unfathomable Pentapods. Of these races, only three had starfaring capability at time of contact: Kafers, Pentapods and Ylii. The Sung have obtained the drive from Human sources, while the Ebers lost the technology, along with all their other technology, when they bombed themselves back to the Stone Age 4000 years ago. In a similar vein, the Little Guys, though not starfaring, managed to destroy their system-spanning culture only 120 years ago. The remaining two, the Xiang and the Klaxun, are far too primitive to have ever developed starflight, and too alien to really understand the importance of doing so.

172



THE EBERS

Nearly 4000 years ago, the ancestors of the Ebers ventured out to the stars. Unfortunately, they brought their fierce territoriality and ancient hatreds with them. Interstellar war ravaged their culture, leaving only a lone colony world to survive. They have only just built themselves back to the point where they've reinvented the steam engine.

FIRST ENCOUNTER

The first Eber ruins were discovered in 2249 on Daikoku, and again on Heidelbergmat three years later. These discoveries set the stage for the discovery of an inhabited Eber world at 82 Eridani in 2256, the third alien race contacted by Humanity. At first it was thought that this world, named Kormoran by the first Human investigators, was the Eber homeworld, but later evidence led to the discovery that Kormoran had been a colony, and that the Ebers of the homeworld had all been killed in an ancient war.

Though they are the remnants of an interstellar society,

Chronology of CONTACT:

2247	First Contact with the Sung
2249	Discovery of Eber Ruins on Daikoku
2250	First Contact with the Xiang
2251	First Contact with the Pentapods
2256	First Contact with the Eber
2263	Pentapod enclave established on Beta Canum
2255	Slaver War
2261	Irregularities noted in Pleiades
2295	First Contact with the Kafers
2298-	Kafer War
2312	
2299	First Medusan artifact discovered
2300	First Contact with the Klaxun
2301	Discovery of a Ylii corpse in Kafer warship
2302	First Contact with the Ylii
2305	First Contact with the Little Guys
2307	First Contact with AGRA intelligence
2311	Discovery of Beta Aquilan ruins

the Ebers on 82 Eridani have a level of technology roughly equal to Renaissance Europe. They still tell stories of the time when their ancestors sailed between the stars. To the long-lived Ebers, it's only been about 10 lifetimes.

Initial relations with the Ebers were awkward, due to the importance of ceremony and protocol to the aliens. Once Humans understood this fact, relations became much warmer as Humans learned to adapt (and not the reverse). Humans who deal with Ebers must do so in Eber dress, using Eber customs, at an Eber's pace.

HOMEWORLD

Though the ancient Eber civilization had spread through four worlds, they are currently only found on Kormoran, the third planet of the star 82 Eridani.

PLANET DATA

Name: Kormoran

Distance from Primary: 0.94 AU

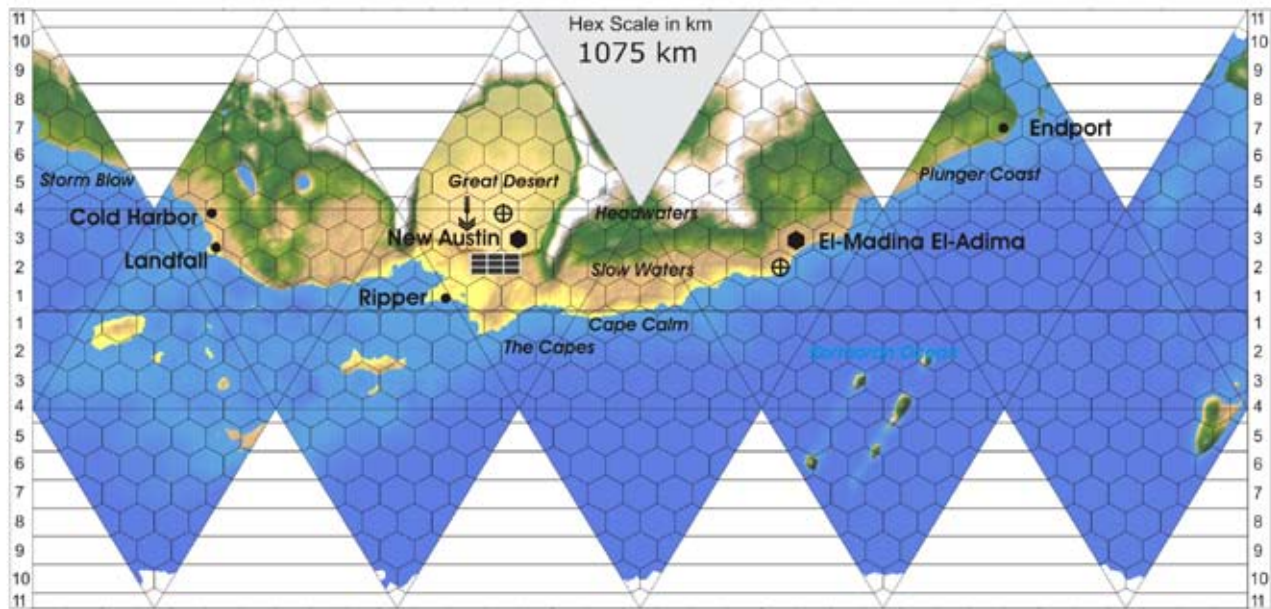
Year Length: 313.9 standard days, 423.2 local days

Size: 14,000 km in diameter

Day Length: 17.8 hours

World Type: Garden

Kormoran



Legend

• Major City	⚡ Mining	⌚ Fusion Plant
⊕ Spaceport	↓ Farming	▢ Solar Power Rectenna
→ Catapult	🏠 Military Base	🏭 Heavy Industry
● Human Enclave		

Surface Gravity: 1.46 G

Atmospheric Pressure: 1.49 atm

Climate: Temperate

Water Presence: 70%

Atmospheric Composition: N₂ (79%), O₂ (18%), Trace (3%)

Kormoran is a dry, hot world, with extensive deserts and deep blue seas. The surface gravity of 1.46 Gs is uncomfortable for the uninitiated, but adaptation is relatively easy. Most of the civilized Ebers make their homes in the ancient ruins along the sea coasts, while the nomads have taken to the extensive desert wastes.

THE EBERS

Physical Description

Ebers are about 2 meters tall, heavy, bipedal creatures with thick, short legs, extremely long, thin arms, and no discernable heads. The body and legs are covered with a thick, shaggy fur, usually of a rust-brown color. The short legs and thick, heavy body give Ebers a pronounced, waddling walk.

The major Eber sensory organs are located in a cluster atop the body between the shoulders. A pair of 15cm-tall, flexible ears resembling those of a Terran horse are spaced widely apart and slightly back from center. A pair of 10 cm-tall eyestalks are located just forward of center and closer together. Between these two pairs of organs stands a flexible

proboscis similar to a miniature trunk. Forward and slightly lower on the body is the oral sphincter, backed by a four-way arrangement of grinding jaws and a long, narrow tongue.

Eber arms are deceptively thin, in part because they are nearly hairless. Their great length also contributes to the deception, as the arms are nearly twice as long as the body is tall. When at rest, the way the arms are folded makes this less noticeable.

Eber shoulder joints are extremely complex, and have been labeled the "pseudo-pelvis" by Human researchers. This pseudo-pelvis is arranged in such a way that the arms can be lifted upward and forward, where, with the elbows straightened, the hands can reach nearly six meters into the air. It is in this way that the earliest Ebers gathered the majority of their food from tall plants, since Ebers are leaf and fruit eaters. They likewise allowed the early Ebers to lift themselves into the trees to escape predators. With the shoulders lifted, the elbows can bend forward, bringing the hands down to the mouth for feeding, or the eyes for close handiwork. Alternatively, with the arms resting down the back, the shoulders can roll forward and to the side, putting the elbows into such a position that the hands can be brought in front of the creature.

Ebers are very long-lived creatures by Human standards. Average natural life span is 350 Terran years, and some individuals are reported to be nearly 500 years old.

EBER LANGUAGE:

The vocal apparatus of Ebers is capable of producing a wide variety of sounds and tones. The language itself is almost musical in quality, with notes ranging from well below Human hearing thresholds to just above. Few Humans can duplicate this range, and even then artificial help is required, in the form of a "growler," an artificial palate that is inserted in the mouth to allow a Human to produce the lower tones of Eber speech. Some researchers have even gone as far as to get cybernetic modifications to assist them with Eber speech, including a growler implant and augmented hearing.

SOCIETY

World Population: 300 million

Nationality: Eber

Life Expectancy: 350 years

Literacy: 54%

College Education: 12%

Major City(s): Black Sky (350,000), Plunger Coast (455,000), Ripper (350,000)

Currency: Various

Government Type: Variety of national governments (7)

Law Level: Varies. Moderate among Civilized Ebers (4), nonexistent with Nomadic Ebers (0)

Tech Level: Very Low with Civilized Ebers (3). Extremely low with Nomadic Ebers (1)

Trade Data: Ag, NI

Principal Trading Partners: Texan Enclave, UAR

Interface Capability: None

Resources: Farming, Mining

Military Presence: Orbital Defense Installation (Texas)

Services: Road Net (22%), Rail Net (35%), Link Network (20%) (Texans), Airship Net (UAR), Weather Satellites, Communications Satellites, Orbital Terminal

The Eber way of life is conducted in a slow, sedate, ceremonial way. The creatures have a marked fondness for bulky, ornate clothing involving multiple layers of drapery and robes, as well as heavy, intricate jewelry. Business typically involves a plethora of formalities: gifts and speeches are exchanged, meals are given, visiting is done, a multitude of reports are filed, and various other types of red tape, more so than with the worst of Human bureaucracies. Some of the Eber ceremonies made little or no sense to Human researchers and diplomats, as they seemed to involve complex rituals and changes of clothing.

Civilized Eber society has often been compared to Renaissance Italy, with its feuding merchant houses and weak central control. There are several dozen nations amongst the civilized Ebers, ranging in size from small city-states to much

larger nations about the same size as Spain. The civilized nations produce a large number of goods, some of which are even suitable for off-world trade, mostly as luxury goods. The United Arab Republic traders on Kormoran trade mostly for mineral and exploitation rights, along with some of the luxury goods, including some very exotic, and savory, spices.

The nomadic Ebers are broken up into hundreds of small tribes, each members of one of seventeen larger clans. Clan ties predominate in their society, and while a nomad won't go to war against a member of his own clan, he will happily fight a member of a different clan, any civilized Eber, or, on occasion, a Texan settler. The nomads trade spices, metals, animals, and artwork to the civilized Ebers and the Texans. They will no longer deal with the UAR.

It was only in the early 2300's that the truth of the Eber's ceremonial life was accidentally discovered by Texas Rangers dealing with a UAR-instigated native uprising. The ceremonies are related to the complex structure of Eber brains, which consist of a central lobe and six smaller lobes. These smaller lobes are actually arranged outside of the skull case, though partially protected by the pseudo-pelvis and supporting structures. This leaves them more vulnerable to damage, but also allowed increased brain development in the proto-Eber millions of years ago. Due to the relatively narrow columns of connective neural tissue between the lobes and the central brain, the auxiliary lobes function almost independently of the central system. Over time, this led to certain higher functions becoming associated with certain areas. Each lobe effectively has a personality of its own, coupled to the primary sense of identity of the central brain. For the Eber, the central brain handles all non-voluntary functions of the Eber body, and acts, to an extent, as a coordinator of the signals coming from the exterior lobes. One lobe is always dominant, however. Which lobe is dominant is a function of environmental conditions and chemical cues. Lobes can be switched voluntarily through a combination of ceremony, to place the mind in a receptive state, and drugs, which initiate the change. Each lobe is usually only dimly aware of the memories of the other lobes, and as a consequence Eber often seem to have bizarrely fractured personalities.

Their big secret was revealed in 2301, when a Texas Ranger team observed a nomad Eber ceremony. This ritual, dubbed "The Dance of the Quarks," gave Human researchers the clues they needed to determine that the ancient Eber had a longer-ranged stutterwarp than Humanity, and that Zeta 2 Reticuli, not 82 Eridani, is the location of their homeworld. This homeworld was devastated by what the rituals described as nightmare weapons, a reference possibly to the Nightmare creatures that live in isolated regions of the Kormoran high desert.

The two younger colonies were apparently destroyed by more conventional weapons, while the oldest colony, at 82

Eridani, was able to preserve a remnant of its populace and begin the climb to civilization once again. The Ebers of 82 Eridani strive to hide the fact that it is not their original homeworld; if possible, they would even deny it to themselves. Many are unaware of the truth, and refuse to believe it or participate in any discussion of their “lost” home world.

EBER ADVENTURES

Players might encounter an Eber on a Human world or vessel, of course, but most encounters should be kept to the 82 Eridani system. It is possible that one of the players might even have been raised at one of the Human enclaves there.

Ebers should always be played as ceremonious and secretive. This can range from the friendly silence of the nomads near the Texan enclave to the tight, even hostile reactions from many of the old merchant houses.

ZETA 2 RETICULI:

The ancient Eber homeworld is well out of range of conventional stutterwarp vessels. However, in 2317, the Texas government chartered the Trilon corporation to create a tug route from Kormoran to Zeta 2 Reticuli via DM-68 47. The first scout vessel sent to the planet in 2318 did not return, nor did a Texan military relief expedition later that year. In desperation, Texas requested American assistance. A company of American marines went in, and fewer than 10% of them returned, with no trace of the two earlier expeditions. What they found there has never been revealed, and no one is talking. Texas, together with America, maintains a small naval task force at DM-68 47 to prevent anyone from establishing a tug route to go further, though even Trilon seems to have no desire to return.

GENERATING EBER CHARACTERS

Eber racial traits:

+4 Strength, +2 Constitution, -1 Dexterity, +1 Wisdom
Eber base speed is 6 meters
Homeworld is High Gravity

Long Reach – Ebers can threaten opponents one or two squares away. They are at -1 on all attacks at 1 square, normal for attacks at 2 squares.

Nomadic Ebers can only choose the Barbarian Class, while civilized Ebers can choose any low-tech profession.

Alien Levels: Ebers all start with 1 Alien Level to reflect their toughness and special abilities

Starting Stamina Points: Constitution x 2

Starting Lifeblood Points: 8 + Constitution

Starting Feats: In addition to the Feats outlined under Multiple Personalities, below, all Ebers receive Heavy-Gravity Adaptation, and one more bonus Feat.

Multiple personalities: Through the use of ceremony and drugs, Ebers can shift dominance between the various lobes of their brain. The ceremony and is different for each lobe, though the drug, an extract of the C-D plant, remains the same. Thus, certain Feats are available only to certain lobes. These Feats are automatically granted whenever the Eber is “in” a certain Lobe.

Survival Lobe (Su): This lobe is concerned with locating and finding food, including hunting skills and agriculture.

Tracker Feat, Trapping Feat

Competitive Lobe (Co): This lobe handles high-stress situations where the Eber is pitted against intelligent foes, whether in combat or competitive sports

Tactics Feat, Combat Reflexes Feat

Social Lobe (So): This is the general-purpose lobe for the Eber brain, and handles societal interactions and elaborations of other skills

Strategy Feat, Skill Focus Feat (chosen by player)

Reproductive Lobe (Re): This lobe is concerned both with the Eber’s romantic life and feelings for their consort, along with parenting and domestic skills

Sixth Sense Feat, Trustworthy Feat

Professional Lobe (Pr): Sometimes called the Economic lobe, the professional lobe guides the Eber in its career.

Skill Focus Feat (chosen by player), 1 bonus Feat

Aesthetic Lobe (Ae): Also called the artistic lobe, this section of the brain is concerned with artistic and creative expression

Skill Focus Feat (chosen by player as appropriate), Entertain Skill (choose)

NEW FEATS

Ritual Leader: The Ritual Leader Feat is required to lead the Lobe Change Ritual, and allows the Ritual Leader to add its Wisdom Bonus to the rituals. It requires a Wisdom of at least 16.

RITUALS ASSOCIATED WITH THE LOBE-CHANGE

The first ritual associated with the Eber lobe change is the actual lobe-change ritual itself. Some Ebers have the ability to lead themselves through the change, though this is rare. Most require a guide, and so the lobe change is often done by a group of Ebers. The exact ritual performed depends on what new lobe the creature is entering. The ritual begins by ingesting the C-D drug, and then a series of songs and dances guides the Eber consciousness to the correct lobe. Each ritual takes between 3 and 4 hours.

In game terms, to switch between lobes requires a Will Save vs. a DC equal to (16 - the leader’s WIS bonus).

There is also the Lobe Unification Ceremony, which dis-

tributes memory and information through all six lobes. This ceremony is difficult and time-consuming, and is usually only done when the Eber is about to undertake some sort of major change in their life. This Ceremony effectively serves to "reunite" all the scattered parts of the Eber personality, reintegrating all memories from all the lobes. An Eber who has undergone this ritual gains a permanent +1 to their Wisdom.

In game terms, the Lobe Unification Ceremony requires a Will Save vs. a DC equal to (20 - the leader's WIS bonus). It

also requires an experience point cost of 4000XP. The XP cost is only paid if the ceremony is successful, and the ceremony can only be attempted once per level.

A Ritual Leader is required for both of these rituals. An individual with the Ritual Leader Feat can guide themselves through the changes.

Barbarians: Eber Barbarians receive Weapon Proficiency (Armsman) at their first level rather than Weapon Proficiency (Archer), and do not receive the shield Proficiency at all, instead getting Weapon Specialization (Javelin).

TYPICAL EBER NPCs

EBER NOMAD WARRIOR

An Eber warrior encountered alone will most likely be in his Survival Lobe

Eber Nomad			Alien 1/Barbarian 6		TL	2	ST		72	LB		22			
Grav	H			Core/Frontier		Frontier		Body		N/A					
Str	15	Dex	11	Con	15	Int	10	Wis	15	Cha	11	Edu	3	Soc	8
Init	+0	AC	10	AR	0	Spd	6m	Fort	+8	Ref	+2	Will	+4	SZ	M
Attacks	+10/+5 Javelin (1d10+4/18 held) +8/+3 Javelin (3d10+4/x2 thrown +1 AP) +8/+3 knife (1d6+2/x2), +8/+3 Hook spear (1d10+2)														
Feats	Animal Whisperer, Dodge, Iron Will, Ritual Leader, Trapper (Su*) , Weapon Proficiency (Swordsman), Weapon Proficiency (Armsman), Heavy Gravity Adaptation, Technophobia, Shield Proficiency, Weapon Focus (Javelin)														
Skills	Animal Empathy 2, Intuit Direction 6, Listen 6, Hide 1, Move Silently 4, Spot 6, Survival +2														
Equipment	3 javelins, knife, hook spear, clothes, four skins of water														

* a Lobe-specific Feat

Civilized EBER SOLDIER

A civilized Eber soldier is normally encountered in his Professional Lobe, unless actively at war, in which case he will have shifted to his Conflict Lobe.

Eber Soldier			Alien 1/Army 5		TL	3	ST		68	LB		24			
Grav	H			Core/Frontier		Frontier		Body		N/A					
Str	14	Dex	11	Con	14	Int	11	Wis	12	Cha	10	Edu	8	Soc	9
Init	+4	AC	16(13),	AR	6(3)	Spd	6m	Fort	+7	Ref	+2	Will	+4	SZ	M
Attacks	+8/+3 Fist (1d3+2/x2), +9/+4 Eber Longsword (Dam 1d10+4/x2)														
Feats	Brawling, Armor Proficiency (Light Armor, Medium Armor), Weapon Proficiency (Swordsman), Shield Proficiency, Combat Reflexes (Co*), Weapon Focus (Eber long sword), Weapon Specialization (Eber Long Sword), Mounted Combat														
Skills	Leader 2, Handle Animal 3, Ride 6, Listen 3, Spot 8, Gambling 7, Gather Information 1, Survival 5														
Equipment	Eber long sword, Eber chainmail, Shield														

* a Lobe-specific Feat

Civilized EBER MERCHANT

The Merchant is often encountered with at least a couple of guards, and represents one of the myriad of competing Merchant Houses in civilized Eber society. The Merchant usually stays in the Professional Lobe

Eber Merchant			Alien 1/Merchant 5		TL	2	ST		64	LB		22			
Grav	H			Core/Frontier		Frontier		Body		N/A					
Str	13	Dex	10	Con	12	Int	12	Wis	14	Chr	12	Edu	10	Soc	12
Init	+0	AC	16(13) AR	6 (3)	Spd	6m	Fort	+7	Ref	+2	Will	+4	SZ	M	
Attacks	+2 Eber Long Sword (Dam 1d10+1/x2)														
Feats	Armor Proficiency (Light Armor, Medium Armor), Barter, Calculating Eye (Pr*), Connections (Merchant House), Carousing, Weapon Proficiency (Swordsman), High-G Adaptation, Mounted Combat														
Skills	Appraise 8, Bribery 7, Gather Information 9, Bluff 9, Broker 5, Trader 9, Ride 5, Speak Language (Arabic, English), Read Language (Arabic), Liaison 8, Intuit Direction 4, Survival 6, Listen 4, Spot 4, Gambling 3														
Equipment	Robes, purse with coin, Eber long sword, Eber chainmail vest														

* Lobe-specific Feat

THE KAFERS

Implacable, violent, and frightening, the Kafers play a very important part in 2320 AD. Even the Kafers of Gamma Serpentis III, effectively non-intelligent, have a brooding sense of imminent violence to them.

FIRST CONTACT

Humanity's first contact with the Kafers came in 2295, when several vessels entered the Arcturus system from outside Human space. The French research station orbiting the star attempted to make contact, broadcasting greetings in several languages. The alien vessels did answer, but the language gap was too wide. After a couple of days the alien vessels withdrew back into unknown space.

Three years later, the aliens returned. This time, they attacked and captured the station then swept on to attack the nearby colony world of Aurore. Though that attack was repulsed, they attacked again in 2301, and again in 2305. The last stage was marked by a slower, more deliberate progress than the first invasion, and the war dragged on for nearly 8 years.

Humanity eventually drove the Kafers back to their homeworld by early 2311, and the work of conquering the alien world had begun. The remainder of the Kafer sphere was plunged into civil war, as the successors to the now-dead Suzerains struggled for power and to expand their territory.

SYSTEM DATA

STELLAR DATA

Primary Name: Gamma Serpentis

Spectral Class: F6 V

Magnitude: 3.9

X, Y, Z Coordinates: -20.3, -33.1, 10.9

Number of Asteroid Belts: 0

Number of Planets: 7

Notable Planets: Gamma Serpentis IV, the next world out from the Kafer home world, was a relatively pleasant world, suitable even for colonization by Humanity, until **Konteradmiral** Wilhelm Lutke and his German squadron virtually annihilated the planetary population through kinetic and nuclear bombardment.

Homeworld

The Kafers originate from the third of five planets orbiting the star Gamma Serpentis. The official Human word for this world is Serpentis III, but occupation troops simply call it "Bugville."

PLANET DATA

Name: Gamma Serpentis III

Distance from Primary: 1.275 AU

Year Length: 470.3 days

Size: 16,589 km in diameter

Day Length: 22.22 hours

World Type: Garden

Surface Gravity: 1.2 G

Atmospheric Pressure: 1.23 atm

Climate: Hot

Water Presence: 32%

Atmospheric Composition: N₂ (79%), O₂ (19%), Argon (2%)

Biodiversity: Abundant

Natural Resources: 3

Gamma Serpentis III is a hot, dry world, heavily industrialized. The level of industry was sufficient to put out a significant quantity of pollutants, including SO₂, H₂SO₄, CO, O₃, and HNO. The concentrations of these chemicals are sufficient to give the atmosphere a taint requiring filter masks for Human personnel. This taint is slowly filtering out of the atmosphere, as the industrial areas have all stopped running, but it will take decades for the poisons to clear.

As a result of the Human attack and subsequent occupation, most of the extensive cities and Safe Places have been abandoned, and the industrial areas have fallen into disuse and ruin. Coupled with the effects of the Pentapod Revenge, the Kafers of Gamma Serpentis III are almost an endangered species.

SAFE PLACES:

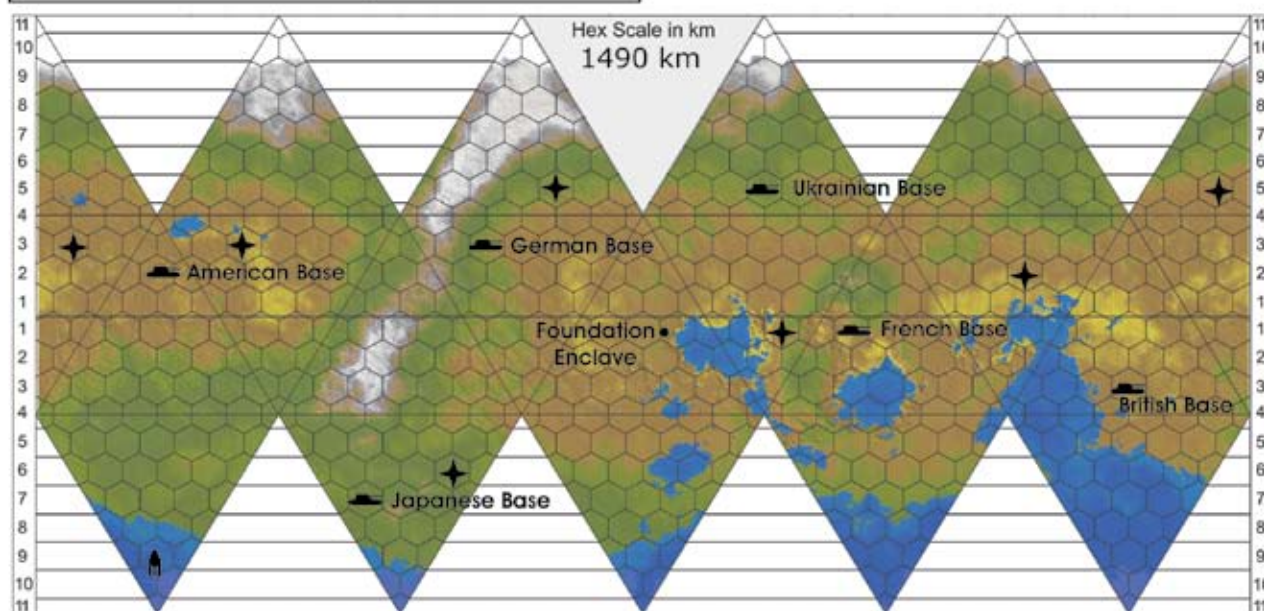
The ancestors of the Kafers were burrowing animals, and they still feel safest in enclosed places. Safe Places are fortress-cities that burrow as deep into the ground as they tower over the surroundings, with an average population of over one million. After the plague came to Gamma Serpentis III, they were largely abandoned, though packs of feral Kafers still wander the decaying halls.

Physical Description

The Kafers are an upright, bipedal, roughly Humanoid creature approximately two meters tall. They have a vaguely insectoid appearance, enhanced by the large carapace on their backs, the bristly, hair-like projections on their forearms and lower legs, and their vertical lobster-like mouths, which consist of a complicated arrangement of mouthparts between two large, powerful mandibles.

A Kafer's carapace covers not only the creature's back, but projects upward to protect the rear of its head as well. The thickness and stiffness of the carapace makes the Kafer's torso less flexible than a Human's and gives it a permanent hunched appearance.

Gamma Serpentis III



Legend

• Major City	⊗ Mining	⌚ Fusion Plant
⊕ Spaceport	⬇ Farming	☰ Solar Power Rectenna
→ Catapult	⚓ Military Base	🏭 Heavy Industry
✦ Ruins	🏠 Pentapod Enclave	

178

Kafer limbs are very similar in shape and function to Human's. Each Kafer extremity terminates in three digits; those on their hands are set as mutually opposable thumbs. While Kafer limbs are very powerful, Kafer hands have a much weaker, and less dexterous, grip than do Human hands. Kafer have even been observed doing fine work with some of their very dexterous mouth-parts.

As alien-appearing as the Kafer's body, it is the face that is the most terrifying to Humans. Besides the vertical, slit-like mouth, Kafer faces are very rigid and nearly inflexible, giving them a static, emotionless expression. What little flexibility they have in their faces is concentrated in the complex mouth parts and mandibles, which as constantly moving and twitching, even when the creature is otherwise still. The small, black eyes are set much like a Human's, though the heavy, protective brow-ridge almost hides them from view. Gamma Serpentis is much brighter star than Sol, and as a consequence,

GETTING SMART:

The common term for the action of the Kafer pseudo-adrenal glands is "getting smart," and indeed, Kafers do become smarter while under the effects of the hormone. However, there is more to it than that. Their reactions and situational awareness improve, but moreover, there is a real sense of being "more alive." Researchers studying the pseudo-adrenal response have likened it to a euphoric high, tinged with homicidal rage.

Kafers see farther into the violet end of the electromagnetic spectrum and less into the red end than do Humans. They can even perceive the near-ultraviolet, including the lasers used in some Human targeting systems. In dim red light, though, Kafers are nearly blind to anything more than a few meters away. Kafers are completely hairless except for the bristles on their arms and legs.

Coloration among Kafers ranges from reddish brown to an almost charcoal grey. Their skin is very tough, although still pliable. There appears to be some casting behavior associated with color, though sociologists studying them haven't come up with a definite pattern.

The most important factor in a Kafer's physiology and psychology is the action of the pseudo-adrenal gland. In response to stress or violence, the pseudo-adrenal gland releases a chemical that boosts the action of the neurotransmitters in the Kafer brain. This has the effect of making them both smarter and faster. The mechanism behind this was unknown until the first prisoners were delivered to the Pentapod enclave on Beta Canum in 2309. With the assistance of Human doctors and geneticists, the Pentapods were able to come to an understanding of this process. The series of experiments at the Pentapod enclave allowed the researchers to map the Kafer genome, and they derived a virus that could block the action of the pseudo-adrenal glands, thus preventing Kafers from getting "smart."

SOCIETY

Homeworld: Gamma Serpentis III

World Population: 900 million

Nationality: Kafer

Life Expectancy: 32 years

Literacy: 8% (estimate)

College Education: 0%

Major City(s): Abandoned (names unknown)

Currency: N/A

Government Type: Human military dictatorship (6)

Law Level: High. Possession of any weapon is prohibited (A)

Tech Level: Very Low (2)

Trade Data: Po

Principal Trading Partners: N/A

Interface Capability: None

Resources: Farming

Military Presence: Orbital Defense Installation, Military Base, Naval Base (Human)

Services: Weather Satellites, Communications Satellites, Orbital Terminal (Human)

Kafer society is based almost entirely upon two interlinking, driving forces. One is the need to ensure the survival of the species; the other is the love of violence.

Survival of the Species: Kafers are a very rapid breeding, hermaphroditic species. Each Kafer is instinctively driven to breed regularly throughout its adult life, starting from age six. Usually, both partners are fertilized during a tryst. Gestation takes about six Terran months, at which time, a pregnant Kafer will deliver two new Kafer young, each about one-twelfth the size of an adult.

The newborns are able to scramble about on all fours within a few hours of their birth, and can walk upright within about four months. During the first three years of their lives, Kafer young feed on partially digested foods that are regurgitated by their "mother," who also cares for their safety and teaches them the basics of Kafer culture. Kafers look after their own young only, and typically do not cooperate in the raising of the young. At the end of this period, they will have attained about three-fifths the size of an adult and can expect no more help from "mother." At this age, Kafers are recruited into training camps where they will learn their adult occupations. Conditions in these camps is rough, and nearly half of the juveniles do not survive.

A Love for Violence: Most Kafers have an intelligence level equivalent to a Human IQ of about 40 (sub-moron), although the occasional exceptional individual approaches Human norms. But intelligence is variable in each Kafer, depending upon its environment. Danger causes a physiological response in them similar to the action of adrenaline in Humans, except that instead of increasing strength, the Kafer response stimulates intelligence and speed. Kafers who are

spectators to another's danger experience this response as well, though at a lower level. Most of the time, the increase is of relatively short duration – once the danger is over, a Kafer grows dull and sluggish again. But its intelligence never quite falls back to what it was before. In other words, with repeated stimulation, a Kafer's normal intelligence will see a slowly but steadily rise. The virus seeded onto Gamma Serpentis III short-circuited this reaction.

Beginning early in their history, Kafers repeatedly experienced one pattern of events: First, a group of Kafers would begin to develop a localized, permanent, city civilization. One benefit of such a civilization is that life is safer for its members, but for Kafers, this means that there is less stimulus to intelligence. Over and over again, city civilizations would fall before the onrush of nomad barbarians who were smarter, and trickier, because their lives were more dangerous. Eventually, a city civilization was developed in which routine violence was incorporated into the culture. With the pairing of this stimulus to intelligence and the technological developments that only a stable culture could bring, the nomad bands had met their match-but the "smart barbarian" remains an archetypal figure in Kafer horror stories.

All of this has made Kafers addicted to violence. Violence makes a Kafer more self-aware, makes it feel more alive. It also makes it intelligent enough to realize that a stable society is to be desired-this is what keeps Kafers from killing each other off indiscriminately.

SMART BARBARIANS:

The greatest fear of any Kafer is the Smart Barbarian, the archetypal figure from their history who cast down civilization after civilization. Humans are viewed as "Smart Barbarians" and are thus the ultimate nightmare to the Kafers.

THE KAFER WAR

The Kafer War lasted for 16 years, and resulted in the loss of approximately one-quarter of the Kafer Sphere to Humanity, including the Kafer home world of Gamma Serpents III. Casualties to the Kafers are likely to reach into the hundreds of millions with the collapse of civilization on Gamma Serpentis III.

Human occupation of the Gamma Serpentis system creates an effective bottleneck to Kafer forces attempting to continue actions against the French Arm. The occasional small ship gets through, but the large fleets are reluctant to approach the system. The biological weapon employed by the Pentapods in the Gamma Serpentis system struck terror into the remainder of the Kafer Sphere, and they are extremely hesitant to approach, as none of them want to catch the **Vog*gach Aach*ah** (Barbarian's Curse).

There is very little known of the worlds beyond Gamma

Serpentis. The Human fleets stopped at the Kafer homeworld as much out of exhaustion as the completion of their strategic goal. From reports filtering out of Ylii space, the remaining Kafer Suzerains are embroiled in some sort of war, though the war appears to be largely contained to starship battles and occasional surface sorties. The aging Suzerains from the time of the war are battling to stay in power, and to increase the size of their holdings.

KAFER ADVENTURES

It is possible to encounter small groups of Kafers on virtually every world of the French Arm, as ground troops were landed on most worlds during the war. In addition, Kafer raiders and scouts occasionally get past the blockades and go ravaging up and down the French Arm until hunted down by Human naval forces, or they somehow manage to retreat back into Kafer space.

GENERATING A KAFER NPC

Kafers are not intended for use as PCs.

KAFER RACIAL TRAITS

A Kafer is generated as a normal character, with the following modifiers:

+3 Strength, +1 Dexterity, +4 Constitution, -8 Intelligence, -7 Charisma

Education: -8 to generate a normal Kafer. Add +6 for an officer and +8 for a Professional or Engineer

As a Kafer advances in experience, they gradually get smarter. If they live long enough, they become officers, scientists and technicians. For every two base (i.e. non-aroused) levels a Kafer attains, they add 1 to the permanent, low-level Intelligence. They also subtract 1 from the Intelligence bonus they receive when aroused. This add to the base intelligence can never exceed 9

The Intelligence and Charisma shifts only apply to Kafer never exposed to the Pentapod Revenge. Infected Kafer use the initially-generated number, and never get smart.

Carapace Armor: A Kafer's tough carapace protects its torso as non-rigid armor (Armor Rating 1).

Racial Feats: All Kafers start with the following Feats: Toughness and Endurance.

Alien Levels: Kafers receive two Alien levels, due to the powerful nature of their intelligence shifts.

Movement: All Kafers move at 9 meters

Getting Smart: Combat and violence stimulate a Kafer to greater intelligence. This causes a shift in Intelligence and Class Level. The Intelligence of a "Smart" Kafer can leap by as much as 10 points. When running wild Kafers in combat, use the lower listed intelligence for 1d6 turns, then switch to the greater number. This arousal also causes an emotional rush, as the Kafer feels more alive and aware. This happens even in

those who no longer experience Intelligence increases.

Variable Intelligence and Charisma: When a Kafer is aroused (see below) they add 10 to their base intelligence and 6 to their Charisma.

BAB and Save Bonus: A Kafer that is Smart gets +2 levels for purposes of BAB and Saves only. A multi-classed Kafer would use the most favorable table

Skill Bonus: In addition to the intelligence boost, Kafers get a +2 to all skills when "smart"

Feats: Some Feats are only available to Kafers when they get Smart:

Lightning Reflexes, Tactics, Stealthy, Improved Initiative

For every three character levels, a Kafer can choose one of these Feats as an Extra Feat (thus at 3rd, 6th, 9th, and 12th levels). This is in addition to the other Feats the Kafer can acquire.

CLASSES AND RESTRICTIONS

The Following classes are not available to Kafers. All class Skills and Feats are modified as per Chapter 3: Character Generation.

Kafers cannot get any armor proficiency better than Light Armor. There is no equivalent to Vessel (Combat Walker).

Barbarian: Though unavailable to most Kafers, the infected Kafers of the home world would use this class.

Convict: Any crime amongst Kafers almost immediately results in either death on the spot or the crime is ignored. Kafer crimes are crimes of property, not violence, as anyone who can't defend themselves is better off being killed.

Corsair: Kafer raiders are regular Navy and Army personnel.

Diplomat: Kafers do not negotiate.

Entertainer: There is no comparison to this in Kafer society.

Law Enforcer: Law enforcement, such as it is, is either immediate or neglected. Army troops fulfill the keeping-the-peace role.

Medic: Kafers do not have specialized medical technicians, nor any sort of real doctors.

Mercenary: Not generally available. However, if a player wanted to run a Kafer as a PC, than this career would likely be the best choice. However, a Kafer PC is not an easy option to play.

Merchant: Kafers do have an analogue to Merchants, but they are better described by the Professional class. They are extremely rare and it would be very unusual for them to be encountered in Human space.

Noble: Doesn't fit in the Kafer scheme of things.

Traveller: The notion of Travelling through space for entertainment has never occurred to the Kafer.

Prestige Classes: Only the Special Forces Prestige

Class is available to Kafers, and only Kafers with a low Intelligence of 12 or more can get in.

KAFERS IN COMBAT

When combat occurs, the referee should stress the confused way that Kafers mill about for the first several rounds,

their officers prodding and beating them. Once the Kafer intelligence mechanism takes effect, however, the referee should stress the almost supernatural cleverness of the response. Kafers will disappear into any available cover and will use every trick conceivable in counterattacking.

Typical KAfer NPCs

AVERAGE KAfer TROOPER

The average trooper isn't very bright, but does remember things for the next time it gets bright. The sight of Kafer officers beating their troops into intelligence was common during the war.

Common Trooper		Kafer 2/Army 4		TL	12		ST		LB						
Grav	N	Core/Frontier													
Str	15	Dex	13	Con	16	Int	4 (12)	Wis	11	Chr	4 (11)	Edu	3	Soc	-
Init	+1 (+5)	AC	12	AR	1	Spd	9m	Fort	+4 (+5)	Will	+1 (+2)	Ref	+5(+8)	SZ	M
Attacks	+4 (+6)	Thud Gun (2d12 (x2), Rng 72m RoF:1/4/10 66 rounds),													
Feats	Weapon Proficiency (Marksman), Weapon Proficiency (Combat Rifleman), Weapon Proficiency (Heavy Weapons), Brawling, Toughness, Endurance, Stealthy, (Lightning Reflexes, Tactics, Improved Initiative),														
Skills	Driving 8, Spot 6, Survival 7, Gambling 1(5), T/Mechanical -2														
Equipment	Thud gun, 4 hand grenades, 4 propelled grenades, combat knife, 2 weeks rations, string of human ears														

Values in parenthesis are for a Kafer when "Smart."

AVERAGE KAfer OFFICER

The Kafer Officer is usually a soldier who has survived long enough, is tough enough, and violent enough, to have increased their base intelligence to a high level. The average Kafer officer is as smart as an average Human, and smarter still when "Smart."

Officer		Kafer 2/Army 8		TL	12		ST		LB	17					
Grav	N	Core/Frontier					Body	N/A							
Str	16	Dex	15	Con	17	Int	12 (13)	Wis	13	Chr	10 (12)	Edu	9	Soc	-
Init	+2 (+6)	AC	12	AR	1	Spd	9m	Fort	+5(+6)	Will	+3(+4)	Ref	+8(+10)	SZ	M
Attacks	+8/+3 (+10/+5)	Horse Pistol (Dam: 2d10/x2 RoF 1 Range 20m 7 shots) +8/+3 (+10/+4), Flashlight Laser Rifle (Dam 3d12/x2, RoF 1, Rng 112m, 12 pulses), +9/+4 (+10/+5) Scepter (1d6+3/x2), +9/+4 (+10/+5) Combat Knife (1d4+2/x2)													
Feats	(Lightning Reflexes, Improved Initiative), Weapon Proficiency (Marksman), Weapon Proficiency (Combat Rifleman), Weapon Proficiency (Heavy Weapons), Weapon Proficiency (Lasers), Brawling, Toughness, Endurance, Stealthy, Tactics, Command Presence,														
Skills	Driving +8, Spot +10, Survival +7, gambling +5, T/Mechanical +4, Sense Motive +4, Leader +10														
Equipment	Horse Pistol, Scepter, flashlight laser rifle, combat knife, 2 weeks rations, human ears hung from carapace														

KAfer INFILTRATOR

Kafer Infiltrators are the elite of the Kafer military. Their job is to drop behind enemy lines and provide intelligence. Their ships are also used for deep strikes and raids.

Infiltrator		Kafer 2/Army 12		TL	12		ST		LB	17					
Grav	N	Core/Frontier					Body	N/A							
Str	16	Dex	16	Con	17	Int	12 (13)	Wis	13	Chr	10 (12)	Edu	9	Soc	-
Init	+7	AC	14	AR	1	Spd	9m	Fort	+5(+6)	Ref	+8(+10)	Will	+3(+4)	SZ	M
Attacks	+12/+7 (+13/+8)	Flashlight Laser Rifle (Dam 3d12/x2, RoF 1, Rng 112m, 12 pulses), +12/+7 (+13/+8) Combat Knife (1d4+2/x2)													
Feats	Lightning Reflexes, Improved Initiative, Weapon Proficiency (Marksman), Weapon Proficiency (Combat Rifleman), Weapon Proficiency (Heavy Weapons), Weapon Proficiency (Lasers), Brawling, Toughness, Endurance, Stealthy, Tactics, Command Presence, Tactics II, Heavy Metal,														
Skills	Driving 15, Spot 16, Survival 8, gambling 5, T/Mechanical 5, T/Electronics 3, Gather Information 10 (11), Forward Observer 7														
Equipment	flashlight laser rifle, combat knife, 2 weeks rations, thermal-visual camouflage poncho, PAA dispenser														

THE KLAXUN

The Klaxun are one of the most recently discovered alien races, from a world on the very fringes of the French Arm.

FIRST ENCOUNTER

The Klaxun were accidentally discovered by the crew of the *LaFarge*, a Trilon survey vessel operating in the Wolf Cluster of the French Arm. In late 2300, it was attacked and heavily damaged by a Kafer scout force in the DM+17 2611 system, and the crew was forced to abandon ship in one of the space planes carried aboard the starship. But the time of their crash landing and trek across the frozen tundra coincided with the Klaxun hibernation. When they arrived at the equatorial sea, they found themselves almost overnight in the middle of a bizarre civilization of aliens whose biological clocks had awakened them. Actually, without the help of the Klaxun, the stranded Humans would have never survived the next two winters on DM +17 2611 II. After those two winters, a rescue ship finally did arrive in system, and the Klaxun were officially introduced to Humanity as a new alien intelligence.

HOMEWORLD

Expeditions to the Klaxun homeworld are restricted (see below).

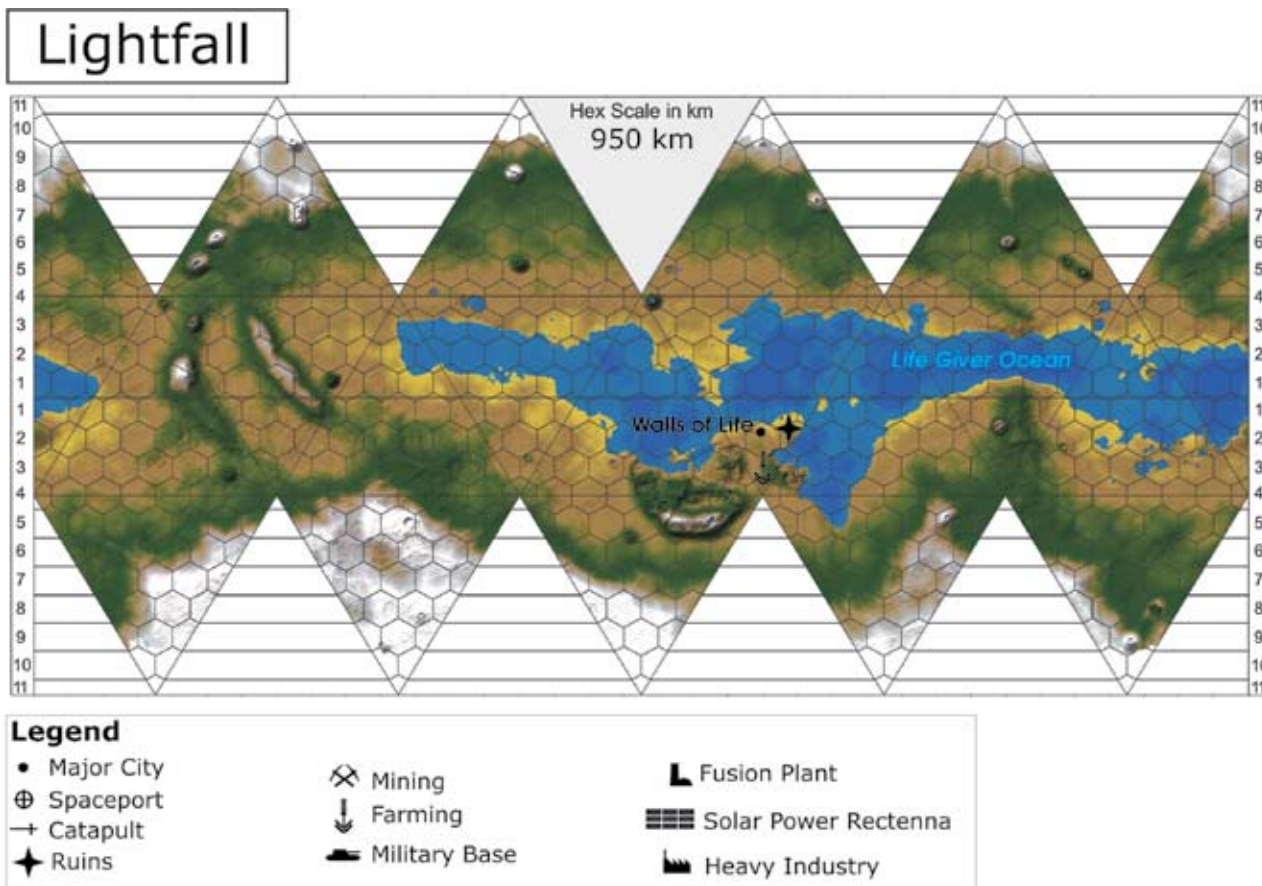
PLANET DATA

- Name:** Lightfall
- Distance from Primary:** 0.51 AU
- Year Length:** 198 days
- Size:** 10,550 km in diameter
- Day Length:** 26.2 hours
- World Type:** Garden
- Surface Gravity:** 0.87 G
- Atmospheric Pressure:** 0.89 atm
- Climate:** Chilly
- Water Presence:** 67%
- Atmospheric Composition:** N₂ (79%), O₂ (19 %), Ar (2%)
- Biodiversity:** Diverse
- Natural Resources:** 4

Physical Description

The Klaxun are bizarre creatures from a Human standpoint, since they do not readily fit into any one of the broad categories ("animal" "plant," "fungus") of terrestrial life – they show characteristics of both "animals" and "plants." forcing biologists to create a new classification system for their world. For now, the Klaxun are referred to as free-moving producers, or walking trees, to quote one scientist.

The Klaxun stand between 1.3 and 2.6 meters in height (when fully extended), and mass approximately 50-100 kilograms. They are usually green or grey in coloration, and this



may change with the proximity to moisture and how much sunlight they are receiving at the moment. Of course, each Klaxun is unique, even to the extent that individuals have variable numbers of limbs.

From the ground up, the Klaxun have several root/legs, which are used for locomotion and for drawing nutrients from the soil when necessary. The root/legs have feelers attached to them, which are the Klaxun's primary sensory apparatus. The root/legs extend from the base of the brain/body case, the very core of the individual. The case is very rugged, protecting the brain and vital organs of the individual. At the top of the brain/body case is the mouth, the opening of the digestive system which operates in concert with the photosynthesis centered elsewhere. From the top of the creature extends several branch/arms, each with weak tentacles. The exact number of branch/arms varies from individual to individual. At the center of the branch/arm cluster is the eye-cleft. Klaxun are capable of distinguishing sounds, but the sense can't exactly be described as "hearing." They don't differentiate sounds to the same degree as Humans, and are incapable of hearing above the middle of the Human range (~9,000 Hertz).

Their diet is a combination of foraged food and photosynthesized compounds. Primitive Klaxun forage for native food in the equatorial countryside, eating through the mouth much as Terran animals do. However, this is supplemented by the ability to photosynthesize. Leafy structures form along the branch/arms of all Klaxun, and during the summer can account for upwards of 30 percent of the individual's personal energy.

Klaxun reproduce through seeding, a process practiced by all adults. Most seeds do not survive the harsh conditions of the mother planet; there is a 90 percent death rate. The introduction of certain techniques by the Life Foundation is already working to drop this high seedling mortality rate, though this presents the possibility of an over-population problem, as currently the numbers of Klaxun are near the productive capacity of their territory, at least at current technology levels.

Where an individual is seeded dictates the creature's sightedness. Crystal structures in the soil are collected by the growing creature and centered in the eye-cleft to enhance light gathering. For the Klaxun, sightedness has been a fairly recent evolutionary event, and their vision, at best, is far inferior to that of a Human being. Having determined the events that favor sightedness, the Life Foundation is in the process of adding artificially produced crystals to the soils around seedlings. Already this project has begun to bear fruit, as the numbers of sighted individuals is steadily rising.

The Klaxun do not sleep by any Human definition. They do hibernate through the very long, cold winters of their native world, emerging for a brief period each year to live and

move freely through the summer season. A Klaxun will live through about 50 local years (25 standard). From our point of view, they are terribly slow creatures, due to slower synaptic processing in their brain.

Klaxun communicate through physical contact, using the branch/arms and tentacles to relay their information. This Klaxun "dance" is very difficult for Humans to imitate, but successful communication has been made by Humans using their hands and fingers as barely adequate substitutes.

SOCIETY

World Population: 150-200 million

Nationality: Klaxun

Life Expectancy: 25 years

Literacy: 2%

College Education: 0%

Major City(s): Walls of Life (12,000)

Currency: N/A

Government Type: None. Clan ties predominate (0)

Law Level: None. No restrictions (0)

Tech Level: (1)

Trade Data: Po

Principal Trading Partners: N/A

Interface Capability: None

Resources: Farming

Military Presence: Orbital Defense Installation (Life Foundation)

Services: Link Network (25%), Communications Satellites, Orbital Terminal (Life Foundation)

Before their discovery by a Kafer raiding group, the Klaxun were in the very earliest stages of civilization. To put this in terms of Human history, the Klaxun were at about the level of very early Mesopotamian civilizations, and thus only beginning to develop systems of government, cooperation, and hierarchy.

The Klaxun had built a large city complex on the southern shore of the equatorial sea, but this was destroyed in the Kafer raid. The small mercenary force hired by the Life Foundation managed to save a large number of the city's inhabitants, but the city itself was ruined. The artisans are currently trying to build a new city, with the cooperation of the Human mercenary forces and their controlling foundation. The old city was a collection of maze-like open-roofed rooms and corridors with few trappings, and was organized to house the various higher level artisans, such as canal diggers, toolmakers, shipbuilders, tree fellers, and artists.

The new city, though so far more of a town, is beginning to take shape, affording a few of the artisans the freedom to again pursue their old vocations. However, the vast majority of the Klaxun are still occupied with the gathering of food.

The old Klaxun hierarchy based on sightedness has been forced to change. In the wake of the Kafer raid, sightedness was no longer the advantage it had been in the old city-state. Artisans, of necessity, have to be sighted, but many of them died with the city. As well, the intervention of the Human foundations has led to a discovery of the root causes of sightedness, and more and more seedlings are growing up with this ability.

The Life Foundation was best positioned to dominate Human interaction with this primitive race, and it was the actions of the Life Foundation staff and their hired mercenaries that allowed the fledgling Klaxun civilization to survive and recover from the Kafer attack in 2306.

Klaxun Adventures

Now that the Klaxun have been contacted, there is great interest in learning about them. Almost all foundations are conducting expeditions and/or filming documentaries across their world, most centering on the joint efforts to rebuild their city. Many young Humans, looking for a cause to devote a few years to, join the Life Foundation, and can be found working side-by-side with Klaxun artisans and laborers to erect the new city walls.

Independent expeditions to the Klaxun world are discouraged by the various foundations, and the Life Foundation has the means in place to back up this restriction with force. The Klaxun are felt to be at too primitive a level to be open to free contact. A few Klaxun have left their home world for worlds in the French Arm, and some have even gone as far as Tirane, in the Core.

Despite the ban on contact, a few private expeditions do run the gauntlet of foundation ships to attempts to land on the forbidden planet. They are largely prospecting and phar-

maceutical teams, looking for a rare find to justify the costs, and risks. A very few are hunters and poachers, concerned wholly with hunting and killing things. Which can even include the Klaxun.

Klaxun Character Generation

Klaxun roll normally for their stats, with the following modifications:

Str: +4, **Dex:** -2, **Con:** +4, **Int:** -4, **Edu:** -6

Sighted Klaxun move at 6 meters

Unsighted Klaxun move at 3 meters

Unsighted Klaxun are blind, and are unable to perform visual checks. They may still try to Spot using their hearing, but that is a poor second choice.

Unsighted Klaxun can only be Barbarians, and start with the following Feats and Skills:

Feats: Skill Focus (Outdoor Survival), Trapping, Natural Medicine

Skills: Must take Survival

Even sighted Klaxun have poor vision. Add -2 to all Spot and visual recognition checks.

Special Racial Feats/Abilities: Two levels of Toughness, Natural Compass, Natural AR of 1

Klaxun add 2 to their stamina rolls and begin play with their Con +8 in Lifeblood

Klaxun fists hit like clubs (Damage: 1d6/x2, counts as armed for attacks of opportunity.)

Classes

Only the Barbarian class is open to unsighted Klaxun. Sighted Klaxun can choose from Academic, Barbarian, or Professional, all at very low technology levels.

Typical Klaxun NPCs

Typical Unsighted Laborer

Though conditions are improving, the vast majority of Klaxun are still unsighted, even near the joint city being built with the assistance of the Life Foundation. Klaxun are tough enough to survive, and within a few decades the majority will be sighted, if all goes according to plan.

Klaxun Laborer	Barbarian 3	TL	0	ST	38	LB	29								
Grav	N	Core/Frontier	Frontier												
Str	17	Dex	9	Con	15	Int	7	Wis	12	Chr	11	Edu	4	Soc	-
Init	-1	AC	10	AR	1	Spd	6m	Fort	+5	Ref	0	Will	+2	SZ	M
Attacks	-1 (fist 1d6/x2)														
Feats	Skill Focus (Outdoor Survival), Natural Medicine, Trapping, Toughness (x2), Natural Compass														
Skills	K/Farming 0, Listen 6, Spot 2, Craft 1, Survival 5														
Equipment	Wood and stone farming tools														
-4 on all tasks requiring vision, including combat															

Typical Sighted Protector

The sighted Klaxun are the still the upper-class of Klaxun society. There are enough of them now that they have taken on the role of protecting the city and its inhabitants from the wild creatures that roam the world, including one that a mercenary working for the Life Foundation dubbed a "rabid beaver," which preys upon Klaxun and their relatives.

Klaxun Protector			Barbarian 7			TL	0			ST	78	LB	28		
Grav	N			Core/Frontier			F								
Str	19	Dex	10	Con	18	Int	8	Wis	10	Chr	10	Edu	6	Soc	14
Init	-1	AC	11	AR	1	Spd	9m	Fort	+14	Will	+4	Ref	+1	SZ	M
Attacks	+9/+4 spear (1d8/x2), +9/+4 axe (1d10/x2)														
Feats	Listen, Move Silently, Weapon Proficiency (Swordsman), Brawling, Endurance, Natural Compass, Stealthy, Toughness (x2)														
Skills	Intuit Direction 8, Listen 8, Spot 5, Survival +6, Hide 6, Speak Language (Esperanto)														
Equipment	Spear, Human-made axe, wood-and-resin shield														
-2 on all tasks requiring vision, including combat															

THE LITTLE GUYS

The advanced civilization of the Little Guys perished in a system-spanning war about 120 years ago, though pockets of them survive on the home world and in isolated bases and stations scattered throughout the system. Even the ones marooned on the space facilities have lost most of their technological ability, and simply struggle to survive in the ruins.

FIRST CONTACT

The Little Guys were first contacted by the ARI starship **Bayern** during its historic flight to the Pleiades and back. In 2305, The **Bayern** and her crew rescued a number of the small aliens from a base on the moon of the homeworld, where they were fighting a war of attrition with ancient combat robots. There have since been three more expeditions to the Little Guy homeworld, including a joint military task force to prevent further travel down the Bayern corridor.

HOME SYSTEM

STELLAR DATA

Primary Name: DM+5 1117

Spectral Class: G8 V

Magnitude: 4.8

X, Y, Z Coordinates: -4.06, 97.03, 9.63

Number of Planets: 6

Number of Asteroid Belts: 2

Though much of the Little Guys homeworld was ruined in the war, enough remains intact to support a population of several million in primitive communities.

PLANET DATA

Name: Littleendia (Native name unknown)

Distance from Primary: 0.62 AU

Year Length: 126.9 days

Size: 10,560 km in diameter

Day Length: 31.2 hours

World Type: Garden

Surface Gravity: 0.89 G

Atmospheric Pressure: 0.92 atm

Climate: Temperate

Water Presence: 58%

Atmospheric Composition: N₂ (75%), O₂ (22%), Ar (2%)

Biodiversity: Diverse; usable

Natural Resources: 3

Satellites: 2

The Homeworld itself would be a pleasant enough world, if its cities didn't glow at night. Slightly smaller and drier than Earth, it is still a prime piece of real estate, and there is some discussion of settling the world. It is in a very dangerous location, however, and would be difficult to sell.

PHYSICAL DESCRIPTION

The Little Guys are roughly 1 meter tall, thickly furred, with two legs and four arms. The head rests on a thickly muscled neck close to the torso. Their large expressive eyes are more sensitive to light than Human eyes, though not to the extent that nocturnal animals on Earth are. Each of the four arms ends in a three-fingered, dexterous hand, with a long opposable thumb. The Little Guys have no trouble using each set of arms for a different activity. The stubby, powerful legs end in long-toed clawed feet.

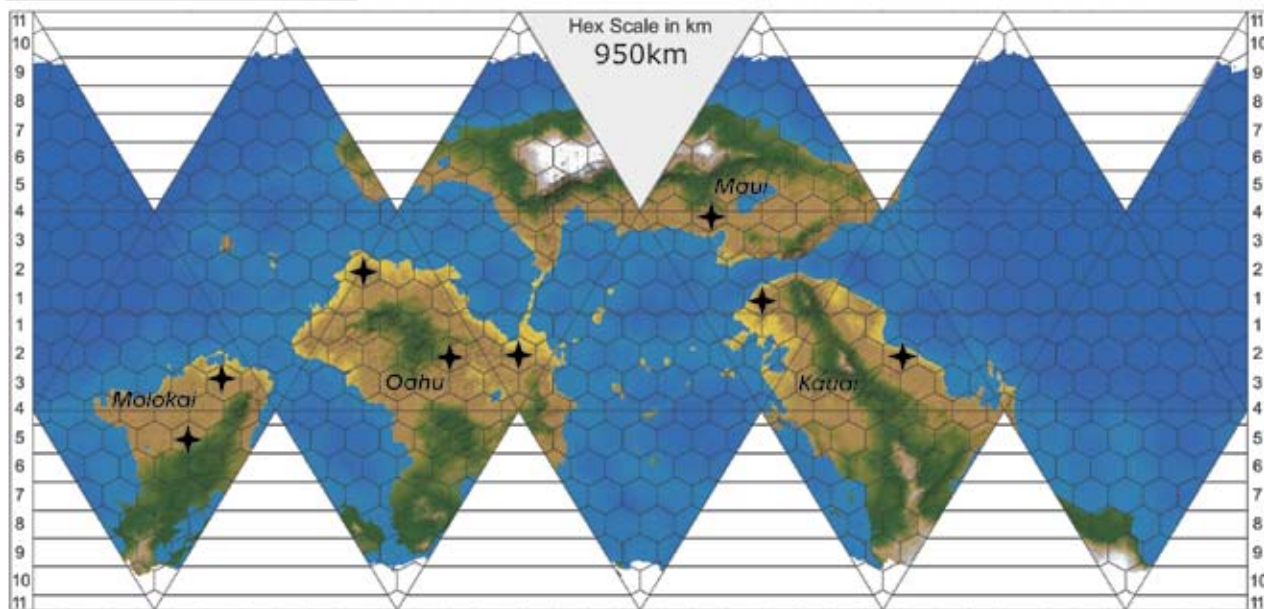
The little guys have two sexes, and reproduce in a manner similar to Earth marsupials, though the young are hatched in an egg, and make their way to the mother's pouch.

The lifespan of the Little Guys appears to be only about 40 years, but they are mature after only 6 years, and seem to require no sleep, only the occasional energy-saving period of meditation.

Psychology

The Little Guys appear to be similar to Humans in the

Garm Yres



Legend

• Major City	⚡ Mining	⚡ Fusion Plant
⊕ Spaceport	🌾 Farming	☀️ Solar Power Rectenna
➔ Catapult	🏢 Military Base	🏭 Heavy Industry
✦ Ruins	🏠 Pentapod Enclave	

186

patterns of their thought, to judge by the artifacts they left behind, along with other evidence. They had a strongly mechanistic culture, and relied heavily on their machines to the extent that they idealized technology, a trend which could still be seen in the refugees from the moon base, who, though forced to fight machines, did so with the greatest reluctance.

Society

- Colony Population:** 250 million
- Nationality:** Little Guys
- Life Expectancy:** 45 years
- Literacy:** 12%
- College Education:** 0%
- Major City(s):** None
- Currency:** N/A
- Government Type:** None. Family and clan ties predominate (0)
- Law Level:** None. No restrictions (0)
- Tech Level:** Extremely Low (1)
- Trade Data:** Po
- Principal Trading Partners:** N/A
- Interface Capability:** None
- Resources:** Farming
- Military Presence:** None
- Services:** None

The Little Guys destroyed themselves over 120 years ago in a system-spanning war that lasted more than 5 years, and

killed billions. Little is known of the details of the war, and the survivors have little to share. The war ended 120 years ago, and there are none left alive who witnessed it, nor any who would have heard the story first hand from any survivors. Over 10 generations have passed since the war, relegating it to legends. The legends do speak of something, though, and that was that the "enemy" of the Little Guys wasn't themselves, but seemingly another race, much larger and stronger than the Little Guys, but not quite as intelligent. The Human researchers working with the Little Guys simply call this legendary race "The Big Guys." Another theory has been advanced that the mysterious "Big Guys" were actually from Beta Aquilae. Unfortunately, this theory was advanced by the same research team that identified the mystery ship the *Bayern* encountered as *Aquilan*, despite a lack of evidence. (See the *Alien Space* section on the *Bayern Corridor*).

LITTLE GUY CHARACTER GENERATION

Little guys are smaller than Humans, and much less massive.

Roll stats normally, with the following modifiers: Str -2, Dex +1

Little Guys move at 9 meters

Little guys can use both sets of arms independently.

Starting Feats: Ambidexterity, Great Fortitude

Despite their shorter stature, Little Guys are still considered to be size Medium.

Little Guys can only choose from Low Tech (TL 0-3) classes. Most of the Little Guys on the homeworld will be Barbarians, while a few isolated settlements (including the moon

base survivors transported by the Bayern to the homeworld) are able to choose from any class available at Tech Level 3 or lower.

Typical Little Guy NPCs

Little Guy (Barbarian)

Little Guy Barbarian	Barbarian 6	TL	1	ST	52	LB	13								
Grav	N	Core/Frontier		Frontier											
Str	9	Dex	14	Con	13	Int	12	Wis	12	Cha	11	Edu	6	Soc	14
Init	+2	AC	13	AR	0	Spd	9m	Fort	+6	Ref	+7	Will	+3	SZ	S
Attacks	+5/+0 Shortsword (1d6-1), +8/+3 Short Bow (1d6, Rang 20m)														
Feats	Armor Proficiency (Light), Shield Proficiency, Weapon Proficiency (Archer), Weapon Proficiency (Swordsman), Dodge, Stealthy, Trapping, Ambidexterity, Great Fortitude, Technophobia														
Skills	Animal Empathy 2, Intuit Direction 5, Listen 7, Spot 7, Jump 4. Move Silently 4, Survival 5														
Equipment	Leather Armor (AR 0 (1)), Short Sword, Short Bow, Spear														

Little Guy (Civilized)

Little Guy Colonist	Colonist 5	TL	2	ST	30	LB	12								
Grav	N	Core/Frontier		Frontier											
Str	8	Dex	12	Con	12	Int	14	Wis	14	Cha	12	Edu	10	Soc	12
Init	+1	AC	12	AR	0	Spd	6m	Fort	+5	Ref	+2	Will	+5	SZ	S
Attacks	+3 Rifle (1d8/x2, Range 36m #Shots 1), +0 Knife (1d6-1)														
Feats	Armor Proficiency (Light), Weapon Proficiency (Marksman), Weapon Proficiency (Swordsman), Point Blank Shot, Barter, First Aid, Ambidexterity, Great Fortitude, Self-Reliance, Carousing, Sixth Sense														
Skills	Survival +7, K/Farming +5, Spot +6, Listen +4, P/Prospecting +5, T/Mechanical +4, Handle Animal +5, Ride +6														
Equipment	Black Powder rifle, powder horn, 20 shots, water bottle, 2 hunting knives														

THE PENTAPODS

Although truly more alien than any of the other races discovered to this point (with the possible exception of the Xiang), the Pentapods may turn out to be humanity's best friends. These amphibian bioengineers demonstrate a fascination with Humans and are constantly seeking ways to be of service, especially in trading bioengineered products for Human technology. There are those who suspect that they have a more sinister purpose, however, and point to the invasive nature of much of the Pentapod technology designed for Humans.

FIRST ENCOUNTER

In 2251, the ARI sent a pair of survey vessels to DM+27 28217, a red dwarf just out from DM+36 2219 on the French Arm. Upon approaching the second of the system's three planets, the vessels encountered a very large (500 meters in diameter), organic-looking object in orbit there.

The ARI survey team included a xenobiologist, and after a careful sensor scan, the xenobiologist and an assistant were sent in a small ship's boat to view the object up close. Upon approaching the object, the xenobiologist theorized that it was a vessel, and when an opening appeared in its side, flew the ship's boat in.

The object did indeed prove to be a vessel, the starship of a previously unknown race, the Pentapods. Peaceful contact was established, and by 2261, the Pentapods had gone so far as to establish an enclave on Beta Canum Venaticorum-4, an important colony world further in on the French Arm. Later enclaves would include Nibelungen, Mars, and Gamma Serpentis III.

The Pentapods have demonstrated an eagerness for trade, and Humans were very willing to comply. The Pentapods provided bioengineered items such as living contact lenses and compasses, and the Humans repaid them with land, raw materials, and the services of a more mechanical technology. Soon, a fast friendship based upon mutually beneficial trade had developed. That friendship continues to this day.

SYSTEM INFORMATION

STELLAR DATA

Primary Name: DM+43 1953

Spectral Class: K5 V

Magnitude: 7.31

X, Y, Z Coordinates: -28.4, 19.8, 32,1

Number of Planets: 2

Number of Asteroid Belts: 1

Notable planets: Neither the lifeless gas giant, nor its moons, nor the thin asteroid belt of this system were of any interest to the Pentapods. They did construct several observatories on the surface of some of these small rocks, though. From a Human standpoint, these observatories are very bizarre constructs, being, for all intents and purposes, a collection of giant eyes. These eyes are sensitive in a variety of wavelengths, from short-wave radio through to deep ultraviolet, and were the means the Pentapods used to map the skies before their first stutterwarp expeditions left their homeworld decades ago.

HOMEWORLD

The Pentapods hail from the first of two worlds in orbit around DM+43 1953, a small orange star.

PLANET DATA

- Name:** Lifewater
- Distance from Primary:** 0.77 AU
- Year Length:** 262.58 days
- Size:** 8800 km in diameter
- Day Length:** 17.32 hours
- World Type:** Garden
- Surface Gravity:** 0.69 G
- Atmospheric Pressure:** 0.74 atm
- Climate:** Warm
- Water Presence:** 95%

Atmospheric Composition: N₂ (74%), O₂ (21%), CO₂ (2%)

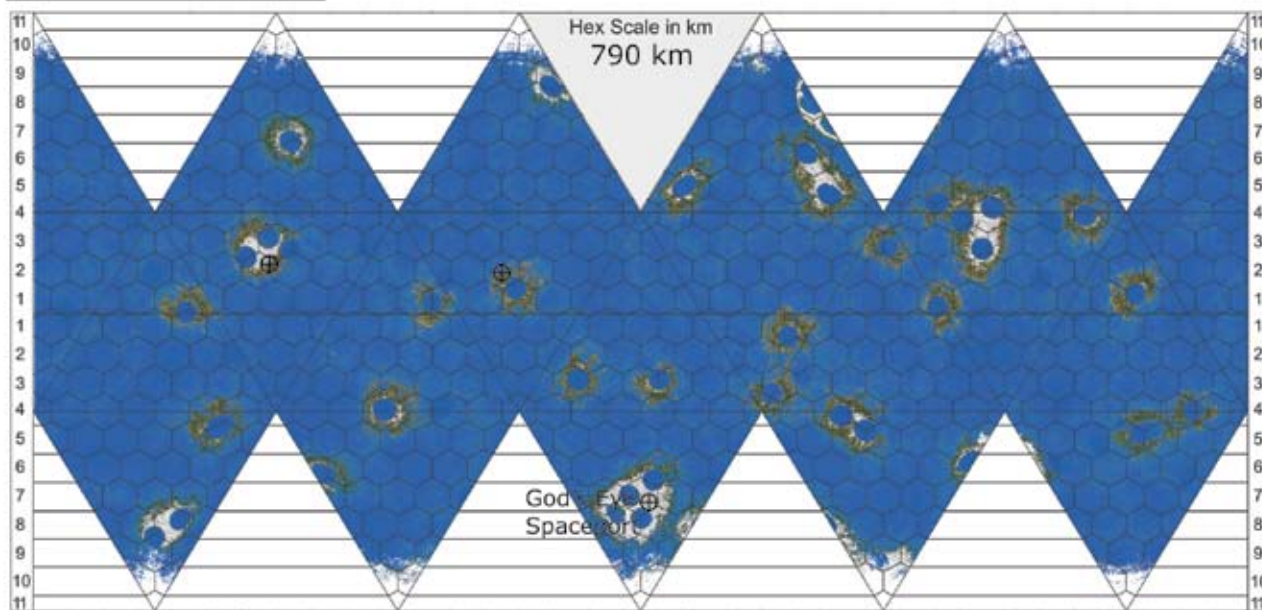
The Pentapod homeworld consists of several hundred small, but very deep, circular seas separated by thin bridges of marshy, boggy soil, with only a few mountains or rocky ground. The surface of the world is the result of thousands of years of manipulation and fine tuning by the world's dominant inhabitants, the Pentapod gods. Each circular sea is the home of a different god, carved out and reshaped by armies of servitors created by each massive being.

Physical Description

The species humanity knows as the Pentapods are five-limbed amphibians standing about one meter tall. The Pentapod head is a bullet-shaped bony case housing the brain and the main sensory organs. Five eyes on stalks provide full circle vision and can be retracted into depressions in the skull. Five sensitive strips between the eyes respond to temperature and infrared light. The very tip of the head is pierced by a breathing hole leading through the skull to the body and lungs.

Attached to the skull with shoulder-like joints are the five legs; each is internally supported by three rigid bones and terminates in a fleshy pad (the pod or foot). Just above the pod are four fleshy tentacles or fingers which fill grasping or manipulative functions. Between each of the five legs is a web of leathery skin. In the Pentapods' ancestors, this web

Pentapod



Legend

• Major City	⚡ Mining	⌚ Fusion Plant
⊕ Spaceport	↓ Farming	☰ Solar Power Rectenna
→ Catapult	🏠 Military Base	🏭 Heavy Industry

connected all the legs down to the feet and was used when swimming. In contemporary Pentapods, the skin has receded to the first joint from the shoulder, allowing the limbs greater freedom of movement.

Directly below the skull is the central body containing the major organs. A single mouth at the base of the skull leads to the digestive system. The breathing tube through the skull leads to the lungs; a Pentapod exhales through five vents at the bottom of the body. The aquatic ancestors of the Pentapods vented water through gills for breathing and propulsion; modern Pentapods can hold their breath and bypass their lungs, to use water for propulsion while swimming.

The Pentapod body ends in a fleshy base; Pentapods rest their weight on this pad when still or standing. Pentapods walk somewhat like crabs, bringing each of the five pods forward in turn. When running, they draw up the trailing (fifth) leg, bunch their other legs together in pairs, and swing the body forward, alternating between the pairs of pods and the body itself. Of course, any sort of modification can be performed on them to change this, but most Pentapods encountered, no matter the caste, seem to fall into this basic form. Their constructs, however, many of which have Pentapods as their base stock, can be any shape or form, being shaped to fit their duties.

SOCIETY

World Population: 500 million, +43 "gods"

Date Founded: unknown

Nationality: Pentapod

Life Expectancy: 80 years

Literacy: N/A%

College Education: N/A%

Major City(s): Each god has a city of roughly equal size (200,000) centered on them

Currency: N/A

Government Type: Balkanized. (7) Each nation is ruled by a "god" (E)

Law Level: Extreme. All aspects of life rigidly controlled (F)

Tech Level: High (12)

Trade Data: Ri, Hi

Principal Trading Partners: Pentapod colonies

Interface Capability: Ballute Shuttle (D)

Resources: Farming, Mining, Heavy Industry, Orbital Industry

Military Presence: Orbital Defense Installation, Military Base, Naval Base

Services: Link Network (100%), Airship Net, Weather Satellites, Communications Satellites, Orbital Terminal, Civilian Shipyard, Military Shipyard

Humans perceive Pentapods to be creatures who have so blurred the division between living being and machine that they have lost the distinction. It is obvious that while many Pentapods fit the physical description above, others have been genetically tailored to fit a particular occupation. These tailored Pentapods often have extremities shaped as tools for their work, or they might be small to fit into tight spots in machinery they tend, or large to carry heavy loads. Even the Pentapods assigned to Human relations show evidence of design: skin colors and textures pleasing to Humans. Each Pentapod is also mentally tailored to its occupation, demonstrating little interest in anything else but that job.

Humans realize that Pentapods view themselves as machines, each individual filling its niche in the overall Pentapod society. To Humans then, Pentapods seem to be members of a race that, in the pursuit of biotechnology, sadly lost its identity as a collection of individuals. The truth is actually far stranger than that.

PENTAPOD SOCIETY

The Pentapods actually spring from a race of a few behemoth creatures that dwell deep in the seas of the watery Pentapod homeworld. These are the Pentapod "gods," vast, self-aware thinkers, nearly immortal, who each remain in a fixed location while exploring their environment, and interacting with one another, by means of "bullets" of genetic material that they secrete at will. The "bullets" are living beings in their own right, capable of everything usually associated with a living species except reproduction. There are only a few dozen of the massive god-creatures, and they have tailored and shaped their world to fit them. With so few of them spread across an entire planet, they have never had true conflict, though occasionally disputes would arise. These disputes never gave rise to actual combat, however.

Pentapods are also intimately involved in the life cycles of their "gods." Every so often, each god requires genetic infusions from another god. These infusions help the gods maintain genetic compatibility with their counterparts, and likewise serve in the gods own very infrequent reproductive cycles. These genetic infusions are of Pentapods, often up to a hundred at a time, who, for all intents and purposes, are eaten by the recipient god. Genetic transfers also seem to perform some role in communication between the gods, being necessary to transfer ideas or concepts of any sort of complexity. Information transfers don't require the same number of Pentapod bullets as the genetic infusions do, and often this seems to involve only one, or at most a few, bullets. While in orbit over the Pentapod home world, the crew of the **Bayern** observed several of these episodes, including a genetic infusion, and at first the crew thought there was some sort of war on. They later began to suspect the truth, but it wasn't until much later that a Pentapod named Kilp, formerly

of Star Gazer, informed Humanity of the reality of Pentapod society. This reality is still kept secret from all but a few, but the story is starting to leak out.

Over the course of ages, some of these “bullets” discovered dry land. The “god” who created them designed others to explore the land. Eventually others were made to explore the air. Finally, with the aid of mechanical technology developed on land, some were designed to explore space.

What Humans know as Pentapods are, therefore, genetic “bullets” sent by a Pentapod “god” to explore space. Along the way, they have discovered a new race among the stars—the Human race—and under the stimulus of this highly individualistic life form, some Pentapods are beginning to develop an individualism of their own.

THE PENTAPOD “REVENGE”

“Revenge” is a Human term, chosen to describe what the Pentapods did, though the word itself is incorrect. Pentapods do not have a concept of vengeance. If a unit of their society goes rogue, it is simply killed. If the unit is one of the more valuable constructs, other measures are used to bring it under control. There is no attachment of morality to these deeds. It simply is the way things are done.

Pentapod contact with humanity has always been through the intermediary of the small “bullets,” what most people think are actually the Pentapods. Communication between the Pentapod home world and Beta Canum can take several weeks, however. Finally, one Pentapod god, named Star Gazer, decided it was time for a god to visit a Human world, and so shed much of its bulk and arranged to be carried off-world. Human-made boosters had to be used for this mammoth task, for, though having shed 85% of its bulk, Star Gazer still massed nearly 80 tons, and no Pentapod surface-to-orbit vessel could manage that. It ensconced itself aboard the transport **Pilk’pop’weaj** (translation “**Blue Skies**”) and, in 2307, set off for Beta Canum. Along the way, in the Ross 627 system, tragedy struck.

A Kafer deep-raider squadron, consisting of four small vessels, encountered the “**Blue Skies**” and its escort of six defensive Void Sharks. Despite the best efforts of the Sharks and their crews, **Blue Skies**, with its all-important passenger, was killed, along with all six defensives and most of their crews. Only a few survivors managed to return to Pentapod space, after the French patrol squadron centered on the cruiser **Colbert** found the battle scene several days after the attack.

Among the casualties of that day was Star Gazer, the first god to have died in over 600 years, and the first ever to have died by violence. The Pentapod race as a whole was plunged into shock. Different groups went in different directions, as dictated by the wishes of the gods themselves. Some returned to business-as-usual, though mourning the loss of

Star Gazer. Others mandated isolation for the race, and built ships to enforce it. Still others demanded that something be done, though there was a split over who should be the subject of that action; Humans or Kafers? Some blamed humanity for having brought the Kafers down on the Pentapod race, which others demanded that the “rogue” aliens, the killers of Star Gazer, be exterminated, like any other malfunctioning unit of society. However, the Pentapods decided that Kafers, being an alien intelligence, were too valuable to exterminate. Therefore, they needed to be brought under control, like a rogue construct. Those who pushed for action against humanity lost the discussion, though they still lurk in the darkness, perhaps hatching schemes against their race’s ally.

In 2309, the representatives of several Pentapod gods approached the French military government on Beta Canum with an offer: Give us test subjects, and we’ll give you a weapon to defeat the Kafers. With the prospect of having to invade Kafer space looming, the French agreed, and provided the Pentapods (and the Human scientists working with them), everything they needed up to and including live Kafers.

By 2311, it was ready, and so were the Human fleets. The Gamma Serpentis system had been conquered, though the planets themselves were not yet taken. The Pentapod Revenge was a virus, one that acted to block the production of the Kafer para-adrenal gland, which produced the chemical trigger needed by Kafers to stimulate their intelligence when threatened. The virus was designed to be virulent, and upon distribution, spread like wildfire through the cramped confines of the Kafer cities and Safe Places. The disease was largely kept secret from Earth and its populace, though some of the allied military intelligence agencies suspect the truth.

After the plague, the Kafers were just as violent, perhaps even more so, but simply weren’t competent in that violence. Technical skills were forgotten, tanks crews couldn’t fight their vehicles effectively, and starship crews were helpless. Human forces were able to land, and establish bases in abandoned Safe Places, while the hordes outside hurled themselves at the walls.

PENTAPOD ADVENTURES

Humans are just as much a mystery to Pentapods as Pentapods are to Humans. Pentapods are fascinated by the individuality evidenced by each Human. To them, this individuality puts Humans on a par with the Pentapod “gods,” but Humans are small and short-lived, and they behave like “bullets” in that they join together into organizations in which directives from above are carried out by those below. To Pentapods, then, Humans fill an indefinable niche somewhere between “god” and “bullet.”

Regardless of the ostensible purpose of any particular adventure, whenever Pentapods and Humans interact with

each other, each race will be attempting to better understand the other. The referee should let the players slowly discover the mystery of the Pentapods' culture, letting comments and questions that a Pentapod makes during the course of an adventure serve as clues about its mysterious nature.

TECHNOLOGY

Pentapod technology is almost wholly biologically-based, though are elements of mechanical and electronic technology in their society as well. The most notable of these is the stutterwarp drive itself, the "mechanical displacement organ." Starship weapons are likewise mechanical in nature, though in this case purchased from Humanity. Other items incorporate only small pieces of non-organic material, like the antennas on radios.

CHARACTER GENERATION

Pentapods Roll their stats normally, with the following modifications:

-4 Str, +2 Dex, +2 Int

Pentapods may only choose from Class skills. Cross-class skills are unavailable to all classes save the Traveller.

All Pentapods are Medium-sized

Pentapods move at 9 meters

Pentapods start with the Ambidextrous Feat.

Pentapods have one level in the Tough Feat

All Pentapods start with Swim at +10 ranks

All of this refers to the Human-relations Pentapods, of course. There are also any number of Pentapods that perform other functions, and the referee should adjust their statistics to make them fit their occupations.

Only the following classes are available: Academic, Professional, *Medic, Army, Navy, *Sailor, *Law Enforcement, *Engineer, Scout, *Diplomat, and Traveller. Prestige Classes are not available to Pentapods.

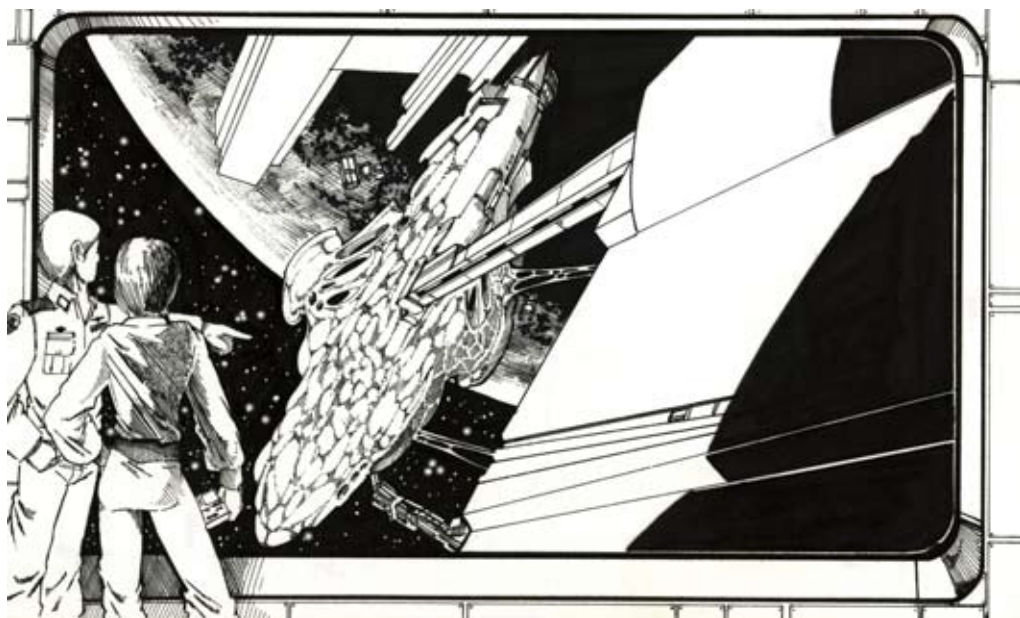
(*these Classes are from the T20 Guide Book).

The following Feats are not available to Pentapods: Armor Proficiency (All save Vac Suit), Combat Reflexes, Fleet Tactics, Great Fortitude, Heavy Metal, Improved Critical, Improved Initiative, Improved Two-weapon Fighting, Martial Training, Mounted Accuracy, Mounted Combat, Natural Born Leader, PSI Training, Ride-by Attack, Ship Tactics, Tolerance, Vessel/Grav, Weapon Focus, Weapon Specialization. Whenever one of these Feats is called for by a specific class, the Pentapod would substitute something appropriate from the Class Feats list.

Typical Pentapod NPCs

TECHNICIAN

Pentapod Technician	Professional 6	TL	12	ST	24	LB	11								
Grav	N	Core/Frontier	Core												
Str	8	Dex	14	Con	11	Int	15	Wis	10	Chr	10	Edu	12	Soc	-
Init	+2	AC	12	AR	0	Spd	9	Fort	+2	Ref	+4	Will	+6	SZ	S
Attacks	-3 (fist 1d3-1, unarmed)														
Feats	Professional Specialty (Biomechanics), Research, Trustworthy, First Aid, Credit Line, Barter, Gearhead (biotech only)														
Skills	Swim 8, T/Biomechanics 12, K/Genetics 10, Speak Language (French), Read/Write Language (French), Speak Language (English), Read Language (English), Survival 3, Liaison 5, Appraise 6, Drive 6, Leader 3, P/Administration 6, K/Biology 10, K/Genetics 10, K/Homeworld +6, K/Botany 9														
Equipment	Pentapod Biosampler, bioscanner, food maker														



THE SUNG

The Sung were the first sapient alien race to be discovered by Humans, and in many ways they bear the most similarities to Humans in culture and thought processes.

FIRST ENCOUNTER

Discovered by a Manchurian exploratory mission, the Sung were first encountered in 2247 in their home system. First contact occurred when the Manchurian expedition, investigating mysterious signals from the system's third planet, detected a Sung interplanetary craft. Assuming that the source of the signals, as well as the ship, was some unexpected Human expedition, the Manchurians attempted communication. The signals that returned were obviously non-Human, and the Manchurians panicked and fled from the system. They returned directly to Earth, with the news that there were technologically advanced aliens at the fringes of the Chinese Arm.

Another Manchurian expedition was quickly sent back out. This time, it consisted of a party of warships (in case the aliens proved hostile) carrying teams of exobiological, linguistic, and diplomatic experts. Remaining in the outer regions of the system (so as not to appear a threat to the Sung homeworld), the expedition was successful in initiating peaceful communications with the Sung. Progress continued until a Canadian group discovered the Xiang, another sapient race

native to the system, who appeared to be slaves of the Sung. When news of this reached Earth, an outcry was raised leading to the Slaver War.

But Sung interplanetary vessels were no match for Human stutterwarp warships. With very little loss of Sung lives, Human dominance was accepted under the system of **Sos-Soon-Atkacharr**.

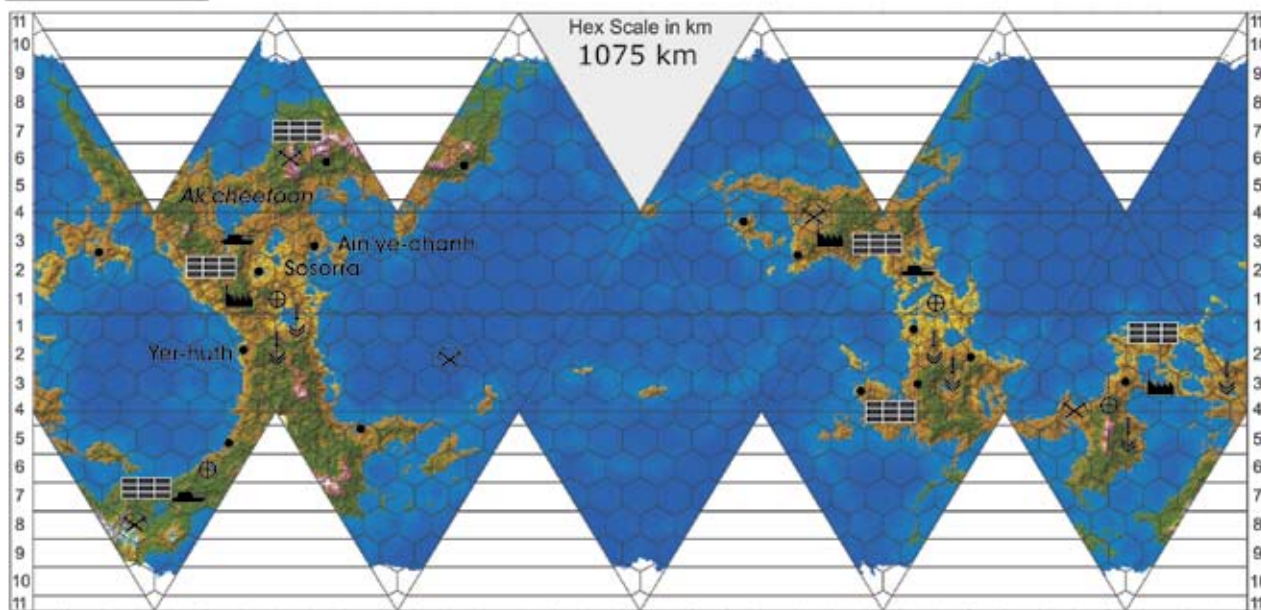
Sos-Soon-Atkacharr is one of the underlying principles of the Sung social order. Under this idea, more advanced societies are obligated to raise less-advanced cultures to their level. In return, however, the more-advanced society is entitled to payment for its efforts, in the form of labor, resources or both.

It was the system of Sos-Soon-Atkacharr that the Sung had used to justify their treatment of the Xiang. In Sung eyes, the Xiang were primitives, and they were expected to obey their Sung masters, in return for which they were given access to Sung knowledge. It did not matter to the Sung that the Xiang did not desire that knowledge, in fact, that was so much the better, as it meant that Sung business would continue into the distant future on Xiang labor. With the Human conquest, Humanity is now the dominant nation, and has a duty to raise the Sung nations up to its level. In Sung eyes, this largely means the secret of the stutterwarp.

Since the end of the Slaver War, relations between Sung and Humans have steadily improved into a system of fairly free cooperation. The only frictions still to be felt concern

192

Stark



Legend

- Major City
- ⊗ Mining
- ⌒ Fusion Plant
- ⊕ Spaceport
- ↓ Farming
- ▬ Solar Power Rectenna
- Catapult
- ⚡ Military Base
- 🏭 Heavy Industry

the reluctance on the part of Humans to share stutterwarp technology and other advanced information. To the Sung, this reluctance constitutes a violation of the system of Sos-Soon-Atkacharr, which states that the dominant state must share freely with its subordinates. And even though the Sung realize that Humans are alien, deeply ingrained cultural systems die very hard.

ALIENS AS PCs:

Doubtless, some player will want to play an alien. The following aliens species are suitable for use as NPCs: Sung, Eber, Ylii Alpha. The rest are just too alien, or just too limited.

THE SUNG HOME SYSTEM

STELLAR DATA

Primary Name: DM +4 123

Spectral Class: K2 V

Magnitude: 6.55

X, Y, Z Coordinates: 22.0, 4.4, 1.9

Number of Planets: 5 (Nivix'dal, Kag'rok, Stark (Vasshon), Haz'rok, Jitok)

Number of Asteroid Belts: 0

Notable Planets: The gas giant, Jitok, is a super-Jovian world roughly four times more massive than Jupiter, and puts out a great deal of heat from its own internal processes. The largest of its moons, Home of the Mother, is the homeworld of the Xiang race. This is in addition to the 27 assorted chunks of rock and ice orbiting this massive planet.

HOMEWORLD

Name: Vasshon (Stark)

Distance from Primary: 0.87 AU

Year Length: 251.5 days

Size: 10,990 km in diameter

Day Length: 27.61 hours

World Type: Garden

Surface Gravity: 0.93

Atmospheric Pressure: 1.01 atm

Climate: Temperate

Water Presence: 69%

Atmospheric Composition: N₂ (76%), O₂ (21 %), Trace (3%)

The Sung hail from Stark, the third world in orbit around DM+4 123. It is a world slightly smaller than Earth, and with a somewhat lighter gravity, though still in the range of "Normal."

PHYSICAL DESCRIPTION

So far, the Sung are the only sapient race yet discovered by Humankind that is capable of natural flight. When stand-

ing as straight as possible, the typical Sung has a height of approximately 120 centimeters, but as Sung posture is slightly stooped, they appear to be even shorter. Sung wings, located midway between a pair of forelimbs and a pair of back limbs, have a span of about five meters and taper down to the tips. Sung forelimbs are small and delicate, while the back limbs are strongly muscled and sturdy. All four limbs terminate in "hands" of sorts, each with two fingers and two opposable thumbs (arranged thumb-finger-finger-thumb). The forelimb hands are very dexterous, but are smaller and weaker than the backlimb hands. The backlimb hands are large and strong, enabling the Sung to carry bulky items while in flight. However, they are limited by the carrying capacity of their wings as to what they can carry.

The Sung head and tail are designed to aid in flying. The well-muscled tail has a fan-like stabilizer at the tip which can be retracted when the Sung is on the ground. A rigid crest, located on the top of the Sung skull, functions as a small "rudder." The Sung head has four eyes, one pair above the other, with the lower pair being the larger and more widely spaced. Sung ears, placed on each side of the head, are hemispherical and can flatten against the skull for flight.

Sung bodies are hairless, and their skin is soft and supple. They are omnivores, and they reproduce by means of eggs. A Sung female lays a single, large egg; each parent then periodically covers it with a viscous fluid their bodies produce. This fluid slowly hardens to form a new outer shell, while the inner shell dissolves away, nourishing and warming the developing embryo. In this way, Sung eggs grow in diameter as the embryo grows. Eventually, when the parents' secretions cease, the egg dissolves through, birthing a new Sung.

AKCHEEKTOON

Like Earth, Stark has dozens of nations, all of which are more or less equal in capabilities. The following data is for Akcheektoon, still the wealthiest of the nations, even after losing the war with the Humans.

Nation: Akcheektoon

Population: 784 million

Language: Chee'ton'ah

Life Expectancy: 98 years

Major City(s): Ain'ye-chanh (5.2 million), Sosorra (3.6 million), Yer-huth (2.6 million)

Currency: Gul

Government Type: Parliamentary Democracy, with Human oversight (5)

Law Level: Moderate. Personal concealable firearms prohibited (6)

Tech Level: High (12)

Trade Data: Ri, In

Interface Capability: Spaceplane, shuttle, catapult (B)

Resources: Farming, Mining, Heavy Industry, Orbital Industry

Military Presence: Orbital Defense Installation, Military Base, Naval Base

Services: Solar Power Satellite, University, Powernet, Road Net (100%), Rail Net (100%), Link Network (100%), Orbital Terminal, Civilian Shipyards, Military shipyards

Like any space-going society, the space around Stark is crowded with a wide variety of space stations, power satellites, workshacks and habitats. The largest of the habitats has a population of over 200000, and consists of the familiar gigantic, domed cylinder, though with six mirror panels instead of the Human norm of three.

SOCIETY

The hierarchal system of **Sos-Soon-Atkacharr** plays a crucial role in the structure of Sung society, which is organized into a system of nation-states. A state with technological or cultural dominance fills a leadership role in which it demands obedience from lesser states in its sphere of influence. The superior state, however, has an obligation to raise its subordinates to its level through educational and financial assistance. The pattern of ascendance to superiority proves to be cyclic in nature, with the superior status leap-frogging from one state to another as advances are made.

Technologically, the Sung are roughly comparable to Humans.

Typical Sung NPCs

Sung Soldier

The Sung Soldier is typical of the troops encountered in the various Sung nations. They are just as competent and capable as their Human counterparts.

Sung Soldier	Sung 1/Army 5		TL	12	ST	22	LB	14							
Grav	N	Core/Frontier		Core											
Str	12	Dex	15	Con	14	Int	12	Wis	11	Chr	10	Edu	11	Soc	12
Init	+7	AC	15	AR	2	Spd	9/27	Fort	+3	Ref	+6	Will	+1	SZ	
Attacks	+3														
Feats	Carousing, Improved Initiative, Brawling, Armor Proficiency (Light), Weapon Proficiency (Marksman), Weapon Proficiency (Combat Rifleman), Weapon Proficiency (Heavy Weapons), Spring attack, Vessel (hover)														
Skills	Drive 10, Gather Information 3, Spot 8, Survival 7, Gambling 2, Listen 6														
Equipment	Gyro Rifle, 4 hand grenades, light armor, low-light headset w/HUD for rifle, 2 combat knives														

Sung Ship Crew

The few Sung-crewed starships are always staffed by the most capable of their spacers, Many are ex-military, with all the skills that involves

Sung Ship Crew	Sung 1/Navy 2/ Merchant 4		TL	12	ST	17	LB	12							
Grav	N	Core/Frontier		Core											
Str	10	Dex	14	Con	12	Int	14	Wis	14	Chr	13	Edu	11	Soc	12
Init	+2	AC	12	AR	0	Spd	9/27	Fort		Ref	+6	Will		SZ	M
Attacks	+3 Spring Pistol (1d6/x2)(can be poisoned)														
Feats	Armor Proficiency (Light), Armor Proficiency (Vac Suit), Weapon Proficiency (Marksman), Barter, Calculating Eye, Connections (Merchants), Vessel (Starship), Carousing, Weapon Proficiency (Combat Rifleman), Connections (Sung space forces)														
Skills	Appraise 8, Gather Information 8, 6, Pilot 7, Bluff 6, Broker 9, K/Trade & Commerce Law 4, Trader 8, T/Mechanical 2, Gunnery 5														
Equipment	Portacom, phone, subdermacalc, armored vest, Vaxar spring pistol														

In some areas, such as medicine, they are more advanced; in others, such as star travel and power generation technology, they are at a lower level. At first contact, Sung had developed interplanetary ships equipped with both magnetic sails and ion drives.

Sung language has presented some problems to Human researchers, since Sung speech often extends into the ultrasonic ranges. As a result, the Sung usually resort to speaking Human languages (especially Mandarin Chinese and English). There are cybernetic implants available which will allow a person to imitate the speech range of the Sung.

GENERATING SUNG CHARACTERS

Sung characters are the closest to Humans in terms of culture and sociology, and the easiest to fit into a game, even as player characters.

Sung generate their statistics normally, with the following modifiers:

STR: -4, DEX: +2

All other stats are generated unmodified.

Sung do not use Body Type modifications

Sung Move at 6 meters on the ground, and 18 meters in the air

Alien Levels: Sung start play with 1 Alien level

Starting Skills and Feats: All Sung automatically have the Natural Compass Feat, and receive 1 Bonus Feat at 1st Level in addition to home world Feats.

THE XIANG

Of the known sapient races, the Xiang are the most technologically backward. But this masks the fact that a very high intelligence lurks within the Xiang's spidery form.

FIRST ENCOUNTER

There were a few Xiang in evidence on the Sung homeworld when Humans first arrived, but the Sung did not mention their intelligence, and without the evidence of technology or the knowledge of their ability to speak, Humans assumed that they were beasts of burden. When a Human research team finally reached the Xiang homeworld, however, Xiang art convinced them that the race possessed at least nominal intelligence. A few experimental contacts soon proved that the Xiang were as intelligent as Human beings, but with no desire for advanced technology.

The fact that the Sung had great strip mines on this beautiful moon, where they worked the nature-loving Xiang, soon led to an outcry of "slavery" among Humans. The Sung justified themselves by the system of Sos-Soon-Atkacharr, saying that it was only natural that the technologically primitive should serve the advanced. In return, they offered the Xiang the fullness of Sung knowledge. They did not see it as their fault that the Xiang did not desire that knowledge.

Humans disagreed with this view and the Slaver War was born, ending in the breaking of Sung power over the Xiang and the establishment of Human power over the Sung.

SYSTEM DATA

The Xiang inhabit the same system as the Sung, and further information on the system is provided in the Sung entry.

HOMEWORLD

The Xiang homeworld is a moon orbiting DM+4 123's fifth planet (a gas giant).

Name: Home of the Mother

Distance from Primary: 710,000 km

Year Length: N/A

Size: 9900 km in diameter

Day Length: 78 hours

World Type: Garden

Surface Gravity: 0.76 G

Atmospheric Pressure: 0.81 atm

Climate: Temperate

Water Presence: 71%

Atmospheric Composition: N₂ (79%), O₂ (19%), Ar (2%)

Biodiversity: Diverse

Physical Description

In structure, the Xiang are similar to Terran arthropods, particularly the crustaceans, although they are more like arachnids in appearance. But their world's lighter gravity has allowed them to attain a much larger size than their Terran counterparts. The Xiang body is covered by a tough carapace and consists mainly of a horizontal main portion that contains the internal organs and is supported by eight of the Xiang's ten segmented legs. At the rear, a small, segmented tail curls under; at the front, a head holds the mouth and primary sensory apparatus. The average Xiang stands about one meter tall and is one meter in length.

The Xiang head is dominated by two large, bulging eyes, one to either side of the head. Between them runs a line of four vestigial eyespots, surmounted by another, slightly larger pair. Just below the row of eyespots is the creature's mouth, externally a strong beak for cutting, surrounded by four tiny arms, each with a pair of digits for holding food.

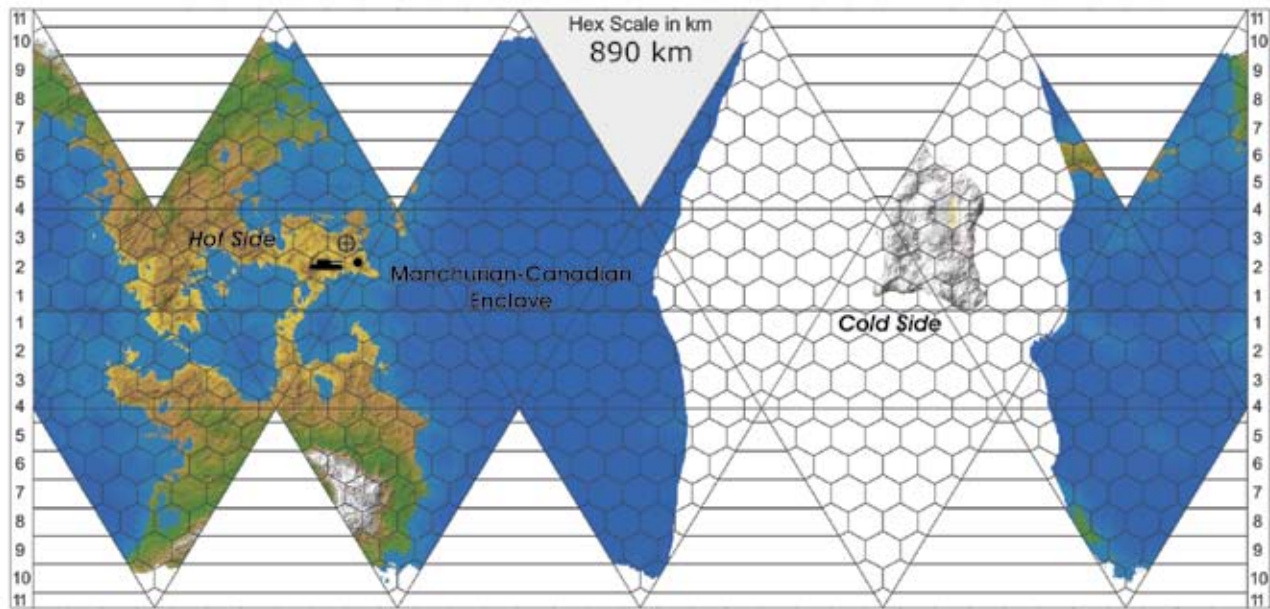
Xiang speech is produced in two ways. The primary means is by vocalization, but a pair of Xiang can also somehow transmit information privately by mouth-arm contact. Xiang hearing organs are four tympanic membranes located on the underside of the body, one pair just below the first, manipulative set of legs, and the second pair midway down the body.

The Xiang's 10 legs are divided into two parallel rows of five, one on each side of the body. All 10 legs have three joints each and four clawed digits. Between these digits is a leathery "palm," with which the Xiang can sense vibrations in the earth. The first pair of legs are more properly termed "arms," as they are used only for manipulation while the next four pairs are used for locomotion. The digits on the arms are more flexible than the others, with smaller claws and an opposable "thumb." As well, the palms are more sensitive.

The segmented tail on the Xiang serves for reproduction and for nurturing its symbiotic partner, the "dirt-mother." The dirt-mother is an immobile, disc-shaped plant about one and a half meters in diameter which serves as a nest-home through most of a Xiang's life. A tough, bark-like outer surface covers most of the dirt-mother, protecting it and the young Xiang it harbors from predators. Although the plant performs a type of photosynthesis, its thick covering prevents it from producing enough energy to sustain its vast bulk. It is, therefore, dependent upon nutritive secretions from its Xiang partner, who tends it as a gardener as well. The Xiang-dirt-mother partnership is the only one of its kind on the Xiang homeworld, and is the subject of intense study by many biologists.

Each Xiang goes through four basic stages of life in this order: (1) egg; (2) young; (3) adult female; and (4) adult male. During the first stage, the dirt-mother serves as a protective, insulating receptacle for the egg. Typically, a dirt-mother

Motherhome



Legend

- Major City
- ⊕ Spaceport
- Catapult

- ⚡ Mining
- ↓ Farming
- 🏠 Military Base

- ⚡ Fusion Plant
- ☀️ Solar Power Rectenna
- 🏭 Heavy Industry

196

holds three to six eggs, the clutch of the adult female that tends it. When the eggs hatch, the young Xiang work their way to the outer surface of the dirt-mother, but along the way, they swallow enough of the plant's fluids to develop a chemical dependency which lasts until the adult male stage of life.

While the Xiang are young, the dirt-mother provides a home for them, without which they would otherwise fall prey to larger animals. During this life-stage, the adult female is also present to care for and educate the young Xiang. During this time, the increased nutritive secretions produced by the combination of the adult female and the young Xiang's efforts stimulates the dirt-mother to bud-a long, slow process. By the end of this time, the adult female has metamorphosed into an adult male, the buds have consumed most of the dirt-mother, leaving only a hollow shell, and the young Xiang have reached adult female-stage, ready to take a bud, find a planting spot, and lay a clutch of their own eggs.

The adult male usually only fertilizes one clutch of eggs before becoming sterile, but it may fertilize as many as three or four. Free from the chemical dependency upon the dirt-mother, and no longer necessary for the care of the young, the Xiang finds itself free to wander and explore.

Society

The symbiosis between Xiang and dirt-mother has led the Xiang to have consuming concern for the balance of na-

ture. Being the largest predators on their Eden-like planet, the Xiang have no need to construct weapons. Their stimulus to intelligence has been the need to find sufficient food while remaining in a fixed geographical location. The Xiang are not terribly fast creatures; instead, they have used their intelligence to become consummate trappers.

The Xiang also evidence a great love for artistic expression. This and their trap-building skills combine in the creation of beautiful sculptures with which they decorate their surroundings. Xiang also show a love for storytelling and music, the latter produced both by their bodies and by a few simple instruments they construct.

XIANG ADVENTURES

Humans are not sure as of yet just how to deal with the Xiang. Although Xiang do not use advanced technology themselves, they do seem to understand what Human and Sung sciences they are taught. Their sheer strangeness makes communication of more abstract thought very difficult, but their art and music hints at a sophistication in that area as well. Unfortunately, Xiang tend to provoke strong reactions in some Humans, due to their very alien and spider-like appearance.

The referee should play Xiang NPCs as great enigmas. The players might encounter them on Human vessels (very rarely), on the Sung homeworld (a bit more likely), or the players might travel to the Xiang homeworld for research.

Xiang they encounter will show great curiosity, but translation of speech between the races will tend to be garbled.

XIANG CHARACTER GENERATION

-4 Str +3 Dex, +2 Int

Xiang are Medium-sized

Xiang move at 12 meters

All Xiang begin with the Spring Attack Feat, the Stealthy Feat, and the Trapping Feat, which reflect the way they hunt their prey.

Xiang can see four times as far as a Human in dim or low-light condition, and can sense thermal emissions at Medium range.

All Xiang have the Low-Gravity Adaptation Feat

All Xiang gain a +2 to their rolls for climbing

All Xiang possess a powerful bite from their front pincers

(1d4/x2)

Xiang cannot swim

Xiang have a very low-technology society. The environment of their moon is clement enough that they felt no drive to invent tools more complicated than stone, though their work is beautiful. The Xiang are both intelligent and curious, however, and older, sterile males often travel off-planet with other races in order to learn more about the universe beyond their homeworld.

Education and Charisma present problems in rating a Xiang. For purposes of skill resolution generate these stats as normal. However, when it comes to interactions with other races, the Xiang cannot be rated. Their thought processes are so alien as to be almost incomprehensible. Despite advances in the computer translation software used, there are still wide gulfs in Human knowledge of the Xiang.

Typical Xiang NPCs

Male (WANDERER)

Xiang Wanderer		Barbarian 6		TL	0		ST	42	LB	12					
Grav	L			Core/Frontier		Frontier									
Str	8	Dex	15	Con	12	Int	14	Wis	14	Cha	12	Edu	10	Soc	12
Init	+2	AC	12	AR	0	Spd	12m	Fort	8	Ref	4	Will	6	SZ	M
Attacks	+5/+0 (stone knife 1d6-1) +6/+1 Bite (1d4/x2)														
Feats	Low-Gravity Adaptation, Spring Attack, Stealthy, Trapping, Technophobia, Animal Whisperer, Dodge, Endurance														
Skills	Animal Empathy 3, Craft 11, Intuit Direction 10, Spot 8, Climb 4, Move Silently 4														
Equipment	A few extremely decorative stone knives, small wood statuette														

THE YLII

A potential ally in the conflict against the Kafers, the Ylii are one of the more unusual races encountered by Humanity. Rather than a single species, the Ylii are a grouping of several different, but related, intelligent species.

FIRST CONTACT

Humanity's first hint of the existence of the Ylii was the discovery of non-Kafer artifacts in the wreckage of a Kafer warship. These artifacts were obviously of a completely different design and configuration to Kafer equipment, and some of it were articles of clothing that were sized for a creature considerably smaller than a Kafer.

However, it wasn't until an American expedition involving both a brown dwarf and a stutterwarp tug route (see Chapter 7 Alien Space) that contact was made with the beleaguered Ylii worlds, beset by Kafers. Human intervention helped stem an invasion of the Ylii homeworld, and the two races have been talking, and then cooperating, ever since.

HOME SYSTEM

STELLAR DATA

Primary Name: SS -27 6854

Spectral Class: K6 V

Magnitude: 8.3

X, Y, Z Coordinates: 8.8, -47.7, -11.7

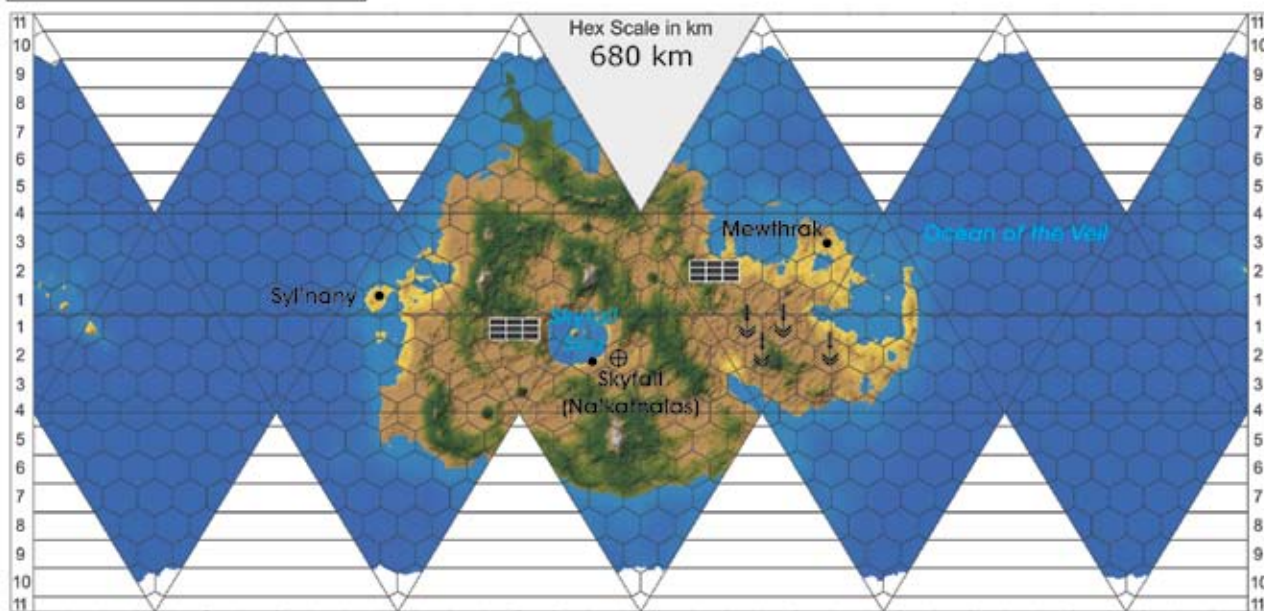
Number of Planets: 5

Number of Asteroid Belts: 0

The Ylii home system has an incredible amount of space-based infrastructure. Solar power stations, factories, observatories and habitats crowd orbital space, with mining and processing facilities scattered throughout the system.

Six massive habitats occupy the leading and trailing Lagrange points of the Ylii homeworld and its largest moon, while several cities dot the airless expanses of the three satellites. There is a great deal of development in the rest of the system as well.

Ssuushni'a



Legend

● Major City	⚡ Mining	⌚ Fusion Plant
⊕ Spaceport	↓ Farming	☰ Solar Power Rectenna
→ Catapult	🏰 Military Base	🏭 Heavy Industry

198

HOMEWORLD

PLANET DATA

- Name:** Ssuushni'a
- Distance from Primary:** 0.256 AU
- Year Length:** 455 days
- Size:** 7,570 km in diameter
- Day Length:** 29.1 hours
- World Type:** Garden
- Surface Gravity:** 0.58 G
- Atmospheric Pressure:** 1.32 atm
- Climate:** Temperate
- Water Presence:** 74%
- Atmospheric Composition:** N₂ (78%), O₂ (19%), Ar (2%)
- Biodiversity:** Abundant
- Natural Resources:** 6
- Number of Satellites:** 3

The Y'lii prefer that their homeworld remain in an unspoiled state, and build their communities around and within terrain features, rather than over and through. Y'lii communities are difficult to spot from the air, and almost impossible from space.

SOCIETY

World Population: 1.2 billion

Date Founded: unknown

Nationality: Y'lii

Life Expectancy: 86 years (Alphas)

Literacy: 100%

College Education: N/A%

Major City(s): Syl'nany (7.4 million), Na'kathalas (5.8 million)

Currency: N/A

Government Type: Charismatic Oligarchy (C)

Law Level: Low. All weapons prohibited, however.

Tech Level: High (12)

Trade Data: Ri, Hi

Principal Trading Partners: Colonies

Interface Capability: Beanstalk (A)

Resources: Farming, Mining, Heavy Industry, Orbital Industry

Military Presence: None Native

Services: Link Network (100%), Rectenna, Airship Net, Maglev Net (90%), Weather Satellites, Communications Satellites, Orbital Terminal, Civilian Shipyard, Military Shipyard

PHYSICAL DESCRIPTION

The Y'lii are homeothermic, oxygen-breathing humanoids that evolved in an environment of diffuse, low-frequency light. They are polytaxic, which means that their "race" isn't a race at all, but rather an amalgamation of intelligent beings belonging the same family of creatures. To use a terrestrial

example, the Y'Lii "race" would be equivalent to the entire family of apes (including Humans) operating as a single, integrated society.

The Ylii are divided into 33 species spread across 7 genera. Despite this, they all display certain common characteristics.

They are all upright bipeds, although some can adopt a rolling four-limbed gait. They have four-fingered hands and feet, with two fingers of each appendage being opposable thumbs. Almost all species are equally dexterous with their feet as they are with their hands. Furthermore, they are poly-dexterous, meaning that they do not evince a right/left coordination bias in either their feet or hands.

The Ylii brain is located in the center of the upper torso, protected by a bony covering. Their somewhat small heads are primarily for housing for their two large, sensitive eyes. These eyes function best in lower-light condition, and can see into the middle infrared spectrum. Other sensory organs on the head include two small ears and two tufts of pressure-sensitive whiskers. These whiskers are instrumental in maintaining balance and assessing air pressure.

Sharing the torso with the brain are four-lobed lungs that overlay the brain case, along with a six-chambered heart located in the upper abdomen below the brain-case. The Ylii breathe through four slits on the upper torso, which also serve as their vocal apparatus. Their speech consists of wheezing/whistling phonemes with a muted nasal quality, which has often been likened to French. Without palate, dental structures, or larynx, the tonal variations of Ylii language are much subtler, since fewer phonetic options are available. Also in the abdomen is found their complex mouth structure, which inverts and folds out of the way when not in use. Humans tend to not react well to the sight of an Ylii eating.

All Ylii are covered with a smooth silky fur, although color, length, and texture vary according to genera. With the exception of only 1 of the 33 species, Ylii are herbivores. The diet of this last is rather specialized as it is a carrion eater, and responsible for taking care of the dead in Ylii society.

THE GENERA AND SPECIES

The Ylii are divided into seven genera --Alphas, Betas, Gammas, Deltas, Epsilons, Iotas, and Zetas. Within these seven genera, there are 33 separate species. Each of the seven genera classifications is also the classification for the dominant (by percentage) species within that genus. Generally speaking, each genera is distinguished not just by physical characteristics, but also by the role they play in society. The various species perform more specialized variation of this role. It is important to keep in mind that the Ylii are a very alien race, and though some of their behavior may seem analogous to Human activities, all too often that is more of a coincidence than anything else.

Alphas: Ylii of the Alpha genus are the most 'adventurous' of the Ylii and are the most likely to be encountered off-world or as interspecies liaisons. They are curious, hardy, and have a strong, aggressive will to survive. Alphas have traditionally served as the Ylii's explorers and first-wave colonists. In prehistoric times, they had a role as defenders of the troop as well.

All species of the Alpha genus are fairly large (for Ylii), averaging 1.5 meters in height. With the exception of the palms of hands and feet, they are covered with glossy brown or brown-grey fur. Most Human-Ylii contact is with the Alphas.

Betas: The Beta genus might well be called the Ylii technicians. They tend to follow quickly in the wake of Alpha explorations, their inquisitive natures drawing them to the new and puzzling challenges presented by novel environments. While they are skillful technicians, they are also extremely placid and socially malleable. They quickly adapt to --and adopt-- any social order in which they find themselves. However, their fixation on technical issues appears to degrade their overall intelligence. In fact, they are not so much 'slower-witted' as they are just plain uninterested in (and therefore, ignorant of) other things. The artifacts recovered from Kafer vessels were built by and for Betas, many of whom serve on Kafer vessels as slave-technicians.

The Beta genus are small for Ylii, standing about a meter in height. They are covered with short brown fur that is quite sparse on their heads, hands, and feet. Exposed skin is red-brown to rust-colored and somewhat wrinkled.

Gammas: The Gamma genus might be called the workers of the Ylii culture. They provide the strong backs and hands that do whatever heavy labor remains to be done by Ylii. They are simple-minded and docile, and are less sensitive to environmental differences than other Ylii. Consequently, they are frequently found in the Ylii industrial sites that dot Ssuushni'a's deserts, moons, and orbital stations. In prehistoric times, they shared with Alphas the responsibility for the defense of the troop.

The Gamma genera are the largest of the Ylii, averaging 1.8 meters in height and 80 kilograms in weight. They are sturdily built and quite strong for their size. Their fur is short, thick, and either black or charcoal grey. Their hands and feet are hairless and black-skinned.

Deltas: The Delta genus are the most intelligent --and elusive-- of all the Ylii. The great majority of them are teachers, a term which includes authors, reporter/ observers, and any other task that focuses on the transmission of knowledge. Deltas are non-aggressive, but are highly individualistic. Humans would think of them as "sensitive, yet stubborn." A delta that is forced into an environment or role that it does not approve of will quickly weaken and die. This is their in-born way of "fighting back;" a physiologically-activated met-

abolic change that effectively let the Delta commit suicide.

The Deltas are the leaders of Ylii groups, though they are not hands-on types, and prefer to leave the implementation of their plans to others. Although the Deltas tend to make excellent and thoroughly-considered decisions, they do not do so rapidly. To a Delta, insistence upon a quick decision would be like telling a Human that fish should have legs; it is an oxymoron. The only important thing to a Delta is that their decision is (in all ways) responsible and ecologically holistic.

Delta's stand about 1.4 meters tall and are almost completely hairless, except for scattered tufts on their torsos, forearms, and a sparse covering across their backs. Their skin is dark grey to black and is quite wrinkled. They are extremely sensitive to light (even for Ylii) and still follow an almost completely nocturnal existence.

Epsilons: The Epsilon genus are the most gregarious of the Ylii genera, with the dominant species of this genus being akin to civil servants. The Ylii word for this group translates roughly as "communals" and certainly conveys more of the diffuse and broad nature of their role in this society. They are the noisiest of Ylii, tending towards hyperactivity when they are excited or upset. Some Human visitors have likened them to a troops of chimps when they get excited.

The Epsilons are to the Ylii community what the Gammas are to Ylii industry; they are the hands that get the work done. But beyond this, there is a predisposition in the Epsilons toward social amalgamation; in some strange way, they are the glue that holds the Ylii together as a unified society. There is no 'logic' behind this, nor is it simply explicable as an adaptation that ensures enhanced survival due to their specialized contribution to the welfare of the other genera. Rather, the activities and interaction of the Epsilons seem to be a behavioral cue to the rest of the Ylii to remain tightly integrated and socialized. They make the logical structure of the polytaxic society "feel right" to its various, diverse members.

The Epsilon genus averages 1.2 meters in height and frequently adopts a four-limbed lope when moving on the ground. Except for their hands and feet, they are covered with light grey to snow white fur. The fur around the eyes is jet black, giving them a 'masked' appearance. Their skin is also black. They are the most numerous of all Ylii genera.

Iota: The Iota genus are the Ylii answer to the professional builder. The dominant species of this genus has an innate fondness for structures, whether of stone, steel, or composite laminates. Like the Betas, they're a little bit detached from the rest of society. However, they are not as socially malleable as the Betas, and have a strong self-preservation instinct.

The Iota genus stands about 1.3 meters tall and (except for the hands and feet) is covered with an almost blue-grey fur. The skin of the Iota is tannish-grey.

Zeta: The Zeta genus are essentially the agrarian equivalent of the Gamma. These smallish Ylii are fairly docile and simple-minded, although the dominant species of this genus has a thorough understanding of farming and horticulture. This genus is interfertile with the Epsilon genus, but offspring are sterile Zetas. Of all the genera, the Zetas are probably the least curious, evincing a strong desire to live and die in the same vicinity where they are born.

Zetas range between 0.8-1.1 meters in height and are covered with tan-brown fur (except for their hands and feet). The arboreal gatherers have the largest ears of any of the Ylii, as well as the most developed balance sensors. However, their eyes are the smallest of any Ylii, giving them an almost tarsier-like appearance.

Evolution AND History

The Ylii evolved their unique polytaxic society as a response to changing environmental conditions on their home-world. Their intelligence is largely a result of the stresses involved to making a polytaxic society work, and they were very slow in their technological advancement.

During their long climb up the technological ladder, the Ylii eventually made it out into space, and then to other solar systems. They first ventured out of their system in stutterwarp vessels nearly 100,000 years ago. They eventually encountered the Kafers, and this encounter engendered the biggest crisis the race had ever seen. The sheer violence and seemingly wanton destructiveness of the Kafers abrogated almost all conceptions the Ylii had of how organisms should behave with respect to their environment. The question of what to do about the Kafers tore Ylii society asunder.

The Alphas, once the defensive members of the troops, immediately saw the threat the Kafers would pose if they ever managed to leave their home world. As unlikely a possibility as that seemed, the Alphas maintained that the Ylii had to do something to contain the Kafers.

The Deltas, however, countered that the Kafers had a role to play in the universe as well. That it was not the place of the Ylii to decide that place, but for the Kafers to discover. The advocated leaving the Kafers alone, to develop as they should.

The resultant stresses on Ylii society, as individuals took up sides, came to head, and war soon broke out between the two factions. The Ylii had never experienced war, and had no concept of how to limit it. The war was fought with everything from police weapons to anti-matter bombs, and was over within a few weeks.

Ylii society was shattered by the war, but the faction headed by the Deltas managed a narrow victory. As their civilization crumbled, the Deltas took steps to edit out the aggressiveness from the Alpha and Gamma gene lines, and tried to hold society together. They failed, and society crashed

back to the Stone Age.

The Ylii eventually managed to rebuild their society, and to reclaim space, but the knowledge of what they gone through was lost. It was only about 500 years ago that the Ylii managed to regain space travel.

The "modern" Ylii resumed interstellar space travel only 900 years ago. 300 years ago, they encountered the Kafers, and since then the Ylii have been brutally swept aside or

Ruins:

The ruins of ancient Ylii colonies in Human space can be found in Ross 863 I, DM +5 3409 I, Ross 867, DM +3 3465, and DK +17 4521.

taken as slaves by these savage neighbors. Now, only three systems still remain under Ylii control; SS -27 6854 (site of the Ylii homeworld, Ssuushni'a), DK -33 1023, and DK +32 2390. The Human occupation of the Kafer home world bought the Ylii a little bit of time, for with the devastation of their most populous planet, and the loss of several Suzerains in the war with Humanity, Kafer space has been plunged into turmoil and internecine fighting.

PSYCHOLOGY, PHILOSOPHY, AND INTER-ACTION WITH HUMANS

Ylii are very conservative by Human standards. Though they are quite advanced in many areas, it has taken them far longer to reach that level than Humans will. They are naturally cautious, with a mild temperament and have a tendency to embrace the logical and orthodox.

This conservative attitude is the basis of the Ylii approach to health and medicine, which seems to Humans to be rather cold and ruthlessly pragmatic. Ylii treat injuries and disease, but, despite having the capability, do nothing for congenital and genetic disorders, save make them comfortable. This attitude is rooted in Ylii orthodoxy, which stresses that all creatures have a role to play, and that all must act according to that role. If your role is to have cancer and die, then in Ylii society, you will fulfill that role.

This pragmatism carries over to the social sphere, where the Ylii make similar decisions regarding the role of individuals within society. Some species are, quite simply, more important, more valuable to the society as a whole, and if necessary the less important will be sacrificed for the more important.

This almost cold-blooded pragmatism strikes Humans as very odd, possibly even wrong. But to the Ylii this system is as natural as the instinct of self-preservation in Humans. No Ylii is forced to participate in this system. This is how their society works. Ylii revere each individual, much the same way we are grateful to each cell in our body, but this does not alter the social knowledge that certain Ylii are more expendable than others. Human society wages a tug of war between the ideal of 'perfect equality' and the logistical reality of differing

degrees of expendability (usually based on abilities and attributes). The Ylii feel no such dilemma; their polytaxic social order makes such considerations moot. Expendability alters as the environment changes; new challenges define new needs. And right now, the Kafer challenge means that the Ylii need Human allies.

The American-Australian Volunteer Force was organized to make available experienced Human combat veterans to the Ylii, without arousing the ire of the citizens of the Core, who may have despaired at the idea of entering into another war against the Kafers. Currently, however, the Ylii are concerned primarily with fending off the odd raider, as the remaining Kafer suzerains are too heavily involved in the Kafer Sphere's internal power struggle to worry about the Ylii for now.

Because of this, certain elements in the Alphas are pushing for Ylii-Human action to start retaking worlds lost to the Kafers. Most members of the AAVF view this as insanity, but the Alphas feel that they can establish space superiority against the Kafer forces, and use orbital bombardment to reduce the Kafer ground troops to a manageable level. AAVF officers are appalled at the casualties this plan would cause to Ylii civilian populations on these worlds, but to the Ylii planners this is irrelevant. They are much more interested in establishing a buffer against the inevitable Kafer push, which they feel will come as soon as the Kafers recover from the civil war they been waging for the past 8 years.

CHARACTER GENERATION

Of all the Ylii genera, only the Alphas are very suitable as an adventuring class. Some information is provided for the other genera, but only for the purpose of creating NPCs.

Classes for the Ylii are limited by their genera. Certain occupations are only available to certain genera, and not to others. Any occupation not listed is not available, including all military classes. The few military pilots the Ylii have are either Professionals, Law Enforcement, or Scouts.

Class	Alpha	Beta	Gamma	Delta	Epsilon	Iota	Zeta
Academic	y	n	n	y	y	y	n
Athlete	y	n	y	n	y	n	y
Belter	y	y	y	n	y	y	n
Diplomat	y	n	n	n	n	n	n
Engineer	n	y	n	y	n	y	n
Entertainer	y	n	n	n	y	n	n
Law Enforcement	y	n	n	y	y	n	n
Medic	y	n	n	y	y	n	n
Merchant	y	n	n	n	y	n	n
Professional	y	y	y	y	y	y	y
Scout	y	n	n	n	n	n	n
Traveller	Y	y	n	n	n	n	N

Ylii Racial Traits

Statistic	Alpha	Beta	Gamma	Delta	Epsilon	Iota	Zeta
Strength	-2	-8	+2	-4	-4	-5	-6

Dexterity	+2	+8	+2	+4	+4	+4	+8
Constitution	-	-4	+2	-6	-2	-1	-6
Intelligence	-	-	-4	+2	-1	-2	-2
Wisdom	-	-2	-4	+2	-3	-	-2
Charisma	-	-4	-6	+4	-	-1	-1
Education	+2	+4	-2	+2	-	+2	-2
Social Standing	-2	-2	-4	+4	+2	-2	-4

As can be seen from the above chart, none of the other Genera are particularly well-suited to PC use.

Ylii base speed is 12 meters

Medium-sized: Ylii receive no special bonuses or pen-

Typical Ylii NPCs

Alpha Scout

The Alpha genus of the Ylii is the one most likely to interact with Humans on a constant basis. Indeed, in terms of personality, many Alphas have more in common with Humans than with members of the other Ylii genera, and often come to identify with them.

Ylii Alpha		Ylii 1/Scout	9	TL	12	ST	56	LB	12						
Grav	N			Core/Frontier	Core		Body	N							
Str	9	Dex	15	Con	12	Int	14	Wis	14	Chr	12	Edu	14	Soc	9
Init	+2	AC	12	AR	0	Spd	12m	Fort	+7	Ref	+2	Will	+4	SZ	M
Attacks	+5/0 fist (1d3-1/x2), +8/+3 neural disrupter (special)														
Feats	Lightning Reflexes, Armor Proficiency (Vac Suit), Weapon Proficiency (Marksman), Armor Proficiency (Light), Jack-of-All-Trades, Obscure Knowledge, Vessel (Aircraft), Vessel (Ground), Contact Specialist, Negotiator														
Skills	Gather Information 13, Pilot 10, Leader 5, Survival 8, Driving 8, Liaison 9, T/Electronics 8, Spot 10, P/Administration 10, Listen 6, Navigation 6														
Equipment	Ylii portacomp with translation software. Neural disrupter pistol														

BETA TECHNICIAN

Betas are natural technicians, and care for little else save their machines. They are very good at what they do because of that obsessive single-mindedness.

Beta Technician		Ylii 3/ Professional	7	TL	12	ST	35	LB	7						
Grav	N			Core/Frontier	Core		Body	N							
Str	4	Dex	19	Con	7	Int	14	Wis	9	Cha	7	Edu	15	Soc	9
Init	+4	AC	14	AR	0	Spd	12m	Fort	+1	Ref	+7	Will	+6	SZ	M
Attacks	-1 Fist (1d3-3/x2)														
Feats	Miracle Worker, Gearhead, Professional Specialty (T/Electronics), Trustworthy, Hacker, Research, EW Specialist														
Skills	T/Electronics 14, T/Computer 14, T/Mechanical 14, Craft 11 (Sculpture), T/Sensors 14, T/Communications 14, Drive 10, Listen 6, Spot 6														
Equipment	Ylii toolkits (mechanical, electronic), Ylii portacomp														

alties due to their size.

Ylii receive 1 extra Feat at first level

All Ylii Alphas have the Feat of Lightning Reflexes

Alien Level: All Alphas start with 1 Alien Level

Alien Level: All Betas start with 3 Alien Levels

Low-light vision: Ylii Alphas and Betas can see twice as far as Humans in starlight, moonlight or other low-light conditions.

Ylii can multiclass freely into any allowed class.

OTHER ALIENS

There are four other alien races that require comment.

THE AQUILANS

A technologically advanced race, the Aquilans vanished only recently from the interstellar scene. Examination of their artifacts and space stations reveals that they disappeared about 350 years ago.

FIRST CONTACT

No one has made contact with a live Aquilan, but their machines, artifacts and traps have been encountered by many Humans as they explore the Beta Aquilae cluster. The first AECA vessel to enter Aquilan space came across a large space station, almost the size of an orbital habitat, and sent in a small crew in to explore. Only one made it out alive, and her description of the vast, empty station, still operating, with small worker robots skittering about made headlines all over Human space. As did her continued story of the sudden, violent robotic ambush. Four of the seven in the party were killed instantly, and another two died in the journey back to their shuttle.

HOME WORLD

The Aquilans seem to be from the Delta Aquilae A+B system, deep in the Beta Aquilae cluster.

STELLAR DATA

Primary Name: Delta Aquilae A

Spectral Class: F0 IV

Magnitude: 2.6

X, Y, Z Coordinates: 16.4, -43.5, 2.4

Number of Planets: 8

Number of Asteroid Belts: 2

Delta Aquilae A is a sub-giant star about two-and-a-half times as massive as Sol. Within its extensive system of planets is the Aquilan homeworld, along with five gas giants and an assortment of rock balls. The companion star, Delta Aquilae B, orbits at an extreme distance, and is little more than a bright star in the skies of the Aquilan homeworld. As a sub-giant, Delta Aquilae A has already started to cool and expand, endangering the nearer worlds.

PLANET DATA

Name: Delta Aquilae A IV

Distance from Primary: 1.7 AU

Year Length: 712.38 days

Size: 15,692 km in diameter

Day Length: 28.6 standard hours

World Type: Garden

Surface Gravity: 0.99 G

Atmospheric Pressure: 1.01 atm

Average Temperature: 25° C

Water Presence: 79%

Atmospheric Composition: N₂ (72%), O₂ (19%), Trace (7%)

Biodiversity: Active (no animal life)

Natural Resources: 5

The planet is very close to Earth in many respects. However, there appears to be no animal life on any of its 6 continents and various small islands. There are hundreds of cities and many examples of massive architecture, including 6 surface-to-orbit towers and an artificial ring at geosynchronous orbit. The world is very warm, and will get warmer as the primary expands. Some have advanced the instability of the star as the reason for the Aquilan's disappearance, but that doesn't explain the abandoned facilities on and over other worlds, nor the multitude of traps and lethal surprises scattered about their facilities.

PHYSICAL DESCRIPTION

The Aquilans didn't leave behind any images or descriptions of themselves, but from examining their equipment, ships and tools, a few facts can be deduced:

They were taller, and longer, than Humans, about 2 meters tall and 2-3 long

They had hands with 4 fingers and 2 thumbs

Their heads were elongated, with a pointed snout.

SOCIAL STRUCTURE

The social structure of Aquilan society is unknown, but a few generalizations can be made.

They seemed to be very paranoid. All of their structures have multiple levels of security with thick walls and armored doors. There are traps everywhere, from simple mechanical traps to sophisticated robotic ambushes using high-technology weapons. The space around their worlds is likewise littered with traps, alien versions of the Sentinel mine, automated laser batteries, and other assorted tricks.

For some reason, 350 years ago they all either died or moved away. Reconnaissance of their home system has revealed no sign that they are still around, but the mechanized traps and automated defense systems still abound.

BETA AQUILA SPACE

The Beta Aquilae Cluster is described in its own section under Alien Space.

THE MEDUSAE AND THE ENEMY

Very little is known about these two races, save that they were involved a wide-ranging war that happened many millennia in the past. A few scattered relics of both cultures have

been found in Human space, but there is very little to go on. The basis of the Medusa's technology appears to have been advanced biological engineering, similar to the Pentapods, but more sophisticated, while the Enemy appeared to use more conventional, though again very advanced, technology.

FIRST CONTACT

There have been no recorded cases of contact between either of these races and Humanity. The closest to an actual encounter occurred in the Nyotekundu system in the early 2300s. A Human crew-member of a mining vessel was somehow the subject of a memory transfer from a Medusa biological artifact. He attempted to steal the mining station and modify it into a slower-than-light interstellar vessel, using the station's magnetic accelerator as a Bussard ram-scoop. The plan was unsuccessful, and French authorities were able to take the man into custody and treat the psychosis that resulted from his interaction with the Medusan artifact.

HOMEWORLD

The homeworlds of both of these races are unknown, but are thought to be closer in towards the Galactic core.

PHYSICAL DESCRIPTION

From the mummified remains of the one Medusa corpse recovered, they were small creatures resembling an extremely large flea, and were well-adapted for low-gee/zero-gee life. Their limbs were small and fragile, but very flexible and dexterous. Almost nothing is known about the Enemy's physical structure, however. From the few artifacts found, they were about the same size as Humans, but bulkier, and with more limbs. There is some speculation that they were carnivores, from the nature of some of the artifacts found.

MEDUSA AND ENEMY ARTIFACTS

Throughout Human space, there have been only five medusa artifacts uncovered, and only three of the Enemy. The Medusan artifacts included the aforementioned personality recorder/transfer device, some sort of weapon, luckily non-functional, a couple of unidentified objects, and an ancient, and very dead, starship. The starship used a stutter-warp, but of a markedly different design. Unfortunately, it appears the that drive section was completely destroyed in some long-ago battle. The Enemy artifacts were uncovered from a pyramid in the oceans of Aurore, and consisted solely of a long sword-like knife made of a deep, blue-gray metal with some unusual properties, a helmet decorated to resemble some fantastic beast, and a withered slab of preserved organic material, later identified as resembling the tissue sample from the Nyotekundu Medusan. The pyramid itself was constructed of heavily-pitted native stone over some sort

of ceramic material. Investigation of the pyramid has given Humanity all the information it possesses about the race the Medusa called the enemy.

THE AGRA INTELLIGENCE

What little is known about the AGRA intelligence gives most scientists, not to mention politicians, nightmares.

FIRST ENCOUNTER

The AGRA intelligence was first contacted by the Bayern in 2307 on its historic visit to the Pleiades. At the time of contact, AGRA was in the process of reordering the stars of the Pleiades cluster, and linking them in some sort of unfathomable construction project.

The AGRA entity, or entities (numbers are unknown) appears to be a higher-order life form, existing across 5 or more dimensions, in contrast to the three experienced by Humanity. Close encounters with the intelligence did not provide much more information, and one of the pilots involved in the contact attempt was driven mad by the experience. There were other side-effects of the encounter, from sudden philosophical insights to one unfortunate individual being "mirrored," with everything in his body being reversed left for right, including the handedness of the molecules in his body. He is unable to make use of normal foods and vitamins, and must rely on expensive, synthesized substitutes.

HOMEWORLD

The homeworld of the AGRA intelligence is unknown, and is likely not even in this dimension. Some scientists have theorized that AGRA was a conventional three-dimensional intelligence until it somehow managed to transcend to a different mode of being.

PHYSICAL DESCRIPTION

The one close encounter with the AGRA entity resulted in a bizarre description. From what the viewer could determine, the AGRA entity manifests itself in our three-dimensional universe as a shifting collection of multi-sided geometric shapes. This amorphous collection of shapes gave no real clue into the true nature of the creature (or creatures).

AGRA ADVENTURES

Several Human militaries have established pickets in the Little Guy system and just beyond, in order to prevent Human vessels from approaching the Pleiades and the AGRA entity. The governments involved do not wish to attract the attention of AGRA, lest it start interfering with humanity. Players could be crew on a vessel trying to run the blockade, or perhaps a group of scientists or even TransHumanists wishing to contact AGRA.

TECHNOLOGY

One of the things most noticeable about the technology of 2320AD is that, in comparison to some of the wild-eyed predictions of futurists before the Twilight War, technology isn't really that advanced in comparison. Space flight is the most notable exception, but beyond that the technology is perhaps 50-80 years more advanced than it was at the time of the Twilight War, 320 years ago. Several factors contributed to this lack of advancement, the most important of which was the time required to rebuild after the devastation of the Twilight War. Much of the technical innovation of the past 300 years went into space travel, in particular the Jerome-effect stutterwarp, along with the challenges involved in exploiting and colonizing alien worlds.

In many fields, however, technology has reached a plateau in the years since the Twilight War, having attained their theoretical limits. Computers in particular have largely reached their technological limits, at least in terms of hardware. The diamond-film computers of 2320 aren't unimaginable to by the standards used before the Twilight War.

The breakthrough technologies that were allegedly going to change everything, nanotechnology and artificial intelligence, are largely dead-ends. Nanotechnology is useful in some industrial processes, especially in materials production, but hasn't proven as useful in other fields. True nano-scale robots never came to pass, though nano-scale components are used in some micro-robots, which are mostly used in medical applications. Artificial intelligence was a field that once held promise, but any successful designs degenerated into psychosis within a couple of months of "waking up". The problem appears to be related to the complexity required for AI software, and the field has largely been abandoned. Recent contact with the Ylii does show some promise of reviving the field with their fresh perspective on the problem.

THE BIOLOGICAL SCIENCES

Modern biological science has made great advances in genetic engineering, medical treatment, and life prolongation. The main limitation has been ethics rather than capability.

Genetic Engineering: The basic genetic structure of many organisms has been tailored to produce specific results. The major emphasis has been in crop management; modern crops are true-breeding, self-fertilizing (nitrogen-fixing),

high-yield plants, well adapted to specific climates and soils. Special use plants are employed for environmental cleanup because they thrive on specific pollutants or contaminants. Modern waste-recycling depends largely on these genetically-engineered plants and microbes. Animals have also undergone some genetic engineering for colonial use, but most colonies elect to make use of local animals rather than bring Terran ones along with them.

Genetic engineering companies enjoyed a period of tremendous growth on Earth between 2050 and 2200, but recent growth has been extra-solar: each of the new colony worlds needs a wide variety of crop types adapted to specific world conditions, not to mention the colonists. Mankind evolved under a very specific set of environmental conditions, and to remain healthy on the diverse worlds settled required some intervention.

The most severe of these DNA modifications (DNAMs) was to the colonists of King. So serious are these modifications that many in the Core no longer consider the residents of that heavy gravity world to be human any more. People living in very low and zero-gravity conditions have also received DNA modification treatments to slow muscle and bone loss. Due to a swing in public opinion, there has been a moratorium on further development of DNA modifications for Humans, though research continues into animal modification. Neo-dogs are one of the fruits of these projects.

Medicine has used genetic engineering to eliminate most inherited diseases and to allow parental selection of characteristics such as gender, eye color and hair color. There are strict controls on this sort of selection, however, especially gender selection. Selection for aptitudes and intelligence has been less successful, and often results in subjects with behavioral disorders. Current research has focused on remedies for genetic disorders and long-term environmental diseases. The patient is infected with tailored viruses which then replace his inferior or radiation damaged genetic patterns with new ones. Genetic engineering also allows replacement organs to be force-grown from a patient's own tissues, through cellular reversion and stem cell programming. This same technology is used in so-called "carniculture," where meat can be grown in culture. This is an energy-intensive process, however, and really only suitable for small outposts and large ships.

Pentapod skill in genetic engineering is unparalleled, yet they seem to lack a certain creativity with their constructs. This may be simply a perception of the human observer, as



the Pentapods are unfathomable as to their reactions and motivations. Pentapod constructs enjoy a great deal of success in the markets of the French Arm, less so on the other Arms. They have become a new craze on Tirane, where they enjoy very good sales. Earth, however, continues to ban any object of Pentapod manufacture, fearing biological contamination. The introduction of the Pentapod exo-wombs has resulted in difficult pregnancies being able to be brought to term in an external host. The long-term psychological impacts of this technology are unknown, and Human medical authorities are proceeding slowly.

Medicine: The major diseases of Earth are environmentally induced: UV damage, radiation, and tumors/cancer. Bodies deteriorate from aging beyond their basic life span. On colony worlds, diseases are caused by local bacterial/viral infections, variants of known diseases, and unexpected environmental effects. In space there is heart and muscle degeneration and bone decalcification, along with increased radiation exposure.

Along with genetic screening and genetic engineering, the greatest advance in emergency medicine has been the autodoc-computerized automated medical treatment. Automated tests determine precise results to a battery of standardized tests, while expert systems analyze the results and produce high reliability diagnoses. Chemical and pharmaceutical treatment can be administered automatically and without attendance, supplemented by injected microbots. Life support is also an automatic function. The autodoc can handle almost all non-surgical treatments and most surgical ones (including setting broken bones, removing dead tissue and most types of internal repair). A skilled operator can manage resuscitation and almost all major treatments with an autodoc. Many colonial hospitals consist of only a couple of doctors, nurses and attendants for a small army of autodocs. Along with the new generation of metabolic drugs, the autodoc can speed

of healing rates by a factor of ten or more. The universe of 2320AD is considered to be TL 14 for the medical procedures outlined on page 218 of the **T20 Handbook**.

A recent advance in medicine has been the anagathic regimen—a series of treatments which effectively ward off aging. Announced and approved in 2264 after decades of testing, the anagathic regimen remains an expensive but effective treatment available only to the rich. Without the anagathic regimen, normal life span (excluding violent or accidental death) is about 100 years. The anagathic regimen is expected to more than double that, along with extending one's youthful years by nearly triple the normal time. However, it has not been in use long enough to determine the complete extent of its life-prolongation abilities, though 56 years worth of sales have yielded promising results. There are even occasional rumors of a DNAM-based anagathic treatment, longevity for the masses. These rumors are persistently denied by the pharmaceutical companies and the various national governments.

COMPUTERS AND INFORMATION SECURITY

Computers are a critical component of the lives of most people in the world of 2320AD. This is particularly true in the worlds of the Core, but computers are commonplace in most colonies, save the most primitive.

Computing equipment is so commonplace as to be hardly noticeable throughout the developed nations of the Core and beyond. In most nations, the information processing bill comes monthly, just like the power and 3V bills. Computers are extremely easy to use, sporting voice recognition, plain language instructions, or taking keyboard input. Computers normally present information using flat screens, but they can create voice or holographic presentations if so equipped. Computer hardware is a mature technology, and

there have been few breakthroughs in size or performance in the past 50 years. Most advancements in capabilities now come in terms of software development. Direct neural input, the so-called man-machine interface, is a new technology, which holds some promise at extending human capabilities, but few possess the mental discipline necessary to make effective use of this technology.

COMPUTER PROGRAMMING

Low-level computer programming is an automated process; most programs can be produced just by describing the input, the processing, and the results, and then checking the computer's sample outputs. Programs created this way are somewhat slower, and consume much more in the way of system resources, than professionally-designed programs. Computers are extremely fast and accurate. Expert systems are extensively used, and computers have replaced humans in many roles, for example, in sales or reservation clerk situations.

ARTIFICIAL INTELLIGENCE:

True artificial intelligence has eluded the computer makers despite three hundred years worth of predictions. Seemingly successful systems self-destruct within a few months of activation; the cause is usually diagnosed as a psychosis. There have been some promising breakthroughs in the last ten years, but most of the experiments result in AI systems only slightly smarter, and vastly more unstable, than previous efforts.

THE LINK NETWORK

The Twilight War exposed weaknesses in the design of the Internet. Though created to be self-repairing and redundant, the loss of all primary domain name controllers virtually crippled the network. Along with that, the localization of critical data meant that the loss of a physical location meant the loss of that data.

When the data and voice networks started to rebuild in the 2020's, they were piggy-backed on the same lengths of fiber-optic cable to save expense. As the network improved, wireless communications for voice and data became the norm, with local repeaters tapping into the fiber-optic backbone. Network addressing, which used to be done by remote servers, is now accomplished by individual machines themselves. In effect, the network is massively decentralized.

The Link network makes use of the massive storage potential of every computer to ensure redundancy. All data for a system is stored locally, but a backup exists on the network across multiple machines. Each backup machine only has a portion of this data, which is useless without the rest of the data, and each portion is tagged with a unique code for the owner of the data. In addition, this data is highly encrypted,

COMPUTER VIRUSES:

The massively-connected nature of the Link network does mean that it is more vulnerable to certain types of malicious programming, including viruses. However, most computers are designed in such a way that they are not nearly as vulnerable as the computers of the Twilight Era. Viri and hacking still do occur, however.

making it virtually impossible for anyone but the government to crack. All computers connected to the Link Network sacrifice about 10% of their internal storage capacity to the network, and in return have their data backed-up on a constant basis.

USER INTERFACES

The interface is how a person interacts with a computer. This covers hardware, how they interact, and software, how data is displayed and organized. Most computers accept both voice and touch-screen input, along with a variety of keyboards and pointing devices, from the humble mouse to full 3D virtual systems. Some go to the trouble of having a virtual keyboard implanted, with a transmitter designed to allow them to connect to a computer. This can be coupled with an implanted display, giving the user completely private access to their system.

The software side of the user interface is based on the standard developed by France's École Polytechnique back in the 2250's, which mandates that as much information as possible, and practical, be expressed in graphical, and preferably, ideographical, format. Programs thus have stylized representations on the computer, with different programs having different representations depending on the whim of both the programmer and the user.

DESIGNING COMPUTERS FOR 2320AD:

The T20 design system can be used as-is for designing computers, save that 2320AD computers are designed as if 2 Tech Levels higher. In addition, all costs for computers, including software, are divided by 10. So a New Military (TL 12) computer, would be designed as TL 14.

ROBOTS AND DRONES

Robots are very common in the society of 2320AD. Robotic systems can be found almost anywhere, from the automated surveillance drones that wander the streets of the Core cities, to the mining equipment used on remote colonies. Robots in 2320AD are defined as machines that can follow a set of guidelines without human supervision or intervention. These machines have a limited learning capacity as well, allowing them to remember solutions and implement

them in similar situations. They are not capable of thinking, however.

Drones are simply remote-controlled vehicles, requiring almost constant operation and supervision. Many robots also have a remote-control facility, however, blurring the lines. Typically, a robot can be remote-operated, but a drone has no self-guiding capability, and is thus considerably cheaper than robots.

Swarms are small robots, about bee-sized, operating in large groups. The most common use is in surveillance, where a swarm can fly or crawl in and present a high-resolution composite image very quickly.

Microbots:

Microbots are a different class of robot, or more properly, drone. Microbots range in size from just a little larger than red blood cells up to the size of a dust mite. They are operated and powered remotely, and can venture no further than 2 meters from the controller/power broadcaster. Most microbots are used in medical applications, stitching someone up from the inside, cleaning arteries or scrubbing poisons out of a system. Others are used in security and surveillance, but the range restriction really hampers them. They are sometimes used to thoroughly search rooms, and see work in police crime-scene investigation.

MATERIALS SCIENCE

Twenty-third century materials science has been extremely successful at producing sophisticated synthetic materials for fabrication and construction. These synthetic materials are largely ceramic-metal, or ceramic-polymer composites, with high strength and low weight. The production of these exotic materials is made practical with nanotech fabricating, though these techniques can only churn out large sheets of the material from their cooling baths. New techniques have also been developed for refining metals purer and cheaper than ever before. Recent breakthroughs in electrically and magnetically stabilized metals have produced metal-fiber/carbon buckytube synthetic matrices that allow beanstalk cables which can connect a world surface to orbit. Beanstalks have been built on three worlds: Beta Canum Venaticorum (at Premiere), Tirane (at Neumunchen, Freihafen) and Earth (at Libreville in Africa, Tanjung Balai in Indonesia, and another under construction at Quito in the Inca Republic). While metals are still used for fabrications in space and on Frontier worlds (where metal ores are plentiful and cheap), synthetics can now do most jobs more efficiently, and are used almost exclusively in vehicle construction, power plant components, and all machinery requiring high strength and low weight. On Earth, metal is seldom used except in a few electrical com-

ponents, and where its high density is an asset, such as radiation shielding.

TRANSPORTATION

The near exhaustion of fossil fuels prompted the development of alternatives. Fusion power is efficient and cheap, but practical only in large installations. On Earth, it has been replaced by solar power satellites which beam their energy down to the ground.

Vehicles require a portable energy system because they cannot hook into the electric power grid. After experimentation with alcohol fuels, Earth made the transition to hydrogen in the 22nd century, and hydrogen fuel stations are as common as gasoline stations were in the 20th century. Most hydrogen-powered vehicles utilize hydrogen fuel cells, though a few actually burn it to provide mechanical power. Large vehicles, or those requiring very high energy levels, can benefit from the scale efficiencies of magnetohydrodynamic (MHD) turbines. Battery technology has improved to the point that electric cars are common and cost-effective. Approximately 60 percent of the wheeled and tracked ground vehicles on Earth and Tirane are battery-powered. The vast majority of major roads and highways on Earth are designed for automated vehicles only, with the cars being controlled by a combination of on-board and remote computers and sensors called TrafCon. Tirane uses the system only for major thoroughfares, while beyond the Core, these automated roadway systems are extremely rare.

Cars and the attendant TrafCon system are effective for relatively short-range travel, but for longer distances most people and cargo are moved by high-speed maglev trains operating in partial-vacuum underground tunnels. These tunnels are largely constructed by robotic systems, with little in the way of human oversight. Major tube lines travel between large terminals centered in metropolitan areas. Smaller feeder and commuter lines radiate from these central terminals. Generally well suited to meeting peak commuter loads (there are always exceptions), the "tube" systems allow metropolitan areas to be very dispersed, and it is not uncommon for workers to commute 200 kilometers to and from work. These local trains can travel at speeds up to 500 km/h, but are usually much slower due to frequent starts and stops.

The first trans-oceanic tube went into operation in 2312, and consisted of an evacuated tube 300 meters underwater, tethered to the ocean floor. It operates between New York and London (by way of Ireland and Nova Scotia), and plans are underway for another tube line to connect Tokyo to San Francisco. Speeds in these transcontinental tube systems is in excess of 2000 km/h.

In the colonies, hydrogen-burning fuel cells predominate as the power plant for most vehicles. Away from the main settlements, transport is typically via hovercraft or ATV. In

less-developed colonies, horses and other riding animals are still a key mode of transportation. Most air travel is by tilt-rotor aircraft, or the versatile little Magnus-effect airship. Large, expensive jet aircraft are rare on the frontier worlds.

Travel across oceans tends to be by ship, airship, or aircraft. Short-range oceanic voyages are often by hovercraft, especially in ferry services. Most passenger and cargo ships are of the SWATH-type: a completely submerged streamlined flotation hull containing the vessel's power plant and fuel bunkers linked by pylons to the upper passenger and cargo decks, which ride considerably above the waterline. This design makes for an extremely efficient and stable ship as there is virtually no surface contact, and thus drag is much reduced. The tremendous power needed to lift a large ship onto hydrofoils is also unnecessary. Unlike hydrofoils (which are still used for a variety of high speed naval and pleasure craft), this is a deep-water vessel only.

Airships are somewhat more expensive than surface vessels and largely make up for this by their greater flexibility. Large-capacity airships carry both cargo and passengers across the oceans of the Earth and can land them at a variety of inland destinations. Large airships can carry upwards of 500 tons at high speeds, using hybrid semi-rigid lifting body hulls. Other airships are used for mobile cranes for construction projects, especially in remote areas, while nimble little Magnus blimps carry passengers and cargo, even in urban areas. For passengers and cargo which need to travel quickly, there is always SOT (Sub-Orbital Transport) service, which can move a passenger from one side of the world to the other in a couple of hours via scramjet.

Technology Milestones:

- 2051 First man to space post-Twilight (France)
- 2073 First operational orbital solar power satellite
- 2086 Dr. Jerome performs first controlled microscopic stutterwarp hop
- 2103 First viable human clone
- 2116 Carniculture (vat-grown meat) developed for use in space
- 2142 DNA modification first used in therapeutic trials
- 2136 First manned faster-than-light travel, to Alpha Centauri system
- 2145 First large habitat at Earth L5 position becomes operational. Population soon reaches 10,000.
- 2156 Man-portable gauss weapons introduced
- 2167 Second-generation (TL11) Stutterwarp drives available
- 2178 Zero-gee DNA modification developed
- 2190 King DNA modification developed
- 2198 Thin Air DNAM developed
- 2206 Gene Protests lead to a moratorium on further development of Human DNAMs beyond therapeutic purposes
- 2217 Nanotech assemblers used in materials fabrication
- 2223 90% of all meat consumed on Earth comes from a carniculture vat.
- 2238 First artificial intelligence goes on-line at France' École Polytechnique. It goes off-line 7 days later.
- 2275 Man-portable plasma weapons introduced
- 2284 Third-Generation (TL12) Stutterwarp drives available
- 2291 First beanstalk goes operational on Beta Canum Venaticorum IV
- 2298 Second-generation stutterwarp tuner becomes available, makes deep-space stutterwarp tug operations possible
- 2299 Beanstalk goes into operation at Libreville, Gabon, Earth
- 2307 Prototype fourth-generation stutterwarp drives become available
- 2312 Pentapod exo-wombs become available for life-threatening pregnancies

EQUIPMENT

The following equipment is generally available on most human worlds (at the gamemaster's discretion). Tech level is not really a factor for much of this gear, as it all usually available on any colony world. Typically, costs for these items will be doubled on frontier worlds.

WILDERNESS SURVIVAL GEAR

Wilderness survival gear includes equipment which is usually used by exploratory teams, but this equipment might be stored in a starship's escape pod or used by a military team as well.

Compact Rations: Each ration pack is a complete, prepackaged, fortified meal in its own serving tray. The meal is self-heating (or self-chilling) as required. The chemical heating/cooling process is activated by breaking the seals, and takes about 30 seconds. In military parlance, these are known as SSMs (Single-Serving Meals) and are the bane of any soldier's existence (military rations are universally despised).

TL: 8

Weight: 1 kg

Price: Lv5

Cold Climate Clothing, Advanced: A lightweight, adjustable body suit with hood, goggles and lower face cover. The suit contains a battery pack and internal heating elements with the ability to maintain a stable temperature down to temperatures of -30 degrees centigrade. Battery life is about eight hours under the coldest conditions, but closer to 36 hours under more typical cool weather conditions. Characters wearing Advanced Cold Weather Gear need only check for cold and exposure damage once every 4 hours, at least until the power supply fails. Then it's back to once every hour.

TL: 9

Weight: 2 kg

Price: Lv100 (More expensive versions are available for the fashion-conscious.)



P-Suit: A close-fitting flexible pressure suit with bubble helmet and battery-powered, heating and air recycling, life support system. Life support unit duration is eight hours, but bottled oxygen can extend this up to 20 hours (maximum battery life). The helmet includes a short-ranged (5km) radio

and beacon. Use of the P-suit requires the Armor Proficiency (Vac Suit) Feat.

TL: 10

Weight: 15 kg

Armor Rating: 2 All Locations

Max Dex Bonus: +4

Armor Check Penalty: - 1

Price: Lv1000

ARMOR RATING VS. ARMOR CLASS:

Armor Rating (AR) is the stopping power of the armor. AC is determined separately, and is based on 10 +Torso AR + Dex Mod +Size Mod.

Hostile Environment Suit: A heavy-duty pressure suit designed for use in particularly hostile environments (such as corrosive atmospheres, or radiological and toxic environments). The helmet is solid, with audio and visual sensors linked to in-helmet monitors.

The hostile environment suit reduces all radiation damage levels by three, so Severe has no effect, while Lethal is reduced to merely Moderate Damage. It is good for up to 25 hours in a Corrosive atmosphere, and up to 8 hours in an Insidious atmosphere. After that it will begin to break down as noted on page 00 of the *Traveller's Guidebook*. Use of the P-suit requires the Armor Proficiency (Vac Suit) Feat.

The suit contains a short-ranged (5 km) radio in addition to the built-in sensors.

TL: 11

Weight: 20 kg

Armor Rating: 4 All locations

Max Dex Bonus: +3

Armor Check Penalty: - 3

Price: Lv2000

Personal Life Support System: The PLSS extends the capabilities of a pressure suit, adding additional power and life support capabilities. A PLSS is good for 24 hours of use, and can be extended up to 48 hours by adding additional bottled oxygen. A PLSS can also be equipped with a radiation shield generator, which lowers its endurance to 8 hours.

TL: 9

Weight: 12 kg

Price: Lv400

Air/Oxygen Tank: Self explanatory.

Weight: 1 kg

Endurance: +6 hours per tank

Price: Lv10

Radiation shield generator Self explanatory.

TL: 11

Weight: +4 kg

Protection: 120 rads/hour

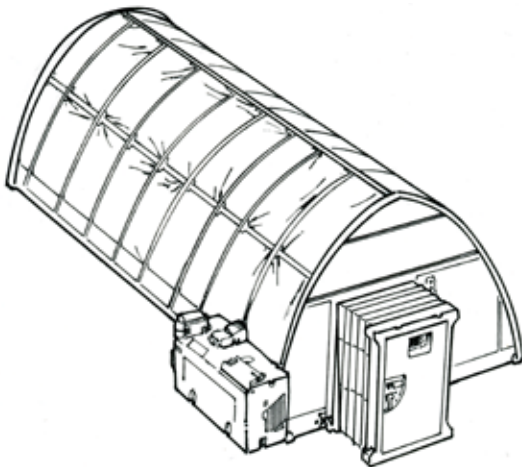
Price: +Lv500

Pressure Tent, Small: An inflatable hemispherical tent with a radius of two meters. The tent includes a small airlock along with a life support system good for 12 man-days (i.e. 12 men for 1 day or 1 man for 12 days). The airlock can be detached for use on worlds with breathable atmospheres. It is powered by a solar panel built in to the roof, but if that is obscured it only has power for 12 hours.

TL: 9

Weight: 2 kg

Price: Lv1000



Pressure Tent, Large: An inflatable half-cylinder with a width of four meters and a length of 10 meters, the large tent is suitable as an exploration base. The tent includes a small airlock, and the life support system is good for 120 man-days. The interior can be sub-divided many different ways. Again, the large tent is powered by roof-top solar cells, but it can also be run off a power station or fuel cell, in which case it draws 0.1 EP.

TL: 9

Weight: 30 kg

Size: 2 vol compressed

Price: Lv4500

Vols:

A vol is an abstracted measure of mass and volume. For purposes of conversion, 1 vol = 5 liters.

Biomonitor: The biomonitor is a broad-purpose monitor about six centimeters square and usually worn on the wrist. It can give body function readouts for medical diagnosis, will monitor breathability of atmospheres (noting presence of various gasses, harmful pollens, and other toxins), and can give a good analysis of edibility of local plant and animal tissue. The biomonitor grants a +2 circumstance bonus to all Fortitude saves involving atmospheric conditions or toxins.

TL: 10

Weight: 0.5 kg

Price: Lv500

Goggles: Goggles come in two different types: the first being nothing more than an inexpensive piece of protective eyewear, and the second being a photosensitive, auto-darkening piece of equipment to protect against steady bright light or sudden flares. The auto-darkening models provide a +4 circumstance bonus for saves vs. blinding attacks or flares



TL: 2 (normal goggles) or 8 (photosensitive goggles)

Weight: Insignificant

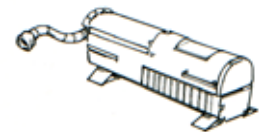
Price: Lv1 (normal goggles) or Lv65 (photosensitive)

Water Purifier: A battery-operated micro-filter and chemical treatment machine for purifying natural water sources. It can also be used to recycle biological waste water.

TL: 10

Weight: 5 kg

Price: Lv750

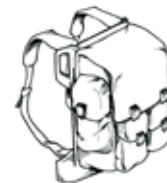


Backpack: A backpack is used to carry equipment (as well as protect it) while keeping hands free. Small items can also be suspended from its frame.

TL: 2

Weight: 1 kg

Price: Lv20

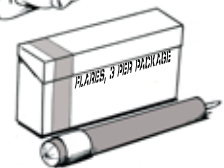


Flares: Flares are used to signal at a distance, such as in the marking of temporary landing areas. They typically come six to a set. Use of flares adds +10 to all Spot rolls made by onlookers.

TL: 6

Weight: 2 kg

Price: Lv3



Respirator: Often an entire protective suit is unnecessary and unwieldy. In such situations, people commonly use a simple respirator mask to filter the air they breathe. Typically, the filters in such a mask must be changed every 6 to 12 hours, depending upon the amount of pollutants in the air. A filter mask grants a +5 bonus to Fortitude saves involving atmospheric taints.



TL: 6

Weight: 1 kg

Price: Lv120

Replacement Filter: Self explanatory.

Weight: Insignificant

Price: Lv15

Diving Gear: The term diving gear is used here to describe a flexible, warm, wetsuit with swim fins, goggles, and an air tank. It requires the Swim skill to use effectively, and negates the Swim check penalty for consecutive rounds spent underwater. The gear also adds 25% to a character's underwater speed.

TL: 4

Weight: 10 kg

Price: Lv700

Diving Gear, Advanced: Advanced Diving gear dispenses with the tank in favor of a gill unit, and makes use of more sophisticated materials for the wetsuit and fins as well. The gill has enough power for 12 hours of operation, while the wetsuit and fins allow swimming at up to 50% faster than normal. It requires the Swim skill to use effectively, and negates the Swim check penalty for consecutive rounds spent underwater.

TL: 10

Weight: 6 kg

Price: Lv1200

TOOLS

The listing which follows includes the tools which are commonly available for use in the 24th century.

Basic Tool Kit: Small hand tools suitable for a variety of purposes, including wrenches, pliers, screwdrivers, etc. This allows a character to perform Mechanical skill checks with no penalty.

TL: 4

Weight: 5 kg

Price: Lv75

Power Hand Tools: A selection of power tools, in-

cluding a chainsaw, rotary saw, and drill, as well as other electrical tools. There must be an electrical power source, such as a generator or battery pack, to operate these tools.

TL: 7

Weight: 35 kg

Price: Lv150

Vehicle Maintenance Tools: Specialized tools for repair and maintenance of vehicles. Includes torque wrenches, grease guns, engine calibration tools, and other specialized tools. Use of these tools gives a +1 circumstance modifier to all T/Mechanical Skill Checks on vehicles and aircraft, but not spacecraft.

TL: Special (must be no more than 1 TL below the vehicle being serviced)

Weight: 10 kg

Price: Lv150

Excavating Tools: Picks, shovels, mattocks, and other such tools.

TL: 1

Weight: 20 kg

Price: Lv100

Construction Tools: Hammers, saws, squares, hatchets, chisels, and other woodworking tools.

TL: 2

Weight: 30 kg

Price: Lv100

Electronic Repair Tools: Specialized tools for work on electronic and photonic equipment. Use of this tool kit allows the T/Electronic Skill to be used with no equipment penalty.

TL: Special (must be the same TL or no more than 2 TL higher than the equipment being worked on)

Weight: 3 kg

Price: Lv300

Climbing Kit: A climbing kit includes such tools as pitons, 100 meters of fine rope, small hammers, and carabiners. Use of the climbing kit confers a +5 bonus to all Climbing Skill Checks.

TL: 3

Weight: 12 kg

Price: Lv150

Autograpnel: The autograpnel consists of a handheld battery-powered compressor unit which can fire a small grapnel as much as 20 meters in the air, then pull as much as 100 kilograms up the trailing rope. The battery is rechargeable, and is good for 20 uses. The Autograpnel allows a character to Take 10 on a Climbing Skill Check.

TL: 9**Weight:** 7 kg**Price:** Lv220

Locksmith Kit: A locksmith kit contains tools for opening mechanical locks. On most worlds it is illegal for an individual to possess a locksmith kit without a local license. The locksmith kit allows a character to use T/Mechanical to pick mechanical locks. All locks are rated by the DC of picking them. (Easy=DC10, Average=DC15, Secure=DC20). If the locksmith kit is no available, add +10 to the DC of the lock.

TL: Special (Must be within 2 TL of the lock being worked on.)

Weight: 2 kg**Price:** Lv450 (Lv1000 or more on the black market)**License:** Lv500

Electronic Security System Kit: An electronic security system kit is not intended to provide electronic security, but to circumvent it. It is usually even more illegal to own than a locksmith kit. The electronic security systems kit allows the use of the T/Electronics Skill to crack electronic locks. Electronic locks are rated by the DC of circumventing them, and are typically more secure than mechanical locks. (Easy=DC15, Average=DC20, Secure=DC30). If no electronic security systems kit is available, add +10 to the DC of the lock.

TL: 9 (Suffer a -2 penalty for each TL the security system kit is below the lock)

Weight: 3 kg

Price: Lv1000 minimum (Lv4000 or more on the black market)

License: Lv2500

SPECIAL EQUIPMENT

Major expeditions and military teams are often able to acquire equipment that is state-of-the-art equipment unavailable to the general populace of most worlds. Often, however, this specialized equipment can be found for sale on the Core worlds, at least to those who are able to pay the price.

Mul-T-Tool: Many tools throughout history have been designed for one purpose – to fasten things together. Recently, builders of new vehicles have agreed to begin using a uniform set of fasteners in their construction processes. For work on these vehicles, a mechanic need not have several different types of wrenches and screwdrivers; he just needs a Mul-T-Tool. This is a self-powered unit with a flexible head that automatically adjusts to fit the fastener size. Mul-T-Tools come in three gauges for three ranges of fastener sizes. All vehicles constructed at TL 11 or higher are designed for use with the Mul-T-Tool. Vehicles up to Size Huge require only the smallest size, while larger vehicles require all three sizes. Multi-tools grant a +1 circumstance bonus to all T/Mechanical Skill Checks made while using the tool.

TL: 10**Weight:** 0.5 kg, 1 kg, and 2 kg sizes**Price:** Lv300 each

Spinner: Utilizing some of the same technologies used in construction of the beanstalk, the spinner is capable of creating exceptionally strong carbon monofilament line. The 0.2mm line is capable of supporting up to 1000 kg in a normal gravity. Care has to be taken with the line when it is under tension, as the extremely thin cable can easily slice off fingers, or even limbs. The spinner contains material and catalysts in sufficient quantity to produce 2 kilometers of line, and comes equipped with a catalyst capable of cutting the material (which cannot be cut with a steel blade), along with a supply of 20 special pads (which can be fastened to a glove if needed) to handle the cable. If stretched taut, the cable can inflict up to 3d8(18) in Slashing damage, and ignores non-rigid and inertial armors.

TL: 12**Weight:** 1 kg**Price:** Lv1200

Stik-kit: A Stik-kit is an adhesive patch which is about the size of a normal human hand. One side of the Stik-kit patch (black with color-coding) is a ridged, flexible plastic sheet; the other side of the patch is smooth and white. Between these two sides is a chemical interior. By grasping the ridged side of the Stik-kit, the user can flex the patch, which releases the inner chemical onto the white side. The white side then becomes very sticky. Stik-kits will adhere to almost anything except Teflon in almost any environment, including vacuum and underwater. Application of a small electric charge inactivates the adhesive—a small battery is included in the Stik-kit for this purpose and the user may then discard the patch. A Stik-kit is not reusable.

Stik-kits can be used for anything from patching hulls to mounting wall fixtures, creating ladders, joining items, or suffocating creatures. Each Stik-kit patch has a color-coded band that indicates its holding strength: red 10 gm, orange 100 gm, yellow 1 kg, green 10 kg, blue 100 kg, violet 1 ton, ultraviolet 10 tons.

TL: 11**Weight:** 0.25 kg per patch

Price: Red, Lv20; orange, Lv40; yellow, Lv80; green, Lv160; blue, Lv320; violet, Lv640; ultraviolet strength patches are not normally available

Thermal-visual (TV) Camouflage. TV camouflage consists of two parts: the camouflage smock or blanket itself, and a thermal regulation system that can adjust the heat output to match the surroundings. Typically, it does this by redistributing heat patterns around the material to break up

the thermal signature, and also by dumping excess heat into the regulator. The chill can of the regulator is good for up to 8 hours before it needs to be replaced.

The camouflage smock or blanket is essentially a tough, flexible sheet of electronic paper, which can change its colors and patterns to match the surrounding terrain without light emissions. This system is only effective at medium to long ranges, and only if the user keeps still. It doesn't work well at all on the move. It adds a +6 circumstance bonus to all Hide Skill Checks if the user keeps still; otherwise it only adds a +1 circumstance bonus.

TL: 12

Weight: 2 kg (+8 kg for the thermal regulator)

Price: Lv4500

SENSORS

Sensors are available for a wide-range of purposes, from simple binoculars to computer-controlled perimeter surveillance systems.

Binoculars: Visual binoculars which incorporate thermal imaging for night visibility and limited visibility in fog, gyro-stabilization for high magnification steadiness, and adjustable magnification from 1x through 20x. The binoculars modify a character's Spot Skill Check by changing the range increment for the Spot penalty. Multiply the current magnification by three to determine the range increment. (i.e. at x10 the new range increment is 30m, so the character suffers a -1 Spot Skill Check penalty for every 30m).

Weight: 1 kg

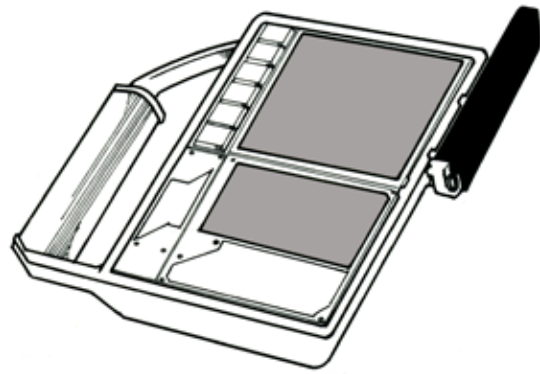
Price: Lv200

FarSeer: This binocular-like product magnifies objects and/or allows night vision by internally enhancing the light received. The main lens is composed of oil, electrostatically-held and manipulated for focus. The unit is stabilized for low-range viewing, or can be mounted on a tripod. The charge used to focus the lens can also give an approximate range value. A backup system, consisting of a pulse laser, gives more accurate readings of any object lined up with cross hairs in front of the lens. The only problems with the system are that the laser is visible to instruments watching for it, and the electrostatic lens will not hold focus in a strong outside electrical field, such as a nearby lightning storm. The FarSeer magnifies from 1x to 120x. A FarSeer modify a character's Spot Skill Check by changing the range increment for the Spot penalty. Multiply the current magnification by three to determine the range increment. (ie at x100 the new range increment is 300m, so the character suffers a -1 Spot Skill Check penalty for every 300m).

TL: 11

Weight: 1 kg

Price: Lv350



Large Life Form Detector: This is an IR sensor which works as well on vehicles as life forms. Its short range makes it largely ineffective for military purposes, however. It is designed to be cheap and portable for zoological field teams. It adds a +2 circumstance bonus to all Spot rolls made against any object warmer than the background temperature.

TL: 10

Weight: 2 kg

Range Increment: 20 m

Price: Lv100

Basecamp Security Sensor: This is a multipurpose active/passive sensor suite designed to provide warning against intruders at remote sites. It must be attached to a vehicle powerplant or other power source in order to function.

TL: 11

Weight: 50 kg

Power Required: 0.5 EP

Range Increment: 500m (ground targets), 5 km (aircraft)

Price: Lv20, 000

SCIENTIFIC EQUIPMENT

A variety of equipment is generally available to aid scientific teams in their work. The most common pieces are listed here.

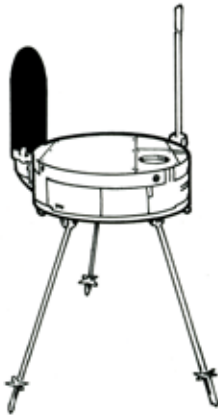
Imagers: A wide variety of still and video imagers are available to record observations. Imagers in the 24th century produce two types of images: a nearly grainless BIT (Binary Image Trace) image (which is a totally faithful picture of the object or scene, but requires extensive memory), or an EFR (Encoded Formula Reduced) image which uses algorithms and templates to analyze the image and translate it into a set of formulae. Images from these cameras have long surpassed film in quality of image, being able to capture more information than the finest films. Images are stored on a small memory chip and can be displayed on virtually any display system or computer. A single chip holds approximately 3000 EFR images (each BIT image counts as 100 EFR images).

TL: 10**Weight:** 1 kg**Price:** Lv300 (extra video chip costs Lv20)

Sampling Kit: A small kit carried by means of a shoulder strap used to take field samples and conduct quick analysis of any of a variety of substances. Sampling kits are available for soil, minerals, plants, and gas (atmosphere). Sampling kits allow the use of the appropriate skill (K/Geology, K/Biology, K/Mining, P/Prospecting, P/Survey) without incurring an equipment penalty.

TL: 10**Weight:** 4 kg**Price:** Lv400

Remote Meteorological Station: A small data collection station for monitoring rainfall, humidity, atmospheric pressure, wind speed and direction, and other meteorological and climatological data. These are generally cheap, unmanned sensors which record their data on a memory chip. Each chip can record three year's worth of data, although the station is usually visited more often than that. These are very useful in the early stages of a survey of a habitable world. A radio communicator may be added for remote monitoring if desired at additional cost (see below). For every 10 remote met stations deployed on a planet, add a +1 circumstance bonus to P/Survey rolls to determine planetary climate (maximum bonus of +4).

**TL:** 9**Weight:** 5 kg**Price:** Lv200

Autoinjector Gun: Sometimes called a tranq gun, this is a compressed air rifle which fires an autoinjector or radio microtransponder. It is used to subdue or tag animals. The radio microtransponder has a range of five kilometers and can be monitored from a radio direction finder. It broadcasts a simple electronic noise signal useful for determining direction and range. The associated direction finder weighs 3 kilograms and costs Lv50.

TL: 7**Weight:** 2 kg Length: 75 cm (Size=Medium) Range: 80 m**RoF:** 1 Damage: 2d12 (stamina damage only)**Price:** Lv200

MEDICAL EQUIPMENT

In high-risk employment, violence and injury are a part of life, if not commonplace. In the 24th century, high quality medical aid is generally very close at hand.

Medkit: A portable first aid kit containing spray-on bandages and autoinjectors of antishock, antitoxin, antibiotic, stimulant, and anesthetic. Given medical skill, the Medkit contains everything needed to treat minor injuries and stabilize serious conditions. Use of a medkit boosts Stamina healing rates by 3 times, and Lifeblood by 2.

**TL:** 10**Weight:** 1 kg**Price:** Lv500

Lightweight Autodoc: Portable and inexpensive, this unit is popular with emergency teams and is often used in large numbers for disaster relief. Use of a portable autodoc boosts all healing rates by 4 times normal, and adds a +3 circumstance bonus to all T/Medical Skill Checks. In the absence of a qualified human operator, the autodoc can use its stats below.

TL: 11**Weight:** 300 kg**Med Skill:** 5 Int: 10**Price:** Lv2000

Static Autodoc: This static autodoc is designed for permanent emplacement in a hospital ward or on a starship. Use of a static autodoc boosts all healing rates by 6 times normal, and adds a +3 circumstance bonus to all T/Medical Skill Checks. In the absence of a qualified human operator, the autodoc can use its stats below.

TL: 12**Weight:** 1000 kg**Med Skill:** 12 Int: 12**Price:** Lv8000

COMMUNICATORS

Communicators allow the transmittal of information over long distances. Civilian ones tend to be lower powered and broadcast in a wider arc than do their military counterparts.

Link Phone: A link phone connects to the planetary networks and data services available on the Core worlds and many colony worlds. Link phones sold on Core Worlds include a Panic Button feature, which will summon authorities to the location of the phone. Of course, this requires that the

phone be tracked, but most people value the added security. This feature is not available on the frontier, where authorities do not go to any lengths to track their citizens.

TL: 9

Weight: 0.2 kg

Range: 2 km

Price: Lv10, plus Lv3/month voice/video access, and Lv4/month for data access.

Hand Communicator: A battery-powered, handheld radio which broadcasts voice signals at relatively low power.

TL: 8

Weight: 0.25 kg

Range: 20 km

Price: Lv50



Backpack or Vehicle Communicator: A heavier version of the hand communicator. In a vehicle it is generally linked to a vehicle's power plant.

TL: 9

Weight: 3 kg + 2 kg battery if not connected to a vehicle

Range: 200 km

Price: Lv100

Tight Beam Up-Link Communicator: A tight beam communicator designed to provide secure communication between a ship in orbit and a ground party. The communicator's microprocessor is programmed with the ship's orbit prior to landing, and its inertial locator will constantly update its position relative to the ship's position. When activated, it will point its dish antenna toward the location of the ship and establish a tight beam communication link, provided the ship is above the horizon and in effective communication range. (In most orbits the ship will be in an acceptable commlink position roughly 20 percent of the time. The higher the orbit of the satellite is, the longer the period of possible commlink access, but the greater the time between commlink periods.) Two up-link communicators can be used for secure ground communication if a communication satellite is overhead and if both communicators are linked to the satellite at the same time.

TL: 10

Weight: 10 kg

Range: Orbital

Price: Lv500

SATELLITES

Satellites are generally placed in orbit by ships already in orbit around a world. Survey and exploratory ships routinely use satellites to augment information gained by ground parties.

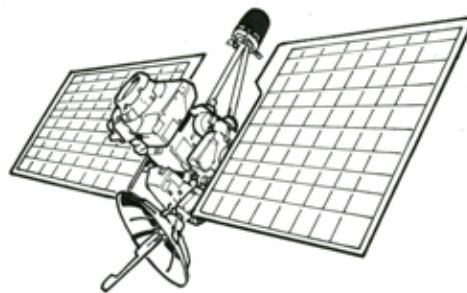
Communication Satellite: A solar-powered orbital receiver and retransmitter of tight beam or broadcast communication. Each provides 20 percent coverage (see discussion of up-link communicators) while five satellites evenly spaced in the same orbit will provide 100 percent coverage.

TL: 8

Weight: 20 kg

Size: 10 vol

Price: Lv50,000



Navigation Satellite: A solar-powered orbital broadcast transmitter. Five satellites are required to provide good coverage of a planetary surface. Each satellite continuously broadcasts its identification and current position. A down-link receiver and microprocessor in a vehicle or carried by a person can, by triangulation with the satellites currently transmitting, establish its correct surface location to within 1 meter. Access to a navigation satellite networks grants a +3 circumstance bonus to all Navigation Skill Checks.

TL: 9

Weight: 100 kg

Size: 50 vol

Price: Lv100,000 (each)

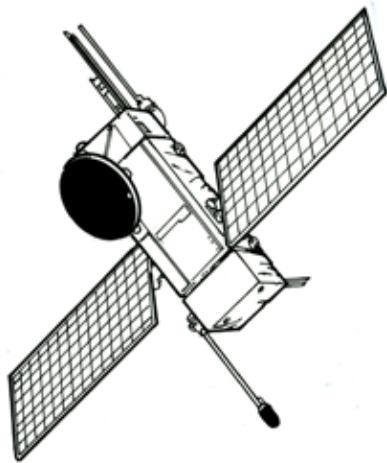
Down-Link Navigation Receiver: This is a small hand-held unit that indicates the user's position on a digital map. It uses the navigation satellites to calculate its position, and can download map information from available survey satellites or the link network on more settled worlds. Accuracy to within 1 meter.

TL: 9

Weight: 2 kg

Price: Lv200

Surveillance Satellite: A solar-powered, low-orbit satellite designed to movement or basketball-sized or larger targets on the surface or in the atmosphere of a world. Each satellite will orbit an earth-sized planet roughly three times a day and will scan the area directly below and 50 kilometers either side of its orbit. (This amounts to scanning each 100-kilometer hex along its orbit three times a day.) Military versions are rumored to be able to read the fine print on a legal contract.



TL: 12

Weight: 150 kg

Size: 75 vol

Sensor Range: Orbital (surface targets count as regular range; airborne targets count as half range)

Price: Lv500,000

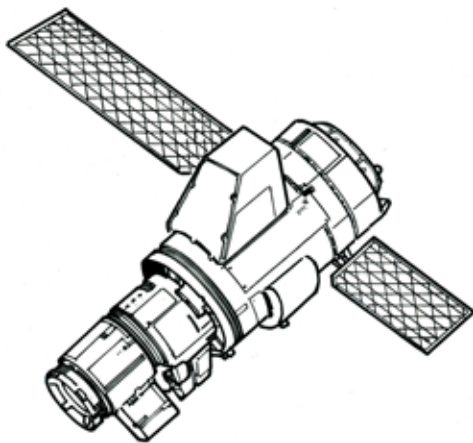
Survey Satellite: A solar-powered photographic satellite for mapping and collecting meteorological data. It is placed in low orbit to provide surface mapping and data on atmospheric weather conditions. The survey satellite confers a +2 circumstance bonus to all P/Survey Skill Checks.

TL: 10

Weight: 50 kg

Size: 25 vol

Price: Lv250,000



Weather Satellite: A solar-powered satellite intended to provide detailed meteorological information for the world below it. Purpose-built for weather monitoring, it isn't suitable for surface mapping, though these satellites have been

jury-rigged for such duties on occasion.. It usually inhabits a lower, polar orbit, passing over the entire globe in the course of many orbits.

TL: 9

Weight: 20 kg

Size: 10 vol

Price: Lv115,000

COMPUTERS

Computers make up a part of daily life for citizens of the Core worlds in the 24th century, and they are an essential part of nearly any mission group as well. The two most common encountered configurations are detailed here.

Portacomp: The portacomp is a small handheld programmable computer, usually carried in a plastic case on the belt or on a shoulder strap. A wide variety of makes and models are available, of which the following is a representative model. The keyboard is a one-handed five-key hemisphere roughly 10 centimeters in diameter, designed to be held in one hand. The monitor is on the back of the hemisphere and is touch-sensitive, allowing an expanded range of inputs while programs are running. Voice input and output are also used, but the keyboard and monitor are useful for a variety of precision inputs and graphic outputs. A flexible 30cm x 20cm monitor expansion (also touch-sensitive) can be carried rolled in a tube in a carrying case. The machine has 128 gigabytes of internal memory and is designed to run off of up to five 4 gigabyte memory/program chips. Other styles include tablet with stylus-only input, and wearable computers accessed via voice commands.

TL: 14

CPU: 100

Model: B9

Int: 1

PP: 10/5

Weight: 0.5 kg

Price: Lv300

Flexible Monitor:

Weight: 0.2 kg

Price: Lv50

Military Artillery Computer/Communicator:

The artillery computer is a specialized portacomp that is tied into local navigation satellites for precise positioning. It can be used to call down precise artillery strikes at areas designated on its map board. Use of this function of the computer requires the Forward Observer skill, and can be tied into any modern (TL11+) artillery. This computer otherwise has the same stats and capabilities as a conventional portacomp.

TL: 14

Weight: 1.5 kg

Price: Lv12,000

Portacomp Program/Memory Chips: A 4 gigabyte chip contains a greater volume of data than the finest general encyclopedia set. This is sufficient to provide an excellent working linguistic translation program or a comprehensive reference guide for a single area of scientific specialization. A scientific reference chip does not make the user an expert in a field; however, any more than a pile of chemistry reference books makes the owner an expert chemist. A blank chip costs Lv1

Translation Chip: The chip will translate spoken or written known languages. It is purchased with two complete languages on the chip (English-German, or Tajik-Farsi, for example) and will translate from one to the other at command. This program can also provide real-time (or near-real-time) translation of voice input.

PP Capacity: 4

Requirements: None

Price: Lv100

Reference Guide: A comprehensive reference guide on any one subject is available on chip for a modest price. Possible subjects include (but are not limited to): biochemistry, physic chemistry, geology of the Earth (or any other well-explored world), political history of the Earth (or any other inhabited world), etc. The skill level of these guides is equal to their PP, and they available for any Knowledge or Technical skill. Using these guides doubles any time required, but allows the user to add half the Guide's level to their own skill check. Use a reference guide also allows an unskilled user to attempt a skill with only a penalty of -2, not -4. Time for the skill attempt is tripled.

PP Capacity: 1 per level

Requirements: None

Price: Lv40 per PP

Language Cracker: A program which will analyze a spoken or written language and attempt to discover contextual similarities between it and the native language of the program. This is generally a slow and painstaking process with considerable trial and error involved. The language cracker chips confers a +2 circumstance bonus to K/Linguistics Skill Checks. The language cracker chip also allows a character to learn a language without a native speaker, but the language must be purchased as if it were a cross-class skill.

PP Capacity: 8

Requirements: None

Price: Lv120

COMPUTER STATIONS

Fixed computer stations such as these can be found on board starships, in businesses, in hospital and even in some ground vehicles. Anywhere that complex or delicate machin-

ery must be operated, or bulk information must be processed, a typical computer station can be found. The units can easily interact with any others on the same network, allowing information to be free accessed from one unit by any other.

These machines have considerably more power at their disposal than a portacomp, though the demands on these resources typically run much higher as well. Most homes do not have these full-size workstations, instead using a network of machines similar in power to a portacomp.

Static Workstation

TL: 14

Internal Storage: 2+ Exabytes

CPU: 1000

Model: M1

INT: 4

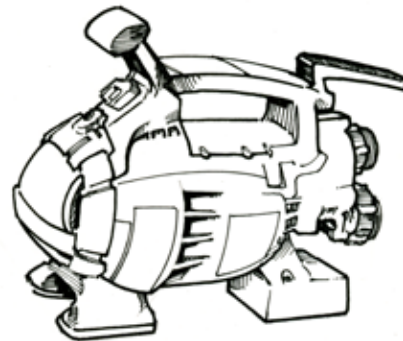
PP: 28/11

Weight: 10 kg

Price: Lv3000

PERSONAL POWER

The most common portable power generators are described here.



Fuel Station: A solar-powered processor that produces electricity from sunlight and then uses it to crack water into hydrogen for vehicle fuel.

The complete station consists of a central unit and 10 solar panels. A tank in the unit can hold 10 vol of liquid hydrogen. The oxygen vent can be connected to a separate oxygen storage tank, if desired.

Each solar panel unfolds into a flat square 10 meters x 10 meters. In sunlight (average intensity in the life zone), each panel generates 0.1 EP which is used to produce 0.1 vol of liquid hydrogen per hour (about 0.7 vol of oxygen are also produced and normally vented). The station only works during daylight hours.

The station can also be used to produce direct electrical power (at 0.1 EP per panel deployed).

TL: 10

Weight: 20 kg (with tank empty)

Price: Lv1200

Fuel Cell: The portable fuel cell is used to provide power in many wilderness situations, and is often used in concert with the fuel station described above. The fuel cell generates 1.0 EP (vehicle scale) of power, and runs for 10 hours on a full load (10 vol) of fuel.

TL: 10

Size: 11 vol (1 + fuel tank)

Weight: 25 kg

Price: Lv750

INDUSTRIAL EQUIPMENT

FABRICATORS

Fabricators use powdered metals and ceramics to rapidly "print" out parts and models. The metals and ceramics are subjected to a chemical/heat curing process, and are then ready to use. Though the parts aren't quite as strong as the original, the ability to produce any spare part while in the field makes them incredibly useful. Most vehicles sold on the Frontier come with a chip containing a complete set of specifications allow practically any spare part to be created. Note that fabricators do not make complete devices, but only individual parts, or non-functional 3-D models. It is possible to create all the parts of a more complicated device on the fabricator, and then assemble it by hand. However, most fabricators have controls built-in to their firmware to prevent them from being used to make parts for weapons. Of course, military fabricators don't have these constraints, and fetch very high prices on the black market. All starship workshops contain the equivalent of a portable fabricator.

Small Fabricator: Suitable for making a small parts and models. Can create objects up to 15cm x 15cm x 15cm. It takes approximately 2-3 minutes to print out an average size part on this size of device. Each use requires a new refill of powdered ceramic and the catalyst.

TL: 9

Weight: 12 kg

Power Input: 0.1 EP

Price: Lv120

Refill Weight: 0.75 kg

Refill Price: Lv5

Portable Fabricator: Possibly the most common type of fabricator, found throughout human space in the hands of colonists and technicians everywhere. The software and firmware controls on these models are the most restrictive, as they are large enough to turn out the parts for assault weapons. Military fabricators are the same size, but lack the firmware controls. This model can create objects up 100cm x

100cm x30cm, sufficient for most replacement parts. It takes approximately 10-15 minutes to print out an average size part on this size of device. Each use requires a new refill of powdered ceramic or metal and the catalyst.

TL: 10

Weight: 220 kg

Power Input: 1 EP

Price: Lv2500

Refill Weight: 20 kg

Refill Price: Lv120

EXPLOSIVES

The most prevalent non-combat explosives in the 24th century are industrially-produced blocks of plastic explosive. These plastic explosive blocks are all of a uniform weight-one kilogram, but their explosive power depends upon the rating they hold. The most commonly used rating for plastic explosive blocks is Plastique-9. Multiple blocks of this explosive can be used together to create larger explosions, or a single block can be broken down to a fragment of its size for smaller blasts. On less-advanced worlds old-fashioned dynamite, which is relatively easy to manufacture, is produced for local use.

It should be noted that possession of explosives requires a local license on most worlds, and the penalties for noncompliance are severe.

Plastique-9

TL: 9

Weight: 1 kg

Damage: 2d12 radius 10

Price: Lv15

Dynamite

TL: 4

Weight: 10

Damage: 1d12 radius 5

Price: Lv5

MISCELLANEOUS

Other common equipment in the 24th century includes the following.

Makeup Kit: The term makeup kit actually can be applied to two very similar items with different purposes. Most makeup kits are used by people in the public eye (actors and the like) to augment their appearance. But makeup kits are also very handy in undercover or criminal endeavors as well to create disguises.

These kits typically include (but are not limited to) hair-coloring dye, modeling putty for altering facial features, colored contact lenses, false eyelashes and artificial facial hair, necessary adhesives and solvents, colored facial powder and pencils for toning and highlighting, setting powder, neces-

sary applicators and brushes, and a variety of basic skin tone foundation makeup.

Use of the Makeup Kit to create an effective disguise requires the Entertain (Dramatic Acting) skill. The total Entertain Skill Check roll is used as the DC for Spot Skill Checks to see if the disguise is penetrated. Computer-controlled security systems suffer a -2 circumstance penalty when attempting to penetrate a disguise.

TL: 8

Weight: 5 kg

Price: Lv250

SofStuf: SofStuf was originally the brand name for a particular brand of foam tissue, but the product became so popular that, as often happens, the brand name became the common public term. SofStuf is a soft, absorbent substance which foams up and cures to a fluffy consistency upon contact with atmospheric nitrogen. It is widely used as a facial tissue; as the foamy part is torn from the top of the box which it is packaged in, the substance below comes in contact with the atmosphere and foams up to replace it. It takes less than two seconds for curing to finish.

SofStuf is also used as bandages, rags, wash cloths, and towels. It comes in a variety of decorative colors.

TL: 8

Weight: 0.25 kg/package

Price: Lv1

ROBOTS AND DRONES

Robots are very common in the society of 2320AD. Robotic systems can be found almost anywhere, from the automated surveillance drones that wander the streets of the Core cities, to the mining equipment used on remote colonies, to cleaning and service 'bots found in many homes. Robots in 2320AD are defined as machines that can follow a set of guidelines without human supervision or intervention. These machines have a limited learning capacity as well, allowing them to remember solutions and implement them in similar situations. They are not capable of thinking, but can simulate intelligence if skillfully programmed.

Drones are simply remote-controlled vehicles, requiring almost constant operation and supervision. Many robots also have a remote-control facility, however, blurring the lines between the two. Typically, a robot can be remote-operated, but a drone has no self-guiding capability, and is thus considerably cheaper than a robot.

SIGNATURE:

Signature is means of determining how easy something is to spot or target for smart missiles compared to other objects/vehicles of the same size. Signatures do not compare across vehicle size classes.

Hund Whisperdrone (Tiny Rotorcraft): The Whisperdrone is powered by a thin high-pressure airline from the controlling vehicle, and can only move to the 100 meter limit of the line. However, it contains laser-rangefinding and designation equipment, along with a suite of visual sensors, which allow the carrying vehicle to act as an artillery spotter without exposing itself to hostile fire. The drone can also be used to generate a firing solution for onboard weapons, like missiles and rockets.

WHISPERDRONE

Class:	RPV	EP Output:	1.00	(0.88 excess)
Price:	Lv1000	Agility:	2	
Tech Level:	11	Initiative:	1	
Size:	Tiny			
Streamlined?:	Standard	AC:	12	
Pressurized?	No	(Size Tiny)	2	
Climate Control?	No			
Drive Train:	Rotary Wing	AR:	0	
Crew:	1	SI:	4	
Fuel:	N/A	Signature:	-2	
Range:	0			
Speeds:				
Std. Acceleration=	1kph	Max. Acceleration=	1kph	
Very Slow (Stall)=	1kph (0 kph)	Slow=	3kph	
Cruising=	5kph	Fast=	8kph	
Max Speed=	10kph	Off-road=	N/A	
Visual:	1 video camera with Low-light, Infrared,			
Sensors:	Laser Designator: Range Increment 100 meters			
Comm:	Link Cable			

Sistemas Domesticas Home Companion (Medium Walker): The Home Companion is an all-purpose bipedal robot, designed to handle any routine domestic duty. While they can't really cook, they can microwave prepared food, and can follow directions to cook simple meals. They are intended to provide cleaning services and upkeep services. The small (1.1 meter tall) robots have a limited vocabulary, and are quite capable of holding a conversation, or even playing some games (chess, backgammon, and others). They are somewhat slow, however. They come with all cleaning attachments built-in, and simply need to recharge from a wall socket every so often. They are very popular with spacecraft crews and other shut-ins.

HOME COMPANION

Class:	Domestic Robot	EP Output:	5 EP Battery	(0.97 excess)
Price:	Lv21,000	Agility:	1	
Tech Level:	11	Initiative:	1	
Size:	Medium			
Streamlined?:	Humanoid	AC:	11	
Pressurized?	No	(Size Medium)	0	

Climate Control?	No		
Drive Train:	2 Legs	AR:	0
Computer Core:	PP Available: 8 Wis: 0 plnt:8 pCha: 8 Edu: 2	SI:	14
Fuel:	0	Signature:	-5
Range:	0		
Speeds:			
Std. Acceleration=	1kph	Max. Acceleration=	1kph
Very Slow=	1kph	Slow=	3kph
Cruising=	5kph	Fast=	8kph
Max Speed=	10kph	Off-road=	5kph
Visual:	1 headlight	1 video camera	
Sensors:	Auditory	Olfactory	Tactile
Comm:	Voder	2-Way Radio	
Manipulators:	2 Arms, Str 12 Dex 10	Built-In Cleaning Equipment	

Installed Software	PP	Cost	Notes
Personality Interface	4	Lv1300	Cha 8
Valet	2	Lv95	
Cooking	2	Lv95	P/Cooking +2
Cleaning	2	Lv95	P/Janitorial +2

Full Verbal Command with High Autonomous Logic.

Sortech FE-909 Security Robot (Medium Wheeled Vehicle): The FE-909 is a small wheeled unit designed to provide perimeter patrol for a large compound. Equally suitable for indoor or outdoor work, the FE-909 comes equipped with low-light and infrared vision, along with a powerful spotlight and a set of rotating red flashers and a siren. By law, these robots can't be armed, but many facilities on the Frontier arm them with sonic weapons, or even lasers.

Sortech FE-909

Class:	Security Robot	EP Output:	8.00	(1.43 excess)
Price:	Lv17500	Agility:	+1	
Tech Level:	12	Initiative:	+2	
Size:	Medium (105 vl)			
Streamlined?:	Standard	AC:	11	
Pressurized?	No	(Size Medium)	0	
Climate Control?	No			
Drive Train:	Wheeled	6 wheels	AR:	6
Computer Core:	PP Available: 8 Wis: 0 plnt:8 pCha: 8 Edu: 2	SI:	16	
Passengers:	0	Signature:	-2	
Cargo Space:	0			
Fuel:	2.4			
Range:	240			
Speeds:				
Std. Acceleration=	8kph	Max. Acceleration=	16kph	
Very Slow=	8kph	Slow=	20kph	
Cruising=	40kph	Fast=	60kph	
Max Speed=	80kph	Off-road=	8kph	
Visual:	4 headlights	Spotlight	Brake light	
	Light bar (red flashers)	2 video cameras with low-light, infrared		
Sensors:	Auditory			
Comm:	2-Way Radio	Radio Receiver	Voder	
Manipulators:	2 Arms Str: 20 Dex: 10			
Weaponry:	Sonic Stunner Pistol 10 shots			

Installed Software	PP	Cost	Notes
Personality Interface	4	Lv1300	Cha 8
Drive	2	Lv700	Driving-2
Combat	2	Lv1300	BAB=PP

Basic Verbal Command with Low Autonomous Logic

Darlan UVR-3 Surveillance Drone (Small Airfoil Airship): The UVR-3 is a small airship-style vehicle typical of the drones used for inner-city surveillance. They are controlled by remote expert systems, and are programmed to drift about on random courses. All audio and video captured by the small drone feeds to the expert system, which monitors the video signal for anything suspicious. If it finds something, it alerts a human operator, who can use his controls to operate the drone and

investigate more closely.

DARLAN UVR-3

Class:	Surveillance Drone	EP Output:	0.30EP Battery	(0.09 excess)
Price:	Lv1500	Agility:	1	
Tech Level:	12	Initiative:	+1	
Size:	Small (5.5 vl)			
Streamlined?:	Standard	AC:	12	
Pressurized?	No	(Size Small)	1	
Climate Control?	No			
Drive Train:	Airfoil Dirigible	AR:	0	
Crew:	1	SI:	5	
Battery	5 hours	Signature:	-5	
Range:	150 km			
Speeds:				
Std. Acceleration=	6kph	Max. Acceleration=	12 kph	
Very Slow (Stall)=	6kph (0kph)	Slow=	15kph	
Cruising=	30kph	Fast=	45kph	
Max Speed=	60kph	Off-road=	N/A	
Visual:	1 video camera with Low-light and Infrared, 1 Spotlight			
Comm:	Loudspeaker	2-Way Radio		

Pinchot Industries AR-201 Construction Robot (Huge Tracked Vehicle): A common sight throughout the Core and the more-advanced worlds of the Frontier, construction robots like the AR-201 perform a myriad of tasks, from excavation and road-building to building construction and renovation. These modular robots can be equipped with several attachments, and larger models are used for truly massive engineering tasks.

AR-201

Class:	Construction Robot	EP Output:	20.00	(3.11 excess)
Cost:	220,458.40	Agility:	3	
Tech Level:	12	Initiative:	+3	
Size:	Large			
Streamlined?:	Standard	AC:	15	
Pressurized?	No	(Size Large)	-1	
Climate Control?	No			
Drive Train:	Tracked	AR:	3	
Crew:	1	SI:	27	
Passengers:	0	Signature:	+2	
Cargo Space:	0			
Fuel:	36			
Range:	240			
Speeds:				
Std. Acceleration=	2kph	Max. Acceleration=	6kph	
Very Slow (Stall)=	2kph	Slow=	5kph	
Cruising=	10kph	Fast=	15kph	
Max Speed=	20kph	Off-road=	10kph	
Visual:	2 headlights	1 Spotlight	1 brake light	2 video cameras
Sensors:	Auditory	Tactile		
Comm:	Voder	2-Way Radio		
Other Equipment:	Tool Arm Str 200 Dex 8			

Installed Software	PP	Cost	Notes
Personality Interface	4	Lv1300	Cha 8
Drive	2	Lv700	Driving-2

Basic Verbal Command with Low Autonomous Logic

PENTAPOD EQUIPMENT

Pentapod analogs exist for much of the equipment listed in this chapter, but they aren't widespread. If an analog is available (up to the GM), it costs at least twice as much as normal equipment but will last nearly forever—as a living creature, it self-repairs. Rough treatment will kill a Pentapod analog but would as easily break Human equipment. All Pentapod equipment listed here has a Lifeblood, Stamina and AC rating, just like any other organism.

Biosampler: The biosampler is among the first Pentapod mass-produced, bioengineered products for human consumption, and the most successful. It is an animal biochemically similar to a human being. It is programmed to determine edibility of plant and animal tissue, and communicate that information to its owner. Communication is simple: If it eats the material, it is safe; if it refuses it, it is toxic.

Although its appearance is unimportant to its function, the Pentapods have, in one of their few marketing successes, made it soft and furry and programmed a limited pattern of semi-random behavior to make it more appealing. This pattern becomes predictable after long viewing, but the creatures have become popular as children's pets on many Frontier worlds. The Pentapods release a new version every few years, differing only cosmetically from previous versions.

Lifeblood: 2
Stamina: 1d4
AC: 10
AR: 0
Weight: 0.5 kg
Price: Lv20

Water Breather: In the early 2300's the Pentapods released a new product on the market, the water breather. It is a shelled creature that fits tightly to the human face, with a clear section over the eyes, a tube that projects into the mouth, and an expandable sac at the chin. The sac expands as the wearer exhales and contracts as the wearer inhales. Meanwhile, the creature filters oxygen out of the surrounding water and exudes it into the sac, while filtering carbon dioxide out of the exhaled air.

It is very popular for casual diving, but some fear the results of tearing the sac while working at deep levels. Others feel suffocated to have a living creature covering their faces. Still others are convinced that the water breathers are part of some sort of Pentapod plot (see the Stabilizer, below).

The water breather does not require the Swim skill to use effectively, and negates the Swim check penalty for consecutive rounds spent underwater.

Lifeblood: 3
Stamina: 1d6
AC: 10

AR: 0
Weight: 0.5 kg
Price: Lv75

Food Converter: The food converter was a later product for the human market, which failed spectacularly. It resembles a short, fat snake, and was capable of converting levo-amino acid proteins and complex carbohydrates to dextro-amino acid proteins and carbohydrates, suitable for Human consumption. It was even capable of synthesizing some vitamins, including the B-complex series but not vitamin D. Unfortunately, the Pentapods only accounted for function, not aesthetics. And in this case, the aesthetics were disastrous. Not for the creature itself, which was merely vaguely unpleasant, but for the results. Essentially, it was fed the food to be converted, and in the digestion process, it converted the amino acids and complex carbohydrates, taking what it needed and excreting the rest. No one would eat the products, and the converter languished until the Kafer War, when the Pentapod factor on Beta Canum gave away over a thousand of them to French resistance fighters, allowing them to live off the land. Many almost died anyway before they would eat the product of the converter. However, some afterwards commented that the product tasted somewhat like pie.

The converter can alter 1 kilogram of food per hour.

Lifeblood: 5
Stamina: 1d8
AC: 11
AR: 0
Weight: 4.3 kg
Price: Free (Lv210 after-market)

Biocontacts: These are among the first Pentapod mass-produced bioengineered products for human consumption, and were widely distributed at fairly low prices, both as a marketing experiment and as a means of developing a distribution system for additional products. Biocontacts are transparent lenses worn in the eye. When purchased they are dormant and opaque. The purchaser must insert them, keep his eyes closed, and remain at rest for eight hours to activate the contacts and allow them to adapt to his body chemistry. (This is normally done during a sleep period.) Once activated, the biocontacts are specific to the owner and will not function for anyone else. They can be removed and stored or kept in the eyes indefinitely (they allow oxygen to pass freely to the cornea). They draw nourishment from the owner's tears, and so must be stored in a special nutrient solution if they are not kept in the eyes.

Biocontacts give the wearer enhanced infrared vision (for night vision) and squinting will give up to a 5x magnification. This changes to increment for Spot Skill Checks from 3m to

15m.

Weight: Insignificant**Price:** Lv500

Stabilizer: The stabilizer is an organic cocoon nearly two meters long and a meter in diameter. Its tough opaque outer shell protects delicate organs inside that can function in place of those of a comatose human being for an indefinite period of time-as long as it takes to get the patient to a medical facility able to treat him.

The stabilizer splits along one side to open, and the patient is placed naked inside, upon which, the stabilizer closes once again. Tiny projections pierce the patient's circulatory and nervous systems, providing nutrients, removing wastes, and controlling pain. A chemical released into the blood halts the patient's respirations while he is inside the stabilizer.

As long as the construct has oxygenated air to breathe, water to drink, and food to consume (about twice that required by a single human), it will remain in operation; patients left inside for more than a month begin to rapidly lose muscle tone, body weight, and joint flexibility due to lack of active or passive exercise. Of course, this is a small price to pay for remaining alive while critically wounded. This current version is much improved from the original, which only provided a week of full support.

The stabilizer is the subject of a number of rumors and horror stories associated with a fear and distrust of Pentapod technology and the Pentapods themselves.

Lifeblood: 12**Stamina:** 4d8**AC:** 15**AR:** 5**Weight:** 400 kg**Price:** Lv5000

Pentapod Biosuit: The biosuit is a new product from the Pentapods, and is essentially a living protective suit. It has limited effectiveness against weapons, but does protect against any encountered toxin or biological agent. The suit is capable of ingesting just about any biological matter and converting it into usable food. It even recycles the user's own wastes, extracting water and any other nutrients. With a small supply of water and biomass, the suit can keep its wearer alive indefinitely in almost any terrestrial environment (provided the user doesn't think too much about where the food and water are coming from). It is not suitable as a hostile environment suit, however, nor as a pressure suit. The biosuit has gone a long way to fueling many a paranoid's darkest nightmare, though.

Lifeblood: 12**Stamina:** 2d8**AC:** 12**AR:** 2**Weight:** 10 kg**Price:** Lv900

Pentapod Earplugs: In a wide variety of environments, hearing protection is desirable. Heavy equipment and weaponry often create intense noise. One of the problems with most hearing protectors is that some necessary sounds are dulled or lost. This problem can range from a minor irritation, such as a conversation being difficult to hear, to a real danger, such as an enemy being undetected when close by.

Advanced electronics have made possible the creation of hearing protectors that work only in the presence of intense noise, going inactive when levels return to normal. But these products are very expensive to purchase and maintain. An alternative is a living earplug produced by Pentapod bio-engineers. This creature is largely a tube of muscle the approximate diameter of the human ear canal and possesses its own sense of hearing. When noise reaches a dangerous level, the creature clenches shut, preventing the excess sound from reaching delicate Human hearing mechanisms. When the noise level drops, the creature relaxes, allowing normal hearing once again.

The Pentapod earplug cannot be worn for more than six hours at a time, or it perishes from lack of nutrients. When not being worn, it is to be stored inside in opaque vial of nutrient fluid. The creature can survive on a minimum of sugar water, but it loses its ability to clench but until normal nutrients are provided once again.

The earplug is yet another piece of Pentapod technology that provides considerable ammunition for the paranoid. Their thoughts run to: "What else won't it let you hear?"

Weight: Insignificant**Price:** Lv300, plus Lv10 for one month of nutrient solution

Pod Plants: Pod plants are a Pentapod creation that has become a very common crop on colony worlds, particularly along the French Arm. In form, it is a hardy, dark green vine that produces pods similar to Terran gourds, but have much stronger shells (stronger than Terran ironwood) after aging. Pods are harvestable when they reach a size of one quarter of a liter interior volume, but if left to grow, can attain volumes of up to 500 liters. While growing, they are very sensitive to long-term outside pressure, and as a consequence, if a wire-mesh form is built around a developing pod, the pod will grow to fill the space the form marks out. Pods can be grown to nearly any shape and size before harvesting, making them of great use as crates, barrels, furniture, can-teens, or many other commonly needed items (pod plants are sometimes grown as sculptures).

Once the pod is harvested, it is opened and the pulp

inside is scooped out (a small hole is enough). The shell is allowed to air cure for several hours. Fittings such as resealable necks, hinges, latches, or handles are then affixed if the pod is to become a reusable container. If the pod is to be used as a shipping crate, the item to be packed is placed inside, and packing material is inserted. Two common packing materials are a substance similar to "SofStuf" and a Pentapod product known as "Packing Seed" (see below). The opening is then reclosed by gluing the piece removed back into place, making an airtight seal.

Weight: Variable

Price: Up to Lv60 for a large crate, more if made into furniture, etc.

Packing Seed: "Packing seed" is an agricultural product created by the Pentapods and commonly used with pod plants. Packing seed plants are small, hardy bushes that produce a fruit with a tough skin that shrinks when dried, placing the fibrous meat inside under considerable pressure. When using packing seed as a packing material, an item is placed inside a container, packing seed is dumped in around it, and a sharpened stick is run forcefully down through the fruit, rupturing the skin and allowing the meat inside to expand and fill the container. Packing seed can be a little difficult to remove, but it absorbs shock well, making it an excellent packing material for items shipped by orbital catapult.

Weight (Ruptured): 3 kg per m3

Price: Lv1 per m3

WEAPONS

The universe of 2320AD can often be a dangerous and violent place. Adventuring characters will often need the ability to defend themselves. This section describes both personal and man-portable heavy weapons found in Human space.

MELEE WEAPONS

Though not used very often in combat, melee weapons are very common in criminal circles, or when nothing else is available.

Knife: A basic hunting or utility knife. Not balanced for throwing.

Hatchet: A small, short-handled axe used for camping. Can be thrown.

Axe: A longer-handled tool used for chopping and splitting wood.

Club: Any sort of heavy, blunt object used as an improvised weapon.

Shortsword: A short-bladed weapon, like a machete.

Longsword Typical of long-bladed slashing weapons, such as the Cold Mountain sword

Wakizashi This Japanese-style shortsword is almost always made as a pair with the longer katana, below.

Katana This Japanese-style longsword is renowned both for its quality and its connection to the ideal of the samurai.

Ceramic Knife The ceramic knife is a tanto-style long knife made out of high-density ceramic. It is as strong as steel, but as sharp as glass and remains sharp longer than a steel weapon.

Wire Knife The wire knife was originally designed as a cutting tool for the beanstalk projects. The blade consists of an elliptical loop of single-fiber nanotube, doped with superconducting ceramic. When an electrical charge is passed through the blade, the superconductor holds it rigid. With power turned off, the loop of wire can be retracted into the handle. Though nanotube is very strong, the single-fiber strand, when held rigid by the charge, is relatively fragile, and can be snapped off by high-density objects.

Puke Stick The puke stick is a prisoner/riot control device. When it hits, or even touches, a target, a specially modulated pulse of electricity is sent into the victim, generally making him nauseated and often violently ill. Most people aren't capable of putting up a great deal of resistance if they're puking their guts out. Any unarmored target must make a Fort Save vs. DC 15 or be violently ill (-4 to all actions, 1/3 normal Move Rate). The effect lasts for 20-Con minutes. Even passing the Fort save means that the target will be badly nauseated, and at -2 to all actions. This likewise lasts for 20-Con minutes.

Shock Baton Designed for police and prison work, short versions of these weapons are much favored by muggers and thieves. A touch is enough to send a debilitating charge through the target, often making them pass out or go into convulsions. Target must make a Fortitude Save vs. DC 15 or be at -6 to all actions for 1d6 minutes. Even making the save results in -2 to all actions for 1d4 minutes.

Shock Glove Shock gloves have much the same effect as the baton, above, but are more likely to be used by security guards and the military, not to mention the underworld. Target must make a Fortitude Save VS DC 14 or be at -5 to all actions for 1d6 minutes. Even making the save results in -1 to all actions for 1d4 minutes.

FIREARMS

There are three general types of projectile weapons in general use by humanity in the 24th century: conventional rifles, binary propellant rifles, and gauss rifles.

Conventional Rifles: Conventional rifles fire a fixed caseless round, with the bullet embedded in a solid rectangular block of propellant. The round itself consists of a dense metallic core surrounded by a low-friction sabot, which abrades in the barrel and falls away after the bullet leaves. This gives the round a longer range and flatter trajectory, which improves accuracy. Virtually all civilian rifles are con-

Weapon	Price	TL	Weight	Range	DMG (crit)	Type
Knife	Lv20	1	1kg	1.5 meters	1d4 (19)	Medium Piercing/Slashing
Hatchet	Lv10	1	1kg	1.5/3 meters	1d6 (19)	Medium Slashing
Axe	Lv25	1	2kg	1.5 meters	1d8 (18)	Medium Slashing
Club	–	1	1kg	1.5 meters	1d6 (x2)	Medium Bludgeoning
Short Sword	Lv20	1	1kg	1.5 meters	1d6 (19)	Medium Piercing/Slashing
Long Sword	Lv120	1	1kg	1.5 meters	1d8 (x2)	Medium Piercing/Slashing
Sword	Cr800	1	1kg	1.5 meters	1d8 (x2)	Medium Piercing/Slashing
Katana	Lv1200	1	1kg	1.5 meters	1d10 (x2)	Medium Piercing/Slashing
Ceramic Knife	Cr150	9	1kg	1.5 meters	1d6 (x2)	Medium Piercing
Wire Knife	Lv200	11	0.3kg	1.5 meters	1d10 (x2)	Medium Piercing/Slashing
Puke Stick	Lv550	10	1kg	1.5 meters	1d4 (x2)	Medium Bludgeoning
Shock Baton	Lv320	?	1kg	1.5 meters	1d8 (x2)	Medium Electric (stamina damage only)
Shock Glove	Lv250	?	0.4kg	Touch	1d8 (x2)	Medium Electric (stamina damage only)

ventional rifles, but they have mostly been replaced in military service by gauss and binary propellant rifles.

Binary Propellant Rifles: Binary propellant ammunition consists of the bullet itself, and a separate set of gas propellants. The propellant mixes are separately inert, but when combined become explosive. In operation, the two gases are injected into the firing chamber behind with the bullet, and combine explosively to propel the round. The main advantage is the compressed gases are much less bulky than conventional rounds, and an individual soldier can carry more ammunition. When used with a rangefinder the amount of propellant can be adjusted to fit the range, and the round follows a flatter trajectory than other weapons.

Gauss Rifles: Gauss rifles are linear magnetic accelerators which fire fin-stabilized flechettes (the weapons can be adjusted to give the rounds a spin if fired in vacuum). Usually the magazine for the gauss rifle also contains a battery pack which powers the gun.

Virtually all rifles incorporate optic sights. Also, as damage potentials have increased, weapons have incorporated more elaborate recoil-absorbing features. Most long-range rifles also have a gunner-activated laser range finder, which can be used in conjunction with computer-controlled fuses on some propelled grenades to improve accuracy and hitting power.

CURRENT SERVICE RIFLES

The following rifles are currently being used by major military forces in the 24th century. All of these weapons are considered Piercing type. In addition, weapons using APHE ammo, as well as all Gauss weapons, are automatically considered to be using AP ammo, with the bonuses as listed. All firearms do Piercing damage. All slug-throwing weapons have Recoil, even Gauss weapons.

Segetov AS-99 (Avtomat Segetov 2299): The standard Russian and Ukrainian service weapon, the AS-99

incorporates a reliable optical sight and an integral 30mm G-2 grenade launcher. As a progressive upgrade of the older AS-89, the AS-99 incorporates new materials and advances in gauss weapon technology. The AS-99 is aggressively exported, and finds its way into the armies of many poorer nations, along with mercenaries, criminals and terrorists. This gun cannot make use of computer-controlled fused grenades without replacing the grenade launcher and sight.

Type: 4.54mm gauss rifle with integral 30 mm grenade launcher
Country: Russia
Length: 73 cm (Size = Medium)
Action: Single shot or burst
Ammunition: 4.54x21 mm flechette
Muzzle Velocity: 1530 mps
Magazine: 60-round box magazine with integral power cell
RoF: 1/4/10
Range: 200m
Damage: 2d12 (x2) AP Bonus: +1

For grenade launcher stats, see Combat Rifle Integral Grenade Launcher, below (p. 237).

TL: 11

Weight (Empty): 4 kg

Magazine Weight: 0.3 kg

Price: Lv450 (Lv2 for 60-round disposable magazine with power cell)

FIREARMS LAWS:

Each nation and colony has a stated law level, which describes, among other things, the legality of certain classes of weapons. It is possible to own weapons that would be otherwise banned at a certain law level, but one must show a justified need, and purchase the required permits. Permits are Lv100 per law level (so Law Level 8 requires a Lv800 permit), are good for one year, and allow the holder to own weapons 1 law level below that which is normally permitted).

Traylor Arms M5A3: The M5A3 is a progressive development of the M5 assault rifle, which is itself a development of the old M2. The M5A3 is a binary-propellant design, incorporating a 3-round 30mm grenade launcher, along with

hardened sights equipped with an red-dot, low-light and telescopic options, along with an active/passive rangefinder. The rangefinder is used to feed fusing information to the grenades, enabling them to explode at set distances for enhanced effectiveness against dug-in troops.

The M5A3 is derived from lessons learned in the Kafer War, where first-shot lethality was of more use than range or penetration. The M5A3 is optimized for close quarters combat at ranges of under 200 meters, and often down to 50 meters or even closer, and has been a favorite of Marine raiders for almost a quarter century.

Type: 9mm binary propellant assault rifle Country: USA Length: 75 cm (Size=Medium) Action: Single shot or bursts Ammunition: 9x40mm APHE Muzzle Velocity: 1200 mps Magazine: 40 rounds (separate propellant bottles for 120 shots) RoF: 1/4/10 Range: 96m Damage: 2d12 (x2) AP Bonus: +1

For grenade launcher stats, see Combat Rifle Integral Grenade Launcher, below (p. 237).

TL: 12

Weight (Empty): 3 kg

Magazine Weight: 0.3 kg

Price: Lv580 (Lv10 for box of 40 rounds, Lv20 for set of propellant and oxidizer)

Guiscard FAM-90bis (Fusil Automatique Mag-netique-2290): The standard infantry weapon of first-line French infantry, the FAM-90bis gauss rifle fires single shots at high velocity, giving good accuracy. It is designed to fire 4-round bursts so rapidly that the fourth has fired before the first leaves the barrel, giving it improved controllability on automatic fire. It does not have a full-auto function. The optic sights incorporate a red-dot option, along with a low-power laser range finder. The range-finder is used to feed information to the grenade launcher. An HR-17 30mm grenade launcher is mounted below the barrel, and is designed to fire fused grenades. A tight four-round burst "to damage" gives +1 to attack rolls in addition to the normal +2 dice of damage. All other burst attacks work as normal.

Type: 4.5mm Gauss rifle with integral 30mm grenade launcher Country: France Length: 76 cm (Size=Medium) Action: Single shot or bursts Ammunition: 4.5x20mm flechette Muzzle Velocity: 1600 mps Magazine: 60-round box magazine with integral power cell magazine. RoF: 1/4/10 Range: 112m Damage: 2d12 (x2) AP Bonus: +1

For grenade launcher stats, see Combat Rifle Integral Grenade Launcher, below (p. 237).

TL: 12

Weight: 4.5kg (empty)

Magazine Weight: 0.3 kg

Price: Lv700 (Lv20 for 60-round disposable magazine).

WEAPON OFFENSES:

Possession of an illegal weapon holds a variety of penalties, based on the law level of a given nation or world. For Low Law regions, the penalty will be little more than confiscation of the weapon and a fine (Law Level x Lv500). For Moderate Law Areas, the penalties include confiscation, a fine (Law Level x Lv1000) and possible jail time (Will Save vs. DC (Law Level x 2)). Jail time is equal to the law level, in months. For high law worlds, the same applies, though the fine is Law Level x Lv2000, and there is no save to avoid jail time. In Extreme Law areas, a character is more likely to get shot out of hand than arrested. Use of a weapon in the commission of a crime will result in automatic jail time, no matter the Law Level.

Darlan Fabrique FTE-22 (Fusil de Tireur d'Élite-22): Generally, each French squad contains one FTE-22 (or similar) sniper rifle to use for long-range. The Fusil de Tireur d'Élite-22 is a very low-signature weapon, which makes it excellent for harassment fire from concealment. The round will have hits its target well before the shockwave of its passage will have reached any observers. The FTE-22 can also penetrate light vehicle armor at reasonable ranges.

Due to its great physical length, the FTE-22 has carried over the nickname "Kentucky long rifle" (from the older FTE-10) among American soldiers. Though long and bulky, the accurate, long-range fire-power saw a great deal of use in the Kafer War, used to target officers and command vehicles. The FTE-22 comes equipped with an electronic sight with red-dot, imaging, telescopic, low-light, and thermal imaging options.

Type: 10mm Gauss sniper rifle Country: France Length: 192 cm (Size=Large) Action: Single shot Ammunition: 10x37mm flechette Muzzle Velocity: 1670 mps Magazine: 10-round box magazine. Separately loaded 30-round power cell. RoF: 1 Range: 192m Damage: 3d10 (x3) AP Bonus: +2.

TL: 12

Weight (Empty): 12.5 kg

Magazine Weight: 0.2 kg (power cell 0.2 kg)

Price: Lv450 (Lv20 for box of 100 flechettes; Lv10 for disposable power cell)

Price with Scope: Lv1085

Yen Shan State Armory Type-81 Storm Gun: Shortly before the Central Asian War, there was a flurry of interest in man-carried heavy caliber "storm guns," mostly brought on by Manchuria's adoption of the Type-81. The storm gun was intended to provide light anti-vehicle and anti-bunker fire, and the exploding round was expected to give a good area fire capability. In service, however, the

weapon proved disappointing. Though out of service with most Core nations, the Type-81 has received a great deal of interest from colonial militias, especially those unable to afford more expensive support weapons like plasma guns. It includes a basic optical scope with a red dot sight, but with no other options.

Type: 20mm binary propellant storm gun Country: Manchuria Length: 163 cm (Size=Large) Action: Single shot Ammunition: 20x31 mm APHE Muzzle Velocity: 840 mps Magazine: 10-round box magazine; separately loaded internal gas bottles with charge for 100 rounds RoF: 1 Range: 60m Damage: 4d10 (x3) AP Bonus: +2

TL: 10

Weight (Empty): 12 kg

Magazine Weight: 2 kg (recharge bottle 2 kg)

Price: Lv580 (Lv20 for box of 20 rounds; Lv20 for recharge bottle)

Surplus Service Rifles

The surplus service rifles described below are no longer the primary small arms of their countries' military forces. Nonetheless, the weapons are still in widespread use by a number of smaller forces.

Ströhl SG-77 (Sturmgewehr-2277): The Sturmgewehr-2277 has long been replaced by more modern types of weapons in Germany's arsenal; however, the weapon was once widely exported, and it can still be found in private hands, as well as in the armories of many smaller armed forces and militias. It is not fitted standard with a scope

Type: 5.5mm conventional assault rifle Country: Germany Length: 75 cm (Size=Medium) Action: Single shot or bursts Ammunition: 5.5X40mm fixed cartridge ball Muzzle Velocity: 1200 mps Magazine: 40 rounds RoF: 1/3/10 Range: 45m Damage: 1d12 (x2)

TL: 9

Weight (Empty): 3 kg

Magazine Weight: 0.3 kg

Price: Lv280 (Lv2 for box of 100 rounds)

Wu-Beijing Type-94 Assault Rifle: The Wu-Beijing Type-94 Assault Rifle is unique among modern military arms, its uniqueness stemming from a return to an older design which uses a trigger-magazine-barrel design layout rather than the more efficient "bullpup" layout (a magazine-trigger-barrel design).

The Type 94 was developed from the older Type -49, the main difference being a more ergonomic design which allows controlled fire without a stock. Both types are found throughout Human space. It comes equipped with a pistol scope with the red-dot option.

Type: 7.5mm conventional assault rifle Country: Manchuria Length: 58 cm (Size=Medium) Action: Single shot or bursts Ammunition: 7.5 x 32mm fixed cartridge ball Muzzle

Velocity: 880 mps Magazine: 25 rounds RoF: 1/4 Range: 60m, 45m with stock folded Damage: 1d12 (x2)

TL: 10

Weight (Empty): 3 kg

Magazine Weight: 0.4 kg

Price: Lv230 (Lv20 for box of 100 rounds)

Civilian Weapons

These are the most common civilian rifles in the 24th century.

Stracher SS-7 (Scharfshutzen Model 7): The Stracher SS-7 is the only mass-produced air rifle currently in use as a hunting weapon (although a variety of low-power air rifles are used for recreation target shooting). The weapon is powered by compressed air from a central reservoir, which holds sufficient pressure for 20 shots at high pressure and 30 more at low pressure. The weapon can be recharged by hand, but only to the low pressure level. A small, solar-powered compressor is available to accompany the weapon, which sees good sales along the French and Manchurian Arms.

Type: 4mm sporting rifle Country: Austrovenia Length: 72 cm (Size=Medium) Action: Single shot Ammunition: 4mm flechette Muzzle Velocity: 480 mps Magazine: 20-round box Air Recharge Bottle: 0.5 kg RoF: 1/3 Range: 60m high pressure, 30m low pressure Damage: 1d8 high pressure, 1d6 low pressure

TL: 8

Weight (Empty): 1 kg

Magazine Weight: 0.1 kg

Price: Lv140 (Lv10 for box of 1000 rounds; Lv10 for recharge bottle)

Stracher Luftscheibengewehr A5: The Luftscheibengewehr Ausf 5 (Air disk gun, model 5) is best described as an air-powered shotgun, and was developed for use on Cold Mountain. It fires a spread of 22mm disks trailing monofilament fiber. When it hits a target like a Flying Blind, the disks tumble and whip the line around. The disks are largely ineffective against most creatures, but against the extremely thin animals of Cold Mountain, it can do considerable damage. The disks are even marginally effective against razor-flies. This weapon has a variety of nicknames, including Ripper and Weedeater.

Type: 22mm air shotgun Country: Austrovenia Length: 56 cm (Size=Medium) Action: Single shot Ammunition: 22 x 30 mm airshell (20 22mm disks stacked inside) Muzzle Velocity: 200 mps Magazine: 8 round box RoF: 1 Range: 10m Damage: 1d4 (2d6 vs. Cold Mountain animals) (x2)

TL: 8

Weight (Empty): 4.1 kg

Magazine Weight: 2.1kg

Price: Lv350 (Lv8 for box of 40 rounds)

Guiscard FC-68 (Fusil Chasseur 2268): The FC-68 was designed with the Frontier colonist in mind, and is widely used by French civilians on a variety of worlds. It combines a bullpup configuration (giving it a distinctly military look-one of its strongest selling features) with full-automatic fire. It does not come with a scope, but one may be purchased.

Type: 5mm sporting rifle Country: France Length: 75 cm (Size=Medium) Action: Single shot or bursts Ammunition: 5 x 15mm fixed cartridge ball Muzzle Velocity: 630 mps Magazine: 70-round box RoF: 1/3/10 Range: 45m Damage: 1d8 (x2)

TL: 9

Weight (Empty): 1 kg

Magazine Weight: 0.3 kg

Price: Lv240 (Lv2 for box of 300 rounds)

Guiscard FC-70 (Fusil Chasseur 2270): The FC-70 was designed to make use of the large quantities of 7.5mm surplus ammunition available on the open market, and low firing cost has made it (and other similar rifles) popular. It is widely used both as a target rifle and for medium-sized game hunting. Even as the military inventories of the round are drying up, civilian manufacturers have stepped up to provide ammo for the huge installed base of users. It does not come with a scope, but one may be purchased.

Type: 7.5mm hunting rifle Country: France Length: 102 cm (Size=Medium) Action: Single shot Ammunition: 7.5 x 40mm fixed cartridge ball Muzzle Velocity: 910 mps Magazine: 5-round box RoF: 1 Range: 72m Damage: 1d12 (x2)

TL: 8

Weight (Empty): 3kg

Magazine Weight: 0.2kg

Price: Lv220 (Lv5 for box of 100 rounds)

Rockwell 12-81 Magnum: Deservedly enjoying a reputation as the most powerful sporting rifle in known space, the 12-81 can only be fired from a rest with the integral bipod extended, and even then the provision of an in-stock shock absorber is necessary to avoid injury to the firer. The rifle was originally designed to provide a weapon with a high first-round killing capability against many varieties of large animals on the frontier, but has since enjoyed wide use in the armed forces of several nations as a long-range sniper rifle. The French FTE-22 gauss rifle is in many ways a more modern version of the Rockwell 12-81 Magnum. It does not come with a scope, but one may be purchased.

Type: 12mm big game and sniper rifle Country: United Kingdom Length: 144 cm (Size=Large) Action: Single shot Ammunition: 12 x 81 mm fixed cartridge ball Muzzle Velocity: 1100 mps Magazine: 6 rounds RoF: 1 Range: 96m Damage: 3d12 (x2)

TL: 10

Weight (Empty): 14 kg

Magazine Weight: 0.5 kg

Price: Lv400 (Lv50 for box of 100 rounds)

SHOTGUNS

Two sample shotguns, one pump, one automatic.

Traylor Model 10 Riot Gun: This short-barreled weapon comes with a folding stock, and variants of this design are a favorite with colonists on the Frontier.

Type: 18mm pump shotgun Country: USA Length: 96 cm (Size=Medium) Action: Single shot Ammunition: 18 x 60mm fixed cartridge buckshot (10 6mm slugs) Muzzle Velocity: 428 mps Magazine: 9-round tube RoF: 1 Range: 3m Damage: 3d6 (x2)

TL: 9

Weight (Empty): 3kg

Magazine Weight: 0.5kg

Price: Lv300 (Lv2 for box of 100 rounds)

DunArmCo Close Assault Gun: The devastating firepower of this automatic shotgun made it very popular throughout the Kafer War. Tens of thousands of these guns were made under license and distributed all over the French Arm, where they have now become a massive headache to law-enforcement officials.

Type: 18mm automatic shotgun Country: Australia Length: 68 cm (Size=Medium) Action: Single shot or bursts Ammunition: 18 x 60mm fixed cartridge buckshot (10 6mm slugs) Muzzle Velocity: 410 mps Magazine: 10-round box RoF: 1/3 Range: 6m Damage: 3d6 (x2)

TL: 9

Weight (Empty): 4 kg

Magazine Weight: 0.5 kg

Price: Lv330 (Lv2 for box of 100 rounds)

Specialty Shotgun Rounds

Shotguns are often characterized as "the poor man's grenade launcher" due to the wide variety of loads available for them. Note that fully automatic shotguns cannot use the grenade or Stingball rounds, as the propellant in these rounds is insufficient to work the action of the gun. It is possible to fire the rounds by manually working the weapon's action, but this takes an extra round.

Round	Effect	Price
Slug	2d12 damage	Lv4 per 25 rounds
AP Slug	2d12 damage, +2 AP	Lv10 per 25 rounds
Flechette	3d6 damage, +1 AP	Lv2 per 25 rounds
Grenade	2d6 damage, 3m radius	Lv50 per 25 rounds
Sting Ball	3d6 Stamina Damage	Lv12 per 25 rounds

Slug is a solid, rifled slug used for big-game hunting.

The AP slug is a solid slug wrapped around a tungsten penetrator core.

Flechette ammo is an alternative to conventional shot, and consists of dozens of 3mm fin-stabilized darts. (Note that flechette rounds are -2 to hit and -2 on damage in a vacuum) These rounds are considered to be Piercing/Slashing vs. personal armors.

Grenade rounds are just small, high-explosive grenades

Sting Ball rounds are similar to normal buckshot, but instead of being packed with 9mm lead balls, the rounds are packed with 9mm hard rubber balls.

HANDGUNS

As with civilian rifles, a wide variety of handgun types can be found in the 24th century. The weapons which are listed below represent some of the range of capabilities in 24th-century handguns.

The principal types of handguns are revolvers and automatics. Revolvers are fed from a revolving cylinder, while automatics are fed from removable magazines. Automatics are more efficient, but revolvers are more reliable. (A revolver is carried with the firing pin resting on an empty chamber, which is not possible for an automatic unless the pistol is carried without a round in the chamber, in which case, it must have the slide worked to chamber a round from the magazine before firing.)

Because of their short range and limited stopping power, pistols are not generally issued to combat troops. Officers often carry a pistol as a badge of rank more than an actual weapon; a combat rifle is generally carried as well. Some troops buy heavy pistols and value them for their handiness at close range, their low bulk often enabling the firer to get off the critical first shot.

Gauss and binary propellant pistols are very rare and very expensive, as the extra complexity involved in their design more than offsets the increase in firepower. All pistols do Piercing Damage

Hancock Nine-Twenty-Three Enforcer: A common American police and personal defense weapon. A plastic reloader allows all six rounds to be inserted with a single Move Action.

Type: 9mm police revolver Country: USA Length: 21 cm (Size=Tiny) Action: Single shot Ammunition: 9x23mm fixed cartridge ball Muzzle Velocity: 390 mps Magazine: 6-round cylinder RoF: 1 Range: 30m Damage: 1d8 (x2)

TL: 10

Weight (Empty): 0.5 kg

Weight of 6 rounds in Reloader: 0.1 kg

Price: Lv170 (Lv20 for box of 100 rounds)

Stracher Model 6: This compact pistol uses the same

high-velocity ammunition as the MP-67 series.

Type: 6 mm automatic Country: Austrovenia Length: 32 cm (Size=Small) Action: Single shot Ammunition: 6 x 27mm fixed cartridge ball Muzzle Velocity: 860 mps Magazine: 22-round box RoF: 1 Range: 24m Damage: 1d10 (x2)

TL: 9

Weight (Empty): 1.2 kg

Magazine Weight: 0.5 kg

Price: Lv570 (Lv24 for box of 100 rounds)

Traylor Model 57A1 (Chip Traylor Special): A common American police and personal defense weapon.

Type: 9mm automatic Country: USA Length: 20 cm (Size=Tiny) Action: Single shot Ammunition: 9 x 24mm fixed cartridge ball Muzzle Velocity: 460 mps Magazine: 20-round box RoF: 1 Range: 45m Damage: 1d10 (x2)

TL: 9

Weight (Empty): 0.6 kg

Magazine Weight: 0.13 kg

Price: Lv150 (Lv20 for box of 100 rounds)

Stracher P-11 mm (Pistole 11 mm Magnum): A conventional 11mm automatic pistol.

Type: 11 mm automatic Country: Austrovenia Length: 35 cm (Size=Small) Action: Single shot Ammunition: 11 x 35mm fixed cartridge ball Muzzle Velocity: 580 mps Magazine: 7-round box RoF: 1 Range: 45m Damage: 1d12 (x2)

TL: 9

Weight (Empty): 1.5 kg

Magazine Weight: 0.2 kg

Price: Lv350 (Lv20 for box of 100 rounds)

Traylor MX-99 Gauss Pistol: More of a target pistol than a combat weapon, the MX-99 does see some military sales, but mostly in personal purchases by officers. It is practically a symbol of office for mercenary officers along the Chinese Arm.

Type: 3 mm gauss Country: USA Length: 41 cm (Size=Small) Action: Single shot Ammunition: 3 x 22mm flechette Muzzle Velocity: 1540 mps Magazine: 12-round box RoF: 1 Range: 60m Damage: 1d12 (x3)

TL: 12

Weight (Empty): 2.1 kg

Magazine Weight: 0.4 kg

Price: Lv1450 (Lv12 for box of 20 rounds)

Stracher HD-120 Binary Propellant Battle Pistol: Designed as an experimental sidearm for soldiers in battlesuits, it also seems some use as a sidearm for combat walkers, albeit in a modified format.

Type: 12 mm automatic Country: Austrovenia Length: 37 cm (Size=Small) Action: Single shot Ammunition:

12 x 20mm fixed cartridge APHE Muzzle Velocity: 610 mps
Magazine: 12-round box RoF: 1 Range: 45m Damage: 1d12 (x2)

TL: 12

Weight (Empty): 2.3 kg

Magazine Weight: 0.3 kg

Price: Lv850 (Lv80 for box of 100 rounds)

SUBMACHINGUNS AND ASSAULT PISTOLS

Traylor T-50 Assault Pistol: A small, selective fire weapon, favored by criminals and police alike.

Type: 9mm submachine gun Country: America Length: 40 cm (Size=Small) Action: Single shot or bursts Ammunition: 9 x 20 mm fixed cartridge ball Muzzle Velocity: 750 mps Magazine: 40-round box RoF: 1/3/10 Range: 45m Damage: 1d10 (x2)

TL: 11

Weight (Empty): 2.2 kg

Magazine Weight: 1.2 kg

Price: Lv700 (Lv12 for box of 100 rounds)

Stracher MP-67K Compact Submachinegun:

The smaller cousin of the MP-67, the MP-67K (K for Kurz, or short) is little bigger than a large pistol, with almost the same firepower as its bigger relative.

Type: 6mm submachine gun Country: Austrovenia Length: 40 cm (Size=Small) Action: Single shot or bursts Ammunition: 6 x 27mm fixed cartridge ball Muzzle Velocity: 830 mps Magazine: 25-round box RoF: 1/4 Range: 45m Damage: 1d10 (x2)

TL: 10

Weight (Empty): 2.2 kg

Magazine Weight: 0.7 kg

Price: Lv900 (Lv12 for box of 100 rounds)

Stracher MP-67 PDW (Personal Defense Weapon): Using a high-powered 6mm round that is more like a cut-down rifle round than a conventional pistol round, the MP-67 is designed to provide compact and controllable firepower for rear-echelon troops and vehicle crews. It has also found in use with police SWAT teams and military special forces.

Type: 6mm submachine gun Country: Austrovenia Length: 60 cm (Size=Small) Action: Single shot or bursts Ammunition: 6 x 27mm fixed cartridge ball Muzzle Velocity: 910 mps Magazine: 50-round box RoF: 1/4 Range: 45m Damage: 1d10 (x2)

TL: 10

Weight (Empty): 2.4 kg

Magazine Weight: 1.5 kg

Price: Lv1100 (Lv24 for box of 100 rounds)

AUTOGUNS

Autoguns are a category of crew-served light automatic weapons fed from large capacity drums or flexible cassettes, and are typically fired from mounts. They are similar to rifles but their heavier construction enables them to sustain a higher rate of fire over time. Rotary guns are Gatling-style weapons that use multiple rotating barrels to achieve extremely high rates of fire. Rotary guns saw a great deal of use in fixed mounts and on vehicles during the initial landings on Kafer worlds.

Kasakaia M-97 This relatively new weapon uses the same ammunition as the M5A3 assault rifle to simplify support requirements.

Type: 9mm binary machine gun Country: America Length: 97 cm (Size=Medium) Action: Single shot or bursts Ammunition: 9x20mm binary APHE Muzzle Velocity: 1200 mps Magazine: 200-round drum or 600-round cassette (includes gas bottles) RoF: 0/4/10 Range: 72 m (144m on mount) Damage: 2d12 (x2) AP Bonus: +1

TL: 12

Weight (Empty): 4.7 kg

Magazine Weight: 1.5 kg (drum), 5 kg (cassette)

Price: Lv1450 (Lv20 for box of 100 rounds; Lv50 for empty drum or cassette)

Wu-Beijing Type 381 Machinegun: The Type 381 is typical of many medium machineguns found in arsenals all over Earth and charted space.

Type: 7.5mm conventional machine gun Country: Manchuria Length: 122 cm (Size=Large) Action: Single shot or bursts Ammunition: 7.5 x 32mm fixed cartridge ball Muzzle Velocity: 940 mps Magazine: 150-round cassette RoF: 1/3/10 Range: 96m (180m on mount) Damage: 1d12 (x2)

TL: 10

Weight (Empty): 7 kg

Magazine Weight: 2 kg

Price: Lv870 (Lv20 for box of 100 rounds; Lv50 for empty cassette)

DunArmCo Mini-12: Virtually a small cannon, the Mini-12 is found in licensed-built and copied forms in just about all militaries as a heavy infantry support weapon.

Type: 12mm conventional heavy machine gun Country: Australia Length: 144 cm (Size=Large) Action: Single shot or bursts Ammunition: 12 x 95mm fixed cartridge ball Muzzle Velocity: 940 mps Magazine: 100-round cassette RoF: 0/4/10 Range: 120 m (250m on mount) Damage: 3d12 (x2)

TL: 10

Weight (Empty): 24 kg

Magazine Weight: 7 kg

Price: Lv910 (Lv30 for box of 100 rounds; Lv50 for empty cassette)

Guiscard F-44 Gauss Gun: One of the few gauss machineguns in service, the F-44 was developed to ease logistical support for French units carrying the FAM-99 gauss rifle by providing ammunition commonality.

Type: 4.5 mm crew-served gauss support weapon
Country: France Length: 130 cm (Size=Large) Action: Single shot or bursts Ammunition: 5.5 x 25 mm flechette Muzzle Velocity: 1100 mps Magazine: 5000-round cassettes RoF: 1/10/20 Range: 96 m Damage: 2d12 (18)

TL: 12

Weight (Empty): 40 kg on field mount

Magazine Weight: 15 kg

Price: Lv2500 (Lv2 for box of 50 rounds; Lv5 for empty drum)

DunArmCo M-600 Rotary Gun: Sometimes sheer volume of fire is required, and when it is the M-600 is the premier light support weapon. It consumes ammunition at a prodigious rate, however.

Type: 9mm rotary machinegun Country: Australia Length: 97 cm (Size=Large) Action: Bursts Only Ammunition: 9x44 mm fixed cartridge APHE Muzzle Velocity: 1100 mps Magazine: 1500-round cassettes RoF: 0/20/100 Range: 96 m Damage: 2d12 (x2) AP Bonus: +1

TL: 12

Weight (Empty): 25 kg (empty)

Magazine Weight: 35 kg

Price: Lv1400 (Lv2 for box of 50 rounds; Lv50 for empty cassette)

Toho Type 12 Autocannon: The Type 12 is typical of most light auto-cannons, and variations on this weapons can be found everywhere from IFVs to aircraft to anti-missile systems.

Type: 25mm conventional autocannon Country: Japan Length: 190 cm (Size=Huge) Action: Single shot or bursts Ammunition: 25x 161 mm fixed cartridge APHE Muzzle Velocity: 1100 mps Magazine: 50-round drums RoF: 1/3/10 Range: 250m Damage: 6d10 (x3)

TL: 11

Weight (Empty): 600 kg on field mount

Magazine Weight: 15 kg

Price: Lv1000 (Lv2 for box of 50 rounds; Lv5 for empty drum)

LASERS

Lasers emit beams of coherent light which can cause damage to a target. The short-duration, high-energy beam produces such a rapid temperature change in a target's surface that it explosively vaporizes, causing shock damage to the target. Due to this factor, laser weapons cannot be used as laser designators for missiles or artillery.

Lasers are typically powered by high-efficiency liquid metallic suspension (LMS) battery packs. Since a battery's discharge rate is insufficient to directly power a strong beam, the battery "pumps" a fast-discharge homopolar generator, which comprises most of the laser mechanism. The generator stores energy in a rapidly spinning flywheel (about 50,000 rpm) until it has enough for a pulse. LMS batteries are not rechargeable in the field. Rechargeable cells are available, for twice the Price and half the number of shots.

Lasers are generally referred to by their output power (in megawatts) and their pulse duration (in hundredths of a second). Thus a 40-01 laser would have an output of 40 megawatts for one one-hundredth of a second. Actual beam energy is a function of the power output multiplied by the pulse duration. Since one watt for one second produces one joule, a 40-megawatt pulse for one one-hundredth of a second would produce four-tenths of a megajoule.

A number of laser weapons are available in the 24th century. Several are listed here.

Mueller-Rivera P-3 (Pistole-3): The P-3 is a very handy lightweight laser. The combination of a low power output and the high discharge rate of the Quinn seven-megajoule FDLMS power cell makes for a high cyclic rate of fire and a reasonable area fire capability. The pistol's power cell is worn on the belt and connected to the pistol by means of a 50-gauge power cable.

Type: 20-01 laser pistol Country: Argentina Length: 27 cm (Size=Small) Action: Single shot Pulse Energy: 0.2 megajoules Muzzle Velocity: C Magazine: 7mj FDLMS cell (35 pulses) RoF: 1/3 Range: 45m Damage: 1d10 (x3)

TL: 12

Weight: 1 kg

Magazine Weight: 1 kg

Price: Lv750 (Lv5 for disposable power cell)

Rorttmann LK-1a4 (Laserkarabiner-1 ausf 4): A very modern and deadly assault weapon, the LK-1a4 builds on the powerful and popular LK-1 of 20 years ago. It is more robust than its predecessor, and advances in FDLMS battery technology give it a greater number of shots. It uses the now-popular combination of a 30mm grenade launcher for area fire and a precision weapon for. Most of these weapons mount an integrated sight that allows programming of the grenades.

Type: 35-01 laser rifle Country: Germany Length: 65 cm (Size=Medium) Action: Single shot Pulse Energy: 0.35 megajoules Muzzle Velocity: C Magazine: 12 mj FDLMS cell (30 pulses) RoF: 1 Range: 72m Damage: 2d12 (x2)

For grenade launcher stats, see Combat Rifle Integral Grenade Launcher, below (p. 237).

TL: 12

Weight (Empty): 2.5 kg

Magazine Weight: 1 kg

Price: Lv850 (Lv5 for disposable cell)

Quinn Optronics M-22: The M-22 is the standard American service weapon for use by zero-gravity troops. Incorporating a powerful laser coupled to a low-velocity shotgun/launcher combination, the M-22 can deal with most ship-board threats.

Type: 50-01 laser rifle Country: USA Length: 82 cm (Size=Medium) Action: Single shot Pulse Energy: 0.5 megajoules Muzzle Velocity: C Magazine: 15mj LMS cell (15 pulses) RoF: 1 Range: 96 m Damage: 2d12 (x2)

Shotgun: Use stats for Traylor Arms M-10 (p.00).

TL: 12

Weight: 2 kg

Magazine Weight: 1.2 kg

Price: Lv660 (Lv5 for disposable power cell)

Mueller-Rivera F-19b (Fusile-19b): The Mueller-Rivera F-19b is the current service laser with Argentine troops and is widely exported as well. Still the most effective man-portable laser weapon in use. The "b" version mounts a grenade launcher, like most modern weapons.

Type: 70-01 laser rifle Country: Argentina Length: 69 cm (Size= Medium) Action: Single shot Pulse Energy: 0.7 megajoules Muzzle Velocity: C Magazine: 12 mj FDLMS cell (15 pulses) RoF: 1 Range: 96m Damage: 3d12 (x2)

For grenade launcher stats, see Combat Rifle Integral Grenade Launcher, below (p. 237).

TL: 12

Weight: 1.5 kg

Magazine Weight: 1 kg

Price: Lv730 (Lv5 for disposable power cell)

PLASMA GUNS, MAN-PORTABLE (PGMPs)

PLASMA GUN NOTES

The plasma gun contains a laser ignition system in the weapon which super-heats a hydrogen-telluride fuel pellet to a plasma state. The plasma is contained in the ignition chamber briefly and then allowed to escape through a magnetically focused field along the weapon's barrel. The high velocity plasma bolt is initially about two millimeters in diameter but begins to dissipate almost immediately. Dissipation is minimized by having the bolt ride a "tunnel" of heated air generated by a laser beam from the weapon. Because the plasma bolt rides a laser beam to its target, plasma guns are sometimes referred to as plasers.

The ammunition for the weapon consists of photonic core plaser cells, each containing a fast discharge battery to pump the weapon's laser ignition and pathfinder beam, and the fuel pellet for the plasma bolt. After firing, the spent cells are ejected and are not reusable. Some care must be exercised in the selection of the location of the plasma gunner as the ejected cells are extremely hot, with semi-molten centers, and can cause minor burn injuries to other troops in the way, or even ignite dry, flammable materials. (1d4 damage)

Quinn-Optronics M-76 Plasma Rifle: Marketed as a competitor to the older A-9, the M-76 uses more efficient plaser cell technology derived from Kafer weapons, gaining a more compact round with no appreciable decrease in power.

Type: Man-portable 5-MW plasma gun Country: USA Length: 81 cm (Size=Medium) Action: Single shot Ammunition: 10x 60mm 5-MW photonic core plaser cell Magazine: 8 cells in rotating cylinder magazine. RoF: 1 Range: 48m Damage: 3d12 (18) Radius: 3m Increment: 1 m

TL: 12

Weight (Empty): 4.5 kg

Ammunition Weight: 0.3 kg each

Price: Lv1400 (Lv140 per disposable cell)

Wu-Beijing Type 1 High Energy Assault Gun:

The Type 1 was the first man-portable plasma gun to see service. Although outclassed by many new types, it is still popular with militias and mercenary units that can't get access to newer weaponry.

Type: Man-portable 10-MW plasma gun Country: Manchuria Length: 137 cm (Size=Large) Action: Single shot Ammunition: 12 x 120mm 10-MW photonic core plaser cell Magazine: 4 cells in internal tubular magazine RoF: 1 Range: 72m Damage: 4d12 (18) Radius: 5m Increment: 1 m

TL: 11

Weight (Empty): 12 kg
Ammunition Weight: 0.4 kg
Price: Lv1300 (Lv120 per disposable cell)

Quinn-Darlan Mk 2-A4 PGMP (Plasma Gun, Man-portable): The result of a joint venture by Quinn Optonics, Inc. and Darlan Optophysique, the Mk 2-A4 is the heaviest of the man-portable plasma weapons now in service with American and French armed forces and is used as a heavy point fire weapon against hard targets at the squad level. The impact of the plasma bolt can cause considerable concussion and fragmentation effects. The current version of the weapon benefits from the acquisition of Kafer technology, resulting in more compact plaser cells and a more portable weapon.

Type: Man-portable 20-MW plasma gun Country: France/USA Length: 166 cm (Size=Large) Action: Single shot Ammunition: 17 x 84 mm 20-MW photonic core plaser cell Magazine: 10 cells in internal tubular magazine RoF: 1 Range: 96m Damage: 6d12 (18) Radius: 5m Increment: 2m

TL: 12
Weight (Empty): 11 kg
Ammunition Weight: 0.65 kg
Price: Lv1800 (Lv220 per disposable cell)

HEAVY PLASMA GUNS

Although less mobile, the following provide heavy firepower in more fixed locations.

Darlan CLP-1A (Cannon Legere Pyrotechnique-1A) Field-mounted Plasma Gun: The first field-mounted plasma gun to enter service, it incorporated a complex cruciform mount to allow more stable, accurate and rapid fire for a weapon of this type. Because it is virtually immobile on the battlefield, it has been withdrawn from front-line service, but can often be found in fixed locations. Many CLP-1 As have been exported, often as light vehicle armament upgrades. (Corresponds to the light plasma gun entry on the weapons table in the vehicle design section).

Type: Field-mounted 175-MW plasma gun Country: France Length (Gun Tube Only): 274 cm (Size=Huge) Action: Single shot Magazine: 10-cell clip fed into overhead hopper RoF: 1 Range: 220m Damage: 4d12 vehicle scale

TL: 11
Weight (Empty): 344 kg
Ammunition Weight: 3.5 kg
Magazine Weight: 38 kg
Price: Lv9300 (Lv500 for disposable 10-cell clip),

Jaschonek Waffenfabrik A-4T Plasmagewehr: The A-4T is a modification of the A-4 plasma gun often found mounted in the Kz-7A Combat Walker. Specifications for the

two weapons are the same, but the A-4T is a crew-served, tripod-mounted regular infantry version. The A-4T proved very effective in the German War of Reunification and has since become standard issue.

Type: 30-MW plasma gun Country: Germany Length: 166 cm (Size=Large) Action: Single shot Ammunition: 20x 107mm 30MW photonic core plaser cell Magazine: 5-round box RoF: 1 Range: 60m Damage: 3d12 (vehicle scale)

TL: 12
Weight (Empty): 20 kg
Ammunition Weight: 1 kg
Magazine Weight: 5 kg
Price: Lv5500
Ammo Price: Lv240 per disposable cell

PLASMA BAZOOKAS

Quinn M-22 Point Destruction Weapon: Though technically a field-mount weapon, the M-22 can be fired by a single gunner using the weapon's integral monopod. The weapon consists of a firing unit (Sight, trigger, monopod, containment system) and a 450 megawatt photonic core plaser cell which is attached to the back of the firing unit. Once fired, the expended cell is removed and another put in its place. The M-22 is a close-range weapon, used for point destruction of heavy vehicles and emplacements. Care must be taken with placement of the weapon, as it generates a considerable back-blast to compensate for the weapon's enormous recoil.

Type: 450-MW plasma gun Country: USA Length (exclusive of plaser cell): 168 cm (Size=Large) Length (with plaser cell attached): 231 cm (Size=V. Large) Action: Single shot Ammunition: 285 x 912mm 450MW photonic core plaser cell Magazine: 1 cell attached to rear of weapon Range: 72m Damage: 5d12 vehicle scale Price Lv2500 Ammo

TL: 11
Weight (Empty): 14 kg
Ammunition Weight: 16 kg
Price: Lv700 per disposable cell

NON-LETHAL WEAPONS

Sonic stunners project focused sound energy, usually in the ultrahigh frequency range, with sufficient energy to stun the target. They are only effective in atmospheres and against targets not wearing heavy armor (particularly airtight armored helmets). As a result of these limitations and the fact that the sonic bursts merely stun an opponent, they are of limited combat value. However, they are highly effective, non-lethal control weapons and are used extensively by police and security forces. Sonic weapons can be used underwater, where they have their ranges and damages doubled, and the DC on all saves raised by 2.

Neural weapons are a new development, arising from military police experience on Serpentis. Conventional sonic weapons don't work properly on a Kafer, due to their different physiology. However, neural weapons, which deliver an electromagnetic pulse to the target's nervous system, work on any animal or alien with a spinal column.

Brandt Audionique AS-3: This sonic stunner is often found in use by police and security guards.

Type: Sonic stun pistol Country: France Length: 47 cm (Size=Small) Action: Single shot Muzzle Velocity: Local speed of sound Magazine: 5mj LMS cell (40 pulses) RoF: 1 Range: 10m Area Fire Range: 20 m Damage: 1d10 stamina damage only.

Effect: Requires a Fort Save vs. DC14 or be knocked unconscious. Success still means a -2 on all actions for 2d6 rounds.

TL: 10

Weight (Empty): 2 kg

Price: Lv140 (Lv5 for 1 mj disposable LMS cell)

Quinn Optronics Restraint Carbine: The heavier restraint carbine is used for high-risk situations where its greater power overrides its more cumbersome size.

Type: Sonic stun police carbine Country: America Length: 73 kg (Size=Medium) Action: Single shot Muzzle Velocity: Local speed of sound Magazine: 5mj LMS cell (15 pulses) RoF: 1 Range: 25m Damage: 2d12 stamina damage only

Effect: Requires a Fort Save vs. DC16 or be knocked unconscious. Success still means a -2 on all actions for 2d6 rounds.

TL: 10

Weight (Empty): 4 kg

Price: Lv150 (Lv5 for 1 mj disposable LMS cell)

PsiTech ND-12 Neural Disrupter: Based in part on purchased Ylii technology, the ND-12 sees most of its use with the military garrisons on the Kafer homeworld.

Type: Neural Disrupter Carbine Country: America Length: 78 kg (Size=Medium) Action: Single shot Muzzle Velocity: C Magazine: 10mj LMS cell (10 pulses) RoF: 1 Range: 12m Damage: Special

Effect: Target must make a Fort Save vs. DC18 or fall unconscious for 3d4 minutes. Success still means a -2 on all actions for 3d6 rounds.

TL: 13

Weight (Empty): 4.5 kg

Price: Lv650 (Lv10 for 10mj disposable LMS cell)

ROCKET LAUNCHERS AND MORTARS

Direct-fire rocket launchers are not in common use with most national militaries, and really only find their niche with mercenary and militia units that do not have access to anything better. That being said, a rocket launcher fired at close range is a very effective tank killer.

LAW-66: This disposable 66mm rocket launcher isn't very effective against tanks, but it quite capable versus light armored vehicles and combat walkers.

Type: 66mm disposable rocket launcher Country: Generic Length: 40cm folded, 75 cm unfolded (Size=Medium) Action: single shot Muzzle Velocity: 500 mps Magazine: single-shot RoF: 1 Range: 72m Damage: 5d10 vehicle scale.

TL: 9

Weight: 3.2 kg loaded

Price: Lv200

Ströhl Waffenfabrik Stahlhammer: The Freihafen "Steel Hammer" was produced in great numbers during the Kafer War, and was intended as a means of giving every soldier an antiarmor capability. It carries 2 rounds in a disposable magazine, and the weapon can be reloaded.

Type: 55mm rocket launcher Country: Freihafen Length: 55cm (Size=Medium) Action: single shot Muzzle Velocity: 500 mps Magazine: 2 RoF 1 Range: 72m Damage: 4d10 vehicle scale.

TL: 10

Weight: 5.1 kg loaded

Price: Lv450

60mm Mortar: The standard infantry mortar is a clipped, 3-shot 60mm mortar. A typical mortar team consists of two soldiers, one carrying the tube and baseplate, and the other three magazines for the weapon. Setup time is very quick, less than a couple of minutes, and changing a magazine only takes a Standard Action. Due to the threat of counter-battery fire, these weapons can be operated remotely using an included controller with 100m of fiber-optic cable. It can also be connected to an Artillery computer for remote operation. Standard rounds for the mortar are High Explosive, smoke, and Flare.

Type: 60mm mortar Country: Generic Length: 55cm (Size=Medium) Action: single shot Muzzle Velocity: 500 mps Magazine: 3 RoF: 1 Range: 450m (indirect fire only) Damage: Varies.

TL: 11

Weight: 4 kg tube, 3 kg baseplate

Ammunition Weight: 6kg per loaded 3-round magazine

Price: Lv550

Round	Damage	Blast Radius	Range	Weight*	Price*
HE/Frag	8d6	12 meters	6 meters	2kg	Lv8
Smoke	-	12 meters	6 meters	2kg	Lv12
Flare	-	24 meters	6 meters	2kg	Lv14

* per round.

GRENADE LAUNCHERS

A variety of 30mm grenade launchers are currently found mounted integral to most combat rifles. All of these grenade launchers are roughly similar in performance. In addition, a few older magazine-loading grenade launchers are also available, although they are seldom used now by first-line troops. Below are listed grenade launchers and propelled grenades which are currently in use. All modern grenade launchers can mount rangefinder sights, which, when used with fused grenades, allow the round to be detonated at a set range, allowing such tactics as air-bursting over a trench, or in the middle of a room.

Combat Rifle Integral Grenade Launcher: This weapon is normally encountered as part of another weapon system, such as the AS-99 (see above, p. 227).

Type: 30mm grenade launcher (integral to rifle) Country: Generic Action: single shot Length: N/A Ammunition: Any 30mm propelled grenade Muzzle Velocity: 400 mps Magazine: 3-round internal tubular magazine RoF: 1 Range: 120 m Damage: Dependent on grenade used.

TL: 10

Weight (loaded): 3.3kg (included in weapon weight)

Cost: Lv120 (if purchased separately, otherwise this cost is included in the weapon)

On most combat rifles, the integrated grenade launcher can be removed and attached to a stock/grip that allows the launcher to be used separately. This separate launcher can accept rangefinder sights.

Grenade Launcher with stock

Type: 30mm grenade launcher Country: Generic Action: single shot Length: 65cm (Size=Medium) Ammunition: Any 30mm propelled grenade Muzzle Velocity: 400 mps Magazine: 3-round internal tubular magazine RoF: 1 Range: 120 m Damage: Dependent on grenade used.

TL: 10

Weight (Loaded) 4.4 kg

Cost: Lv70 for stock unit (Sights extra)

Rortmann GW-12 Grenade Launcher: The GW-12 (Granatenwerfer-12) grenade launcher is typical of several of the older models of magazine-fed grenade launchers which are seldom found on the frontline. It saw a comeback in the ground phase of the Kafer War, where its firepower could be

put to use without fear of "collateral damage". It is equipped with a folding stock, but if fired without the stock it suffers a -2 on to hit rolls

Type: 30mm grenade launcher Country: Germany Action: Single shot Length: 80 cm (Size=Medium) Ammunition: Any 30mm propelled grenade Muzzle Velocity: 400 mps Magazine: 6-round box magazine RoF: 1 Range: 100 m Damage: Dependent on grenade used.

TL: 10

Weight (empty): 3.2 kg

Magazine Weight: 1.8kg

Price: Lv400

PROPELLED GRENADES

The following propelled grenades are suitable for use with the grenade launchers which are listed above. For double the listed price, the grenades can be equipped with fuses that can receive ranging information from a gun-mounted sight. The usefulness of this is explained under sights, below.

Grenade	Damage	Blast Radius	Range	Weight	Price
HE	6d6	6 meters	6 meters	0.4 kg	Lv8
HEAP	4d6	3 meters	3 meters	0.4 kg	Lv10
Flechette	3d12 (x2)	-	-	0.4 kg	Lv10
Smoke	-	6 meters	6 meters	0.4 kg	Lv14
Beanbag	3d6*	-	-	0.5 kg	Lv12
Baton	4d6*	-	-	0.5 kg	Lv9
Splash	2d6	3 meters	1.5 meters	0.04 kg	Lv12

* Stamina Damage

30mm High Explosive Propelled Grenade: Standard anti-personnel round

30mm High Explosive Armor Piercing Propelled Grenade: A light anti-armor round.

30mm Flechette Propelled Grenade: This round turns the grenade launcher into a giant shotgun, firing fin-stabilized darts. Is considered to be Piercing/Slashing vs. personal armors.

30mm Concealment Propelled Grenade: Creates a thick obscuration cloud which blocks visual and thermal images for 4 minutes.

30mm Beanbag Round A so-called "less-lethal" round that fires a shot-filled beanbag .

30mm Baton Round Another "less-lethal" round, this one fires a hard rubber baton.

30mm Splash Round This round is loaded with a volatile liquid, and is often used in microgravity and space craft environments due to its lack of penetrative capability.

HAND GRENADES

The following three examples are representative of the common range of grenade types which are available.

High Explosive Fragmentation Grenade: Explosive grenade with concussive and fragmentation effects.

Concussion Grenade: Explosive grenade with a non-fragmenting case

Smoke Grenade: Visual and IR-blocking smoke grenade

Flash-Bang Grenade: Produces an extremely loud sound and a series of highly intense flashes. Causes disorientation and nausea. Any targets in the blast radius must make a Fort save vs. DC 14 or be at -4 to all actions for 1d10 rounds due to a combination of flash blindness and disorientation from the noise. Those with proper protection are unaffected. If the save is passed, the target are at -2 to all actions for 1d4 rounds. Targets in the second blast radius add +2 to their saves. Targets outside the second blast radius are unaffected.

Round	Damage	Blast Radius	Range	Weight	Price
HE	6d6	6 meters	6 meters	0.3 kg	Lv3
Concussion	6d6*	3 meters	3 meters	0.2 kg	Lv3
Smoke	-	6 meters	3 meters	0.3 kg	Lv6
Flash-Bang	-	6 meter	3 meters	0.3 kg	Lv10

*Stamina Damage

GUIDED ORDNANCE

Virtually every major power produces a variety of guided ordnance. These weapons incorporate various means to make mid-course changes while on the way to their targets (for example: movable fins and vectored thrust). A representative selection of man-portable weapons from the arsenals of France and Germany are presented in the list below.

Guiscard Martel-5c: Firing a silhouette-homing missile, the Martel-5c is fairly effective against targets that have been downloaded to its internal memory. Against new threats, however, the weapon's BAB is reduced to 13.

Type: Hand-carried light air defense missile Nation: France Range: 1900m Guidance: Automatic following gunner lock-on BAB: 23 Attack Angle: Direct Damage: 3d10 vehicle scale.

TL: 12

Launcher Weight: 6 kg (Size=Large)

Missile Weight: 2 kg

Launcher Price: Lv2000

Missile Price: Lv8000

Guiscard Antichar-14: The Antichar-14 fires a light SEFOP (SElf Forging Penetrator) warhead designed to defeat heavy armor. Type: Hand-carried light antivehicle missile Nation: France Range: 400m Guidance: Automatic following gunner lock-on BAB: 14 Attack Angle: Selectable Damage: 6d10 vehicle scale.

TL: 12

Launcher Weight: 12 kg (Size=Large)

Missile Weight: 3 kg

Launcher Price: Lv3000

Missile Price: Lv2000

Jaschonek Panzerfaust A12: In contrast to the Antichar-14, the Panzerfaust A12 fires an explosive warhead, using a binary-explosive mixture that is considerably more powerful than a conventional warhead of the same size.

Type: Hand-carried anti-vehicle missile Nation: Germany Range: 1000m Guidance: Automatic following gunner lock-on BAB: 15 Attack Angle: Selectable Damage: 8d10 vehicle scale.

TL: 12

Launcher Weight: 12kg (Size=Large)

Missile Weight: 11kg

Launcher Price: Lv3000

Missile Price: Lv3000

Jaschonek Hornisse-4: Using a smart targeting system, the Hornisse is more effective than its French counterpart at targeting unknown aircraft, something that stood it in good stead as Human forces pushed in Kafer space during the last war.

Type: Man-carried light air defense missile Nation: Germany Range: 2400m Guidance: Automatic or automatic following gunner lock-on BAB: 24 Attack Angle: Direct Damage: 3d10 vehicle scale.

TL: 11

Launcher Weight: 6 kg (Size=Large)

Missile Weight: 17 kg

Launcher Price: Lv2000

Missile Price: Lv7000

WEAPON ACCESSORIES

Peek-a-boo Mount: The so-called "Peek-A-Boo Mount" is a flexible mount for pistols and assault pistols. It consists of a carbine-sized rear body, complete with shoulder stock, the carriage for the handgun itself, and a sight that mounts over the gun. The carriage and the sight can be repositioned easily from straight-forward to 90 degrees off the line of the rear body. This allows the weapon to be poked around corners without exposing the operator to hostile fire, and the sight, a computerized video camera with rangefinder, feeds to a helmet-mounted HUD or other display device, allowing the weapon to be fired with little or no loss in accuracy. The weapon itself is only a Tiny-sized target, and appropriate penalties to hit apply.

TL: 9

Weight: 1.3 kg

Price: Lv500

Laser Designator The laser designator is a small, flashlight-sized accessory for any rifle that allows it to be used as a laser designator for missiles and artillery. It has to be held on-target until the missile or artillery round arrives. This requires a To-Hit Roll every round, with all rounds after the first

gaining a +2 on the To Hit roll.

Weight: 0.5 kg

Range: 400m

Price: Lv340

Laser Body Pack The laser body pack is a power system designed to connect a laser rifle to multiple power packs located on the wearer's load-bearing gear. The load-bearing gear can hold up to ten power-packs for the weapon, and connects to the laser weapon with a long, auto-retracting power cable that plugs into the location on the weapon where a power-pack would normally go. This rig alleviates one of the biggest problems with battlefield lasers, and that the low number of shots each weapon gets. The connecting module is specific to each weapon, and is not interchangeable.

TL: 10

Weight: 1.2 kg, + weight of power packs

Price: Lv350, + cost of power packs

SIGHTS

There are a variety of sights available for modern rifles and pistols.

Laser Sight The laser sight is a small laser attached to the weapon allowing rapid and more accurate target acquisition. It grants a +2 to hit, but only at Close range.

TL: 8

Weight: 0.1 kg

Price: Lv25

Red-dot The red-dot sight uses a small, non-magnifying scope on top of the weapon with a large lens area. The sight projects a red dot in the center of the sight, giving the same benefits as the laser sight without telling everyone where you are. Grants a +2 to hit, but again only at Close range.

TL: 8

Weight: 0.12 kg

Price: Lv20

Build Your Own Sight

The items below are all options that can be combined into a scope. Rifle scopes can have all the options listed, while pistol scopes can only have one. All rifle scopes incorporate a red dot sight that can be turned on and off as needed.

TL: Variable

Base Weight: 0.15 kg

Base Price: Lv15 for pistols, Lv10 for rifles

Imaging The imaging option turns the sight into a camera, and feed the image to a HUD or other imaging device. This allows the soldier to shoot around corners, or use

the weapon as a periscope, while only exposing his hand.

TL: 9

Weight: +0.1 kg

Price: +Lv80

Rangefinding and Fusing The rangefinding and fusing scope reads exact distance to the target, and feeds the range information to propelled-grenades, which can then explode over a target, inside a room, whatever. In game terms, the rangefinding and fusing scope gives a +2 to hit with compatible propelled grenades.

TL: 9

Weight: +0.2 kg

Price: +Lv150

Telescopic Given the extremely long ranges most firearms are capable of, the telescopic sight allows the user of the gun to fire to maximum range. Telescopic sights are purchased based on the weapon's maximum range (Listed range x 15). Maximum range without a scope is only 100 meters.

TL: 6

Weight: +0.05 kg per 100 meters of maximum range of the weapon

Price: +Lv10 per 100 meters of maximum range of the weapon

Low-light Allows the shooter to see in near total darkness. Negates all penalties for darkness.

TL: 7

Weight: +0.1 kg

Price: +Lv100

Thermal imaging Using thermal imaging, it is possible to see (and shoot) through walls. Any wall less than 20cm thick allows sufficient thermal radiation through for the imager. Negates cover bonuses for the target, and allows Spot skill checks to be made through wall, though with a -2 circumstance penalty.

TL: 7

Weight: +0.15 kg

Price: +Lv125

PERSONAL ARMOR

In many lines of work in 2320, body armor is extremely important. It may be all that stands between a character and a sudden, nasty death. There are two basic classifications of armor, civilian and military. The military armors are also widely used by police forces, when necessary. Civilian armor is usually designed to be worn under regular clothing, or be able to pass itself off as regular clothing. Military armor has no such pretensions, and it is obvious what it is.

All armors incorporate memory-plastic flaps and vents

to promote comfort, yet can be sealed almost instantly in the case of a firefight. If a character is caught Flat-footed with the vents open, subtract one from the AR for that first round only. Otherwise, they would have sufficient notice to seal the flaps.

Note that none of the modern armor types from T20 are available in 2320AD.

AC vs. AR:

AC (Armor Class) is based on AR (Armor Rating). A character's AC is equal to 10 + AR + Dex Mod + Size Mod. 2320AD weapons list only the AR for any piece of armor, not the AC.

ARMOR MATERIALS

There are three different types of body armor: non-rigid, rigid, and inertial. Non-rigid armor is made of flexible material which is tough and resists puncture by a bullet or energy beam. It doesn't inhibit the wearer's movement as much as rigid armor does. Rigid armor is made of solid pieces of ceramic-metal composite that resist blunt trauma and Piercing attacks equally well. Inertial armor is flexible like non-rigid armor but becomes rigid when struck by a fast moving projectile (such as a bullet or a piece of shrapnel). In practical terms, non-rigid armor has only half its AR versus distributed blows, like blunt weapons and falls, while inertial and rigid armor have their full value. In addition, non-rigid and inertial armors aren't as effective versus bladed weapons, losing 1 point of AR against any Piercing/Slashing melee weapon.

CIVILIAN ARMOR

LAW AND BODY ARMOR:

Generally speaking, body armor is almost as controlled as weapons. Most nations require a permit to own body armor, though these rules are considerably more relaxed on the Frontier. In general, civilian body armor is controlled at a Law Level of 10-AR of the armor, while military body armor is controlled at a Law Level of 8-AR of armor.

Protective Vest: This is a standard "bullet-proof" vest that can be easily concealed under most normal clothing.

Nation: Generic

Type: Light Armor

TL: 8

Weight: 1 kg

Area Protected: Chest, Torso

AR: 2 (Non-rigid)

Signature: 0

Max Dex Bonus: +8

Armor Check Penalty: 0

Speed: -

Price: Lv120

Armored Jacket: Though it appears to be a normal jacket, close examination of this armor may reveal its true nature. (Spot skill check vs. DC 18)

Nation: Generic

Type: Light Armor

TL: 9

Weight: 2 kg

Area Protected: Chest, Torso and Arms

AR: 3 (Non-Rigid)

Signature: 0

Max Dex Bonus: +6

Armor Check Penalty: -1

Speed: -

Price: Lv180

Armored Long Coat: This long, heavy coat resembles a drover's coat or heavy trench coat. Close examination may reveal its true nature. (Spot vs. DC 20)

Nation: Generic

Type: Medium Armor

TL: 9

Weight: 4 kg

Area Protected: Chest, Torso, Groin and Limbs

AR: 4 (Non-Rigid)

Signature: 0

Max Dex Bonus: +6

Armor Check Penalty: -1

Speed: -

Price: Lv450

Armored Cap: The armored cap provides little protection, but it is better than nothing. Appears to be a normal forage cap or similar article.

Nation: Generic

Type: N/A

TL: 9

Weight: 0.3 kg

Area Protected: Head

AR: 1 (Non-Rigid)

Signature: 0

Max Dex Bonus: -

Armor Check Penalty: -

Speed: -

Price: Lv50

MILITARY ARMOR

HELMETS

Most helmets incorporate communications systems and many have HUD systems and vision enhancements built-in as well. The prices and weights below are for a standard helmet with a built-in 5km range radio. If the radio is on it adds 1 to

the wearer's signature. Note that the steel helmet does not come with a radio.

Helmet: This item is made of molded composite materials, and is standard issue for most forces.

Nation: Generic

Type: Medium Armor

TL: 7

Weight: 0.5 kg

Area Protected: Head

AR: 6 (Rigid)

Signature: 0

Max Dex Bonus: –

Armor Check Penalty: –

Speed: –

Price: Lv15

High Threat Combat Helmet: The high-threat combat helmet is the best protection available for the head. It is normally equipped with a standard 5km range radio, along with mounting brackets for optional add-ons (see below). It is found only in first-line units in the more advanced militaries.

Nation: Generic

Type: Heavy Armor

TL: 10

Weight: 1 kg

Area Protected: Head

AR: 8 (Rigid)

Signature: 0

Max Dex Bonus: –

Armor Check Penalty: –

Speed: –

Price: Lv30

Steel Helmet: The old-fashioned "Steel pot," now in service only with colonial militias and small mercenary groups because of its low price and ease of manufacture.

Nation: Generic (primitive)

Type: Medium Armor

TL: 4

Weight: 2 kg

Area Protected: Head

AR: 3 (Rigid)

Signature: 0

Max Dex Bonus: –

Armor Check Penalty: –

Speed: –

Price: Lv1

HELMET ADD-ONS

All of these helmet add-ons can be combined with one another, and can be mounted on either the standard helmet or the high-threat helmet, or on a battlesuit.

HUD system The HUD (Heads-Up-Display) puts data and images on a reticle right in front of the user's eyes. The HUD can be coupled to the electronic sights on a weapon, giving range and windage information, and provides a +2 bonus to hit. It can also be used with some sights to shoot around corners while only exposing the firing hand to return fire, or in the case of the Peek-A-Boo rig, exposing no body parts at all.

TL: 11

Weight: 0.3 kg

Price: Lv400

HUDs AND SIGHTS:

A HUD can make use of the options on a weapon's sight, but the reverse is usually not true.

Low-light Imaging: This option allows the wearer to negate all penalties related to poor lighting, as long as there is some sort of light.

Weight: 0.1 kg

Price: Lv250

Thermal Imaging: This option allows the user to see heat sources, which are color-coded by the microprocessor in the overlay to go from blue (cold) to white (hot). This sight negates cover penalties for spotting, and even allows Spot skill checks (with a -2 circumstance penalty) to be made for completely concealed objects, so long as they radiate heat and the obstacle is no more than 20cm thick.

Weight: 0.1 kg

Price: Lv350

Tactical Camera: The tactical camera is more often found with law enforcement than with regular military, as the need to document their actions is more a function of the former than the latter. The tactical camera is designed to both record internally, and to narrowcast what it sees back to a command center. Both recordings have to match in order for the video to be admissible in court. The camera has a narrowcast range of 500m, and can store 6 hours of high-resolution video and audio internally.

Weight: 0.1 kg

Price: Lv80

MILITARY ARMOR

Vedette Half Armor: The vedette half-armor is a rigid ceramic/alloy plate designed to protect the chest and shoulders. Variations on this theme are found throughout human space. This armor uses special stacking rules. It can be stacked with any non-rigid or inertial torso armor.

Nation: France

Type: Medium Armor

TL: 9**Weight:** 2 kg**Area Protected:** Chest**AR:** 7 (Rigid)**Signature:** 0**Max Dex Bonus:** +8**Armor Check Penalty:** –**Speed:** –**Price:** Lv60

Rigid Breastplate: This heavy front-and-back armor is the best available for non-battlesuit troops, and is usually combined with inertial full-body armor for maximum protection. Most soldiers dislike the armor as heavy and awkward.

Nation: Generic**Type:** Heavy Armor**TL:** 10**Weight:** 8 kg**Area Protected:** Chest and Torso**AR:** 7 (Rigid)**Signature:** 0**Max Dex Bonus:** +4**Armor Check Penalty:** -2**Speed:** -1**Price:** Lv120

Non-rigid Vest: This long vest is not concealable, and incorporates additional padding and thicker armor than its civilian counterpart.

Nation: Generic**Type:** Medium Armor**TL:** 7**Weight:** 2 kg**Area Protected:** Chest, Torso, and Groin**AR:** 4 (Non-rigid)**Signature:** 0**Max Dex Bonus:** +8**Armor Check Penalty:** -1**Speed:** –**Price:** Lv20

Inertial Armor Vest: This long vest is not concealable, and incorporates additional padding and thicker armor than its civilian counterpart.

Nation: Generic**Type:** Medium Armor**TL:** 10**Weight:** 3 kg**Area Protected:** Chest, Torso, and Groin**AR:** 5 (Inertial)**Signature:** 0**Max Dex Bonus:** +8**Armor Check Penalty:** -1**Speed:** -1**Price:** Lv100

Full-body Non-rigid Armor: This is a set of coveralls, with only the legs and arms protected by armor. It is designed to be worn with a vest of some kind or armor vest or the rigid breastplate.

Nation: Generic**Type:** Medium Armor**TL:** 7**Weight:** 10 kg**Area Protected:** Limbs**AR:** 2 (Non-rigid)**Signature:** 0**Max Dex Bonus:** +6**Armor Check Penalty:** -1**Speed:** –**Price:** Lv60

Full-body Inertial Armor: Like the full-body non-rigid armor, this is a set of coveralls, with the torso unarmored, but the legs and arms protected. It too is designed to be worn with an armored vest or the rigid breastplate.

Nation: Generic**Type:** Medium Armor**TL:** 10**Weight:** 10 kg**Area Protected:** Limbs**AR:** 3 (Inertial)**Signature:** 0**Max Dex Bonus:** +5**Armor Check Penalty:** -2**Speed:** -1**Price:** Lv350

Battlesuit: A battlesuit is a combination of full-body rigid armor, breastplate and high-threat combat helmet, along with a pair of armored boots, mated to an undergarment that provides cooling and additional protection for the joints. This undergarment also provides a databus to connect weapons and accessories to helmet HUDs and under-armor power packs. The only drawback to the battlesuit is that they are fatiguing to wear, and combat effectiveness is only a few hours at best. These suits are not powered, and the heavy armor takes its toll after time, even with the cooling layer. Up to four laser power packs can be carried under the armor, and connected to a weapon via a cable similar to the laser body-pack, above.

Nation: Generic**Type:** Heavy Armor**TL:** 12

Weight: 32 kg
Area Protected: All
AR: 7 (Rigid) (All)
Signature: 1
Max Dex Bonus: +3
Armor Check Penalty: -3
Speed: -3
Price: Lv1200, plus cost of accessories and electronics

Combat Vacuum Suit (CVS): Developed for use in boarding actions and other combat in a vacuum environment. The suit is designed with a limited self-sealing system consisting of an inner gel layer that hardens on exposure to air or vacuum. This system can only handle small breaches, such as those made by small-caliber weapons. Heavy weapons and plasma guns are too much for the self-sealing system to handle, however. (Can repair 1d10 points of damage per round, to a maximum of 30 points). It includes a Long-range radio.

Nation: Generic
Type: Medium Armor and Vac Suit
TL: 11
Weight: 14 kg + Life support
Area Protected: All
AR: Head: 7 (Rigid) Chest, Torso and Groin: 8 (Rigid)
 Limbs: 5 (inertial)
Max Dex Bonus: +4
Armor Check Penalty: -2
Speed: -3 m
Price: Lv800, plus cost of accessories and electronics

Military Life Support Pack: Military Life-Support Packs are manufactured in two varieties: short duration and long duration. The shorter duration of these systems compared to civilian systems is due in large part to the increased cooling demands of military suits and equipment.

Short-Duration packs cannot add oxygen bottles, and have the following characteristics:

Weight: 2 kg
Duration: 4 hours
AR: 8
Price: Lv200

Long-Duration Packs can have additional oxygen bottles added to them to extend their operating range. Additional bottles cost Lv50, weigh 1kg, and add 6 hours to the suit's duration. There is room in the Long Duration Pack for two additional bottles.

Weight: 8 kg
Duration: 12 hours
AR: 10
Price: Lv2000

CYBERNETICS

While most surgical, chemical and prosthetic/bionic enhancements are largely legal in the 24th century, few elect to have these invasive procedures performed. The drawbacks of these augmentations often outweigh the benefits, at least for most people. Cybernetics are usually obvious and attract attention, while chemical therapies have their own drawbacks, chiefly those of overdose and psychological/physiological dependencies. Then there are the risks of the surgery itself, the upkeep requirements, and the ever-present risk of infection. Normally, only those who truly have a need will go to the lengths required to obtain augmentations.

PROSTHETIC vs. BIONICS:

A distinction has to be made between prosthetics and bionics. Prosthetics are designed to duplicate the functionality and appearance of the original body part, while bionics are designed to augment it. Prosthetics are perfectly legal, while bionics are controlled.

Some do bother, however, whether they are the augmented agents of a TransNat, or the servant of a national government, or even a terrorist intent on sweeping aside the old order.

Bionics and prosthetics did go through a brief fad stage in the early years of the 24th century, but largely faded from the fashion stage as veterans of the Kafer War began arriving with prosthetic replacements earned the hard way, and the jet-set cybernetics aficionados started looking like poseurs. Only cybernetic eyes survived the cyber-fashion meltdown of the early 2300's.

The Black Clinics:

The Black Clinics are a sort of urban legend in the world of 2320AD. Everyone has heard of them, knew a friend of a friend of a friend who went to one, but no one has actually been to one. They do exist, but are very rare. One would have to have extensive underworld contacts to ever have a chance of tracking one down. If one was able to, however, and had the Livre, then they can provide just about any kind of augmentation imaginable. Most of the Black Clinics have links to ProVolution, though, and so one can never be certain that they are getting exactly what one asked for.

SURGERY

Any invasive procedure has listed a surgery cost and a surgery DC. The surgery cost lists the dice rolled for the time the operation takes, and the cost per hour. Recuperation time is equal the surgical time, in days rather than hours, with the cost being equal to the surgical cost. So a 6-hour surgery, costing Lv6000, requires 6 days of out-patient recuperation time, which would cost another Lv6000. The cost listed is for a legal procedure, with the Black Clinics charging up to 10x that amount.

The Surgery DC is the roll that the GM needs to make for the NPC doctor performing the procedure. Any modifications for autodocs, etc are to be taken in account here as well. If the surgery roll is failed, the procedure simply didn't work.

The various prosthetics, therapy and bionics presented here are for a "low-cyber" style of game. The GM may modify the price to best suit the sort of campaign he wishes. Likewise, the side-effects from many of these implants make them unpalatable to most players, and the GM is free to modify them as he sees fit to suit his game.

There are three types of modifications available: Surgical, chemical, and bionic/prosthetic.

SURGICAL MODIFICATIONS

Surgical modifications closely overlap with bionics, though the main difference is that surgical modifications tend to use implanted biological material rather than mechanical assists.

Muscle Implants: This technique involves taking a muscle tissue sample from the character and culturing it in a collagen tank, then grafting these new muscles into the existing tendon/ligament system of the character. The technique will increase a character's Strength by up to six points, but for each point of Strength gained, the character will lose 1d4 points of Dexterity until he has had time to become used to the new muscle mass. This training period costs 1000XP per point of Strength gained, which must be paid out before a character can further advance in levels.

Installing muscle implants is time-consuming, demanding one month of physical inactivity from the patient. It is also expensive, costing Lv1200 per point of Strength gained, plus surgery costs.

Surgery Cost: 2d6 hours, at Lv1000 per hour

Surgery DC: 10

Neural Sheathing: This technique utilizes viruses which have been engineered to manufacture and deposit certain organic chemicals around the nerve fibers of a character. The plastic-like sheath decreases the electrical resistance of the nerves and various outside electrochemical interferences to neural communication. To perform the process, a doctor takes samples of blood, nerve tissue, and spinal fluid from the patient and determines what support chemicals are required for the viruses to perform properly. The process must be monitored for one full month, with a medical appointment every three days to update the support solution.

The doctor must succeed in 10 successive DC 10 T/Medical checks. For every day the character is late for an appointment, the doctor's target goes up 4 DC (DC 10 becomes DC 14, DC 14 becomes DC 18, etc.), so it is important to be prompt for appointments while undergoing this treatment.

If the Medical check is failed by more than 4 points, the sheathing is lost, but the process can be retried. If the roll fails by more than 6 points, the character permanently loses one Dexterity point, and the process cannot ever be retried, as the character's nerves are permanently coated in a mass of what is technically termed "goo."

If the process is totally successful, then the character receives +1 to Dexterity and the benefits of the Lightning Reflexes Feat. If the character already has the Lightning Reflexes Feat, add +1 to the rolls. As the subject now has a significantly faster reaction time, they must undergo a training regimen. This regimen costs XP2000, and represents the time lost in training and adaptation.

The cost for this treatment is Lv3000.

Surgery Costs: Lv1000 per visit

Neural Sheathing, Improved: Improved neural sheathing a new generation of tailored viruses to the process to help regulate and direct the sheathing process. Instead of 10 Skill checks, the doctor performing the process must make only 5 checks, though vs. the same DC of 10. For every day a character is late, the doctor's target goes up 2 DC Rather than 4, and failure will never result in the dreaded "goo". The benefits are otherwise the same.

The cost for this treatment is Lv12000

Muscle Reanchoring: Rather than simply adding additional muscle mass, Muscle Reanchoring instead alters how the muscles and tendons join the bone, resulting in increased strength and speed. This procedure is quite long and tedious, and has to be done in five steps. The Surgery Skill Check has to be made five times. After the completion of the second roll, the patient receives a +1 to Strength. Upon completion of the fourth roll, the patient receives a +1 to Dexterity, and

once the last roll is successfully completed, the patient receives an extra 5m per round to his Movement. Afterwards the patient must be retrained to used their own body. This retraining costs 2500XP.

Surgery Cost: 1d6 hours per stage, at Lv500 per hour. Five stages total.

Surgery DC: 20 per stage.

Implanted Weapons:

It is possible to implant several different types of weapons, mostly melee weapons, but Pentapod biolasers have been found in the hands (literally) of terrorists and criminals in many parts of human space. Any of these devices are extremely illegal, and possession of these weapons is often sufficient provocation for police and security forces to engage in pre-emptive self-defense. Implanted weapons include:

Hand Razors: Implanted into either a flesh or cybernetic hand, the razors extend on command. Typically the command is a difficult hand or finger movement. They are typically undetectable without medical scanning equipment, and even then are hard to find (T/Medical vs. DC25). User is considered to be armed for attacks of opportunity.

Damage: 1d4/2

Price: Lv1000 (black market only)

Surgery Cost: Lv1200

Surgery DC: 18

Wrist Blades: Larger than the razors, wrist blades are implanted in a sheath which runs up along the top of the forearm, and they can be detected through physical examination of the arm (Spot vs. DC 20). User is considered to be armed for attacks of opportunity.

Damage: 1d6

Price: Lv2500 (black market only)

Surgery Cost: Lv1800

Surgery DC: 20

Cyberlimb Weapons: Firearms can be installed into a bionic limb. An arm can hold up to a Tiny-sized weapon, while the leg can hold up to a Small-sized weapon. The leg mount can be either a holster, or else an actual firing mount, in which case it receives a -4 on To Hit rolls due to the awkwardness of aiming a leg.

Price: Weapon cost x 3 + Lv2000

Bioweapons: Pentapod bioweapons can be implanted into the arms, torso and even the head, and are effectively undetectable to anything but high-resolution medical scanners.

Price: Weapon cost x 5 +Lv3000

Surgery Cost: 1d6 hours for a limb, 2d6 hours for the torso, and 3d6 hours for the head, at Lv2000 per hour

Surgery DC: DC 15 for limbs, DC 20 for torso, DC 25 for head

CHEMICAL MODIFICATIONS

Though they are tightly controlled, chemical therapies are more accessible than most other types of augmentation.

Vasopressin-Y: This drug allows the human brain to modify its electrical pathways, which will make it easier for a character to learn new things and recall things which he has already learned. Due to its addictive effect, this drug is usually used by people who are beginning major projects and can quit after the project's completion. The drug must be taken in a daily dose for two full weeks for any effect to occur, at which time the character's Intelligence score will be raised by 1d6 points. If the character remains on the drug for one month or less, he will suffer no side effects. For every month thereafter that the character remains on the drug, he will suffer the loss of 1d4 points of Wisdom, regained at the rate of 1 point per week after no more Vasopressin-Y has been taken. If a character's Wisdom reaches zero, he will slip into a catatonic state. To quit taking Vasopressin-Y, the character must roll for the following save:

To Beat Vasopressin-Y addiction: Will Save vs. DC 14. This can be re-rolled once per week. This roll applies whenever the character wishes to stop taking the drug.

The drug is bought in weekly doses, which cost from Lv50 per week's dose in the Core to Lv200 in the Arms. Due to the dangers inherent in this drug, it is illegal in many nations/systems, and its cost there could be as much as Lv800 per week's dose.

Tesseron Beta-Five: Tesseron Beta-Five is a drug that stimulates the endocrine system, causing increased production of strength-producing hormones. It is administered in a weekly dose and must be taken continually to keep up its effect. When a character first takes T-Beta-5, it will have no immediate effect. Upon taking the second dose, the character must make a FORT save vs. DC 14, or his body will reject the therapy and he will be unable to continue. With the third dose, the character will gain from 1 to 3 points of Strength (1d6÷2). This added Strength will drop by one point per week, unless further doses of the drug are taken to maintain it at its present level. Additional doses will not improve Strength further.

Should a character decide to quit T-Beta-5 after more than two weeks of use, he will suffer some withdrawal effects. Each week when the character's enhanced Strength drops by one point, the character will also lose one point of Dexterity due to muscle twinges. Once the character's enhanced Strength has worn completely off, his Dexterity will begin increasing by one point per week until it reaches its natural level.

The cost per dose can range from Lv50 at the Core to Lv300 deep in the Frontier.

CYBERNETIC/PROSTHETIC MODIFICATIONS

One of the results of increased knowledge about the workings of nerve cells has been the development of a technology by which human nerves can be linked to electronic devices. In this way, the biochemical process of a thought can be translated into action by a machine. This technology is most valuable in allowing the control of prosthetic limbs and bionic replacements such as eyes and ears.

Neural Jack: When it first appeared in the late 2290's, the neural jack was hailed as the ultimate tool in ridding humanity of the constraints of the body. It is an electronic socket wired to a person's brain, allowing a person to plug cable connections into a piece of equipment in order to control that equipment by thought. Now machinery could be controlled as if it were the user's own body. Computers could respond at the speed of thought, allowing input without the cumbersome interference of the user's body. In reality, however, the neural jack was somewhat less useful.

The neural jack and the appropriate driver software did allow people to control equipment as if it were an extension of their own body. It does require a great deal of training, however. A new user of Neural Jack must pay an XP cost to learn how to use it, at a rate of 1000XP per point of Equipment bonus. After the initial training period, the Neural Jack grants an Equipment bonus equal to the character's Wisdom bonus, which represents their ability to control the unpredictable interface. Negative modifiers are possible. The major drawback to being jacked is that the character is so tied into the equipment's control system that he becomes almost insensible to control of his own body. Any skill checks requiring the character to use his own body while jacked into a piece of equipment have a -6 penalty attached to them.

Another drawback of jacking is the relative lack of equipment to plug into. Very little equipment comes with the cybernetic linkages installed. Most have to be either ordered custom-made, or the linkage servos and sensors have to be installed after the fact. This costs roughly 50% more than the standard price. Aircraft and spacecraft, being largely wired already, only cost an additional 10% to be equipped with the linkage equipment. Military starships are the most likely items to be fitted, with approximately 50% of them equipped for linkage in some form or another.

Weaponry is a special case, as any firearm can be equipped with a dual set of linkages, one of which controls the trigger while the other feeds targeting information directly to the optic nerve in much the same way as a virtual display (below). This gives the benefit of a built-in HUD (+3 to hit) along with granting the character in question the benefit of the Improved Initiative Feat, while using that weapon only. The linkage simply hijacks the command from the brain to

pull the trigger, and uses that impulse to fire the weapon, so anyone can benefit from the so-called smartgun link.

Cold Storage Program:

Another urban myth from the early days of the 24th century, the Cold Storage Program is supposedly a computer program that can scan and copy a human brain, producing a digital copy of it. This would require enormous amounts of storage, and the subject of the scan would require a neural jack. The extremely complex file would likely be as unstable as any AI system, however.

The cost of having a neural jack installed in a character is Lv7500, plus surgery cost. At the time of installation the player must decide where the jack will be located on the character, the most common places being at the temple or on the forehead (for ease of access), or in the hollow at the nape of the neck (where it can be hidden by hair or clothing). Those choosing the temple or forehead are often called "bolthead" due to the unsightly neural jacks.

Surgery Cost: 4d4 hours, at Lv2000 per hour

Surgery DC: 18

BIONIC REPLACEMENTS

Most crippling injuries in the 24th century can be simply repaired by growing replacement tissue from the patient's own cells and then grafting it on. Entire limbs and organs can be repaired in this way. The process takes about a month, and the surgery is relatively straight-forward as there is no possibility of rejection.

But some sources offer prosthetic replacements for those who prefer them to the real thing. Prosthetics, while they lack the subtlety of tactile sensation that real organs and limbs give, have many tempting advantages over their flesh-and-blood counterparts. Prosthetic limbs do not tire as easily as natural limbs, nor do they feel pain as more than an abstract sensation. Bionic eyes and ears can offer enhanced senses.

Prosthetics are not illegal, and are defined as mechanical medical replacements that do not extend the user's capabilities more than the original. Bionics, however, do extend the owner's capabilities, and if they violate local laws (see sidebar), they must be registered with national police services, at a cost of Lv1000 per point per year. So a character with a Strength of 12 could get a Strength 12 cybernetic arm with no difficulty, and in America (law level 8) could get a +2 boost

Bionics and Law Level:

Bionics are limited by national or colonial law level. Bionics may increase a user's capabilities by 10-Law Level. A result of 0 or lower is still 0. Rolls of 0 indicated that strength-boosting bionics are prohibited.

with no difficulty. A +3 boost, however, would need to be registered, and cost Lv3000.

Though not illegal, governments and foundation tend to discourage the use even of prosthetic devices, due to fears that the users could become dehumanized from the effects of using the mechanical limbs. Many psychologists feel that those fears are largely groundless, but the debate rages.

Prosthetics tend to be more common in military circles, as regrowth therapy takes too long and is too specialized for field surgeries. A soldier who loses a limb can be in action in only a few weeks with a prosthetic, versus 2-3 months for a regrown limb including any retraining time.

Full Cyborgs:

Full cyborgs, where the entire body has been replaced by mechanical systems are very rare in human space – there are only 61 known. All of them are accident victims where regrowth/regeneration failed for one reason or another. Most of them are concentrated on the Core Worlds, which have the resources to maintain their artificial bodies. Cyborgs would be designed as vehicles, with 20vol set aside for the central nervous system and support systems. They require daily nutrient, mineral, and vitamin supplements for their biological components (the brain, primarily), along with a power recharge/refueling for their mechanical systems.

247

TYPES OF PROSTHETIC/BIONIC MODIFICATIONS

Bionic Eyes: Bionic eyes outlasted the cybernetic revolution, largely because of their usefulness. As poor eyesight is often genetically-based, simple regrowth techniques generally won't help, and genetic tweaking is quite expensive. In comparison, bionic eyes are relatively inexpensive, and offer perfect vision that won't fade with time. Bionic eyes also lack the power and maintenance problems of bionic limbs, and the infection issues of neural plugs. Most bionic eyes are fairly easy to detect as they tend to be a standard shade of blue, brown, or gray. Many also have the lensmaker's logo neatly printed around the iris in tiny script. Some are shades that no human eye will ever be, but it is possible to obtain eyes which appear to be completely real. There are several option packages available for use with bionic eyes, which must be purchased at the time of installation.

Price: Lv2000

Surgery Cost: 2d4 hours, Lv1000 per hour

Surgery DC: 12

Color Enhancement: This option allows the user to see things in computer-enhanced color, or black and white. Color enhancement makes it easier to spot camouflaged tar-

gets and to observe fine detail.

Price: Lv500.

Low Light: This option allows infrared vision in low light environments, like biocontacts.

Price: Lv650

Flash Proof: This option protects the owner's vision from sudden flares of light, giving him the same protection as photosensitive goggles.

Price: Lv300

Optic Imager: A favorite of espionage agents, this option lets a person take five high-resolution pictures on thought command and review them later. If the person has a neural jack, he may transfer the pictures to a high-resolution chip. Another option is to transfer them to a subdermacomp, which can hold thousands of images. To erase the pictures, the user simply records over them.

Price: Lv1000

Subtlety: This option makes it almost impossible to detect that the user's eyes are bionic.

Price: Lv850

Laser Rangefinder/Designator: Sometimes seen in espionage and special forces, the rangefinder/designator combination has proven very effective, though the range on the designator is quite short.

Rangefinder Range Increment: 120m

Designator Range Increment: 20m

Price: Lv3750

Bionic Ears

Bionic ears are an uncommon modification, but enjoy a certain appeal with the avant-garde, even now, 20 years after the cyber-cult peaked. One of the drawbacks of the low-frequency and high-frequency features is that they make the ear obviously artificial in shape and/or material.

Price: Lv1000

Surgery Cost: Lv1200

Surgery DC: 10

Low-Frequency Hearing: This option enables a person to hear sounds below the range of normal humans. Ears with this option do not appear normal—they tend to be larger than normal, and although constructed of cartilage and flesh, they are often of an unusual shape (pointed at the top, for instance). These ears are popular with researchers studying the Eber, as it allows them to hear in the low-range that is part of the Eber aural spectrum. +2 on all applicable Listen Skill Checks.

Price: Lv600

High-Frequency Hearing: This option allows a person to hear sounds above the range of normal humans. Ears with this option also do not appear normal—they are usually of relatively dense materials such as plastics or even metals. +2 on all applicable Listen Skill Checks.

Price: Lv600

Sound Dampening: Although loud or irritating sounds won't damage the bionic ears in any way, they can be unpleasant to the user. This option enables the owner to dampen out specific ranges from the sonic spectrum, allowing sound to be dampened, which can also make it easier to hear a specific sound (such as someone's voice) in a noisy environment. +5 on Listen checks, but requires a Move Action.

Price: Lv250

Recorder: This option allows the user to record ten hours of sound and play it back at a later time. The recording can be accessed at any point and can be recorded over. The recorder option is especially popular with students and music fans. Recordings can be downloaded via neural jack, or dumped to a subdermacomp.

Price: Lv450

Bionic Limbs

Bionic limbs come with a standard Strength of 12 but can be improved up to a maximum of 24. In most task rolls using Strength as a modifier, a character's normal Strength should be used, but if the referee judges that a particular task warrants it, the Strength of the bionic limb can be used instead. For example, if a character is attempting to lift a heavy weight from the floor, his natural Strength should be used, since all of his limbs and his torso muscles are involved. If, on the other hand, the character is hanging from a ledge by his bionic arm, the Strength of the arm should be used in determining whether or not he can hold on.

As there is some empty space in most bionic limbs, it is possible, though illegal, to have a secret compartment built into one. A bionic arm can have a compartment 20 centimeters long and 3 centimeters in diameter, and a bionic leg can have a compartment 30 centimeters long and 8 centimeters in diameter.

Price: Lv2000 for a Strength 12 bionic arm, plus Lv200 per extra point of Strength; Lv3000 for a Strength 15 bionic leg, plus Lv300 per extra point of Strength. A cybernetic hand is Lv1200, as the hand is the most complex part of the arm, while a bionic foot is usually only Lv500, though that foot has only limited function. At the base Strength rating, these limbs are considered prosthetics, though any extra points makes them Bionics.

Surgery Costs: 1D6 hours, at Lv1000 per hour.

Surgery DC: 12

Equipment: Rather than having a secret compartment, a bionic limb may be constructed with any one-handed piece of equipment built into it. A one-handed firearm can be built into a bionic arm (although it is highly illegal), but is never built into a bionic leg, due to the fact that it would be nearly impossible to aim. The extra cost for such equipment is five times what the equipment would normally cost.

Power: Bionic arms and legs require a power source, typically contained within the limb itself. This power supply is usually a compact super-battery, which can supply power to the limb for up to 24 hours of constant use. These batteries can be recharged from any standard supply, including household current and portable generators.

The battery itself weighs 2kg, takes up 1 vol of space, and costs Lv50.

Maintenance: Bionic legs in particular require a considerable amount of maintenance and tuning. Each bionic leg requires 6 hours a month of maintenance. For each month missed, the character suffers a penalty of -1 to all moving actions, and their speed drops by 1 meter. Bionic arms require less maintenance, only 2 hours a month, but still suffer the -1 penalty if the maintenance is missed. Note that this penalty is cumulative for each month missed, and the maintenance time must be made up before the penalty goes away. So if Jeff misses three months of maintenance on his bionic leg, he's at -3 on all moving actions, and will require 18 hours of maintenance on the leg to get back to normal. A full body cyborg would require 6 hours of maintenance per week to remain in optimal operating condition.

Damage to Prosthetic Limbs: All limbs have a base AR of 3. Any shot that penetrates that base AR causes damage to the limb's Structural Integrity (SI). Arms have 10 SI, while legs have 18 SI.

Chargers: Chargers are devices that are used to store some of the endorphin that the character's body naturally produces. The endorphin is saved for reintroduction into the body when needed to add extra oxygen to, and remove fatigue toxins from, the character's bloodstream. The charger is installed in a space made by removing all or part of one kidney. Chargers grant one or more Feats based on the type of charger installed. A supercharger gives the Endurance Feat (and requires removal of half the kidney); a hypercharger give both the Endurance Feat and the Great Fortitude Feat (and requires removal of an entire kidney). Ectomorphs may not have a hypercharger installed, due to the comparative bulk of the unit.

Superchargers cost Lv1500; hyperchargers cost Lv4000

Surgery Cost: Lv2000

Surgery DC: 12

SUBDERMAL IMPLANTS

Subdermal Implants are a special case, and are completely legal practically everywhere. These implants do not go as far as full cybernetic implants. They consist of several types of equipment that are implanted in the body, but do not require mind-machine interfaces. Their control is more basic, typically by wiring the controls into the hands and displays to the optic nerve. To activate the devices usually requires a set of hand motions that are unlikely to be performed by accident. After that, the motions of the fingers control the equipment as if it were being held. This interface technology is called "virtual keyboard/keypad."

RFID Chip: On the Core worlds, most opt to have RFID chips installed, which provide hands-free access for their homes, cars and bank accounts. That the chips can also be used to track them doesn't bother most citizens of the Core, as they see this as another safeguard of their security.

Surgery Time: N/A

Price: Lv50

Subdermawatch: The Subdermawatch is a basic multifunction digital watch implanted just under the skin of the arm. Powered by body heat, it is widely available and widely used. The display is visible just under the skin at the wrist.

Price: Lv20

Surgery Time: 1d4 minutes

Surgery Cost: Lv50

Subdermataalk: The simplest of the true subdermals, the subdermataalk consists of a small 15 km range radio implanted in the skull behind the ear, with a microphone placed alongside the larynx. It isn't necessary to talk out loud to use the system – sub-vocalizing is sufficient. For an additional cost, a link phone can be installed that that can make use of the phone networks through the Core and the more developed colony worlds. Numbers can be dialed via the microphone and built-in speech recognition, or a virtual keypad can be installed that works through the fingers of the left or right hand. This is similar to the keypads of the subdermacalc and subdermacomp.

Price: Lv300

Surgery Time: 20 minutes

Surgery Cost: Lv200

Link Option: + Lv20

Virtual Keypad The simplest of the three styles of virtual input, the keypad can simulate up to about the size and complexity of a multi-function scientific calculator. This option is included with the subdermacalc.

Price: Lv100

Surgery Time: 10 minutes

Surgery Cost: Lv100

Virtual Keyboard The most complex of the three virtual interface options, the keyboard is as complex as a full-size computer keyboard. Chording versions are popular, with one key assigned to each finger and input accomplished by key combinations. This option is included with the subdermacomp.

Price: Lv220

Surgery Time: 10 minutes

Surgery Cost: Lv100

Virtual Pointer: The virtual pointer has to be used in conjunction with the virtual display and either the virtual keypad or virtual keyboard. Essentially, it tracks eye movements, and a mental keyboard command will select the object highlighted by the eye movement.

Price: Lv180

Surgery Time: 5 minutes if done along with virtual display, otherwise 20 minutes

Surgery Cost: Lv80 if done along with virtual display, otherwise Lv200.

Virtual Display: There are two classes of virtual display. The low-res model is used for subdermacalcs and subdermacomps, as they don't usually require better than a 16-million-color display. A high-resolution option is available, used by some subdermacomps and external systems. This display provides better-than-photo-realistic colors, and has been known to lead to some problems adjusting to the 'regular' palette of colors in the real world. Both of these implant displays actually tap into the optic nerve of one or both eyes, superimposing the generated image over the real-world image.

Price: Low-Res: Lv150
High-Res: Lv250

Surgery Time: 20 minutes

Surgery Cost: Lv400

Subdermacalc: The subdermacalc is a multi-function calculator/chronometer/compass installed at a suitable point in the user's limb, and powered by the body's own heat. It is controlled by a virtual keypad, and is linked to the optic nerve via a virtual display. It grants a +1 bonus to any skill requiring calculations, and provides the Natural Compass Feat if the user doesn't already have it. Using the subdermacalc doesn't require an additional action.

Price: Lv750

Surgery Time: 30 minutes

Surgery Cost: Lv200

Subdermacomp: The subdermacomp is a much larger unit than the subdermacalc, and is similar in performance to a portacomp. The virtual keyboard can be configured for

a number of purposes, like the keyboard of the portacomp. The subdermacomp can't use normal plug-in program chips, but it does include a special reader that can interface with the subdermacomp through an induction link, allowing programs to be downloaded to the computer rather than slotted in. This takes about 1-2 minutes per program. Like the subdermacalc, the subdermacomp uses a link to the optic nerve to provide its display. It provides the benefits of the subdermacalc, plus allowing the user to access any database or program on the computer. If the user has a subdermatalk with link phone access, the subdermacomp can connect to available planetary networks, making their databases and information instantly available. The typical subdermacomp has the following stats:

CPU: 100

Model: B9

Int: 1

PP: 10/5

Weight: 0.5 kg

Price: Lv2100

Surgery Time: 1d4 x 20 minutes

Surgery Cost: Lv400

Growler: The Growler is a specialized implant used for communication with the Ebers, and allows a person to duplicate the low notes used in parts of Eber speech.

Price: Lv200

Surgery Time: 30 minutes

Surgery Cost: Lv1000

BRAVE NEW WORLDS:

A recent trend in the Core has been that of the "Reality Overlay", where external head, body and drone-mounted cameras feed the wearer's surroundings into a subdermacomp, and the comp overlays a modified image of the world on the user's visual and audio centers. This can range from editing out ads and billboards to living inside an almost wholly artificial world. These artifices can be shared and experienced by many people, and sees people living out their lives while at the same time playing a vast, and very complex, game. Typically the systems requires a subdermatalk, subdermacomp, high-resolution virtual display, and virtual keyboard. Software costs range from Lv100 to over Lv5000, depending on complexity. And most of the shared-world systems also require a monthly fee, typically between Lv10 and Lv50.

OPTIONAL RULE: PROSTHETICS FROM CHARACTER BACKGROUND

If a GM and Player agree, prosthetics can be built in to

the character's background. This is easier with the Prior History character generation, as the stages where prosthetics could be introduced are obvious; anytime a military character takes a mishap, he or she can select a prosthetic from the table below if desired or roll randomly.

For characters generated using the Quick System, it's a little less obvious. However, using the Turning Points, we can rule that any time a character's roll for the turning point was equal to the roll required, they can select a prosthetic if desired. This rule only applies to military and mercenary characters.

Roll (1d10)	Prosthetic
1	Hand
2	Hand
3	Arm
4	Arm
5	Leg
6	Eye
7	Eye
8	Eye
9	Ear
10	Ear

DNA MODIFICATION

One of the great breakthroughs of 22nd century medical technology was the development of DNA Modification (DNAM) technology. Originally created as a means of curing genetic disorders, DNAMs use tailored retroviruses to rewrite the genetic code of a mature individual. These changes are permanent, and are passed along to successive generations. In the 150 years since they were first developed, they have helped to all but eliminate genetic disorders on the Core worlds. In 2192, a joint American-Canadian team developed the most famous of the DNAMs, the so-called King DNAM, which opened up the hostile world of King to settlement and exploitation.

There are, of course, persistent rumors of DNAM technology being misused, of governments and megacorporations, not to mention ProVolution, creating super-soldiers or super-geniuses. There has been no evidence of this to date, though. Each of the three DNAMs mentioned below required upwards of 20 years of development time, something that few megacorporations, governments or terrorist organizations can commit to. These rewrites were largely the work of extra-governmental foundations, in particular the Royal Society, the Life Foundation, and the Alberta Farmer's Cooperative. Since the Gene Protests of the early 2200's, however, there has been no new (official) research into DNA modifications, nor any attempts made to alleviate the problems inherent in the King DNAM.

Game notes: All DNAM treatments are listed with a type, cost and rejection save. Type refers to the severity of the

TRANSHUMANISTS:

There is a small, but vocal, movement in 2320AD called transhumanists. The basic tenet of transhumanism is that mankind has developed the tools to improve himself, far beyond the minor tweaks done in the name of eliminating congenital diseases. Super-intelligence, immortality, and perfect health are some of the benefits touted by the transhumanists. They feel that DNAM technology has the potential to advance humanity to something approaching godhood, and the transhumanists vigorously protest the research moratorium. The opposition to the transhumanists simply has to point at the Pentapods to show where that approach can lead.

modification. Minor modifications are outpatient treatments, with patient held for an hour or two after treatment to ensure that his body has accepted the procedure. The modification is typically complete within a week, and the patient notices little save the occasion bit of itchiness or hot or cold spells. Major modifications, on the other hand, significantly rework a sizable portion of the patient's body, and usually require the patient to be sedated for up to a month.

Cost simply refers to the cost of the treatment itself, and in the case of major modifications doesn't include the cost of the hospital stay. As these modifications are usually performed on colonists, the sponsoring government typically picks up the bill.

If the DNA modification is rejected, it can simply be tried again. If it is rejected a second time, however, it cannot be retried. If it is retried the patient will likely get very sick, even if they make the rejection save. If they fail the rejection save the result is often death due to massive shock and tissue rejection.

KING MASSIVE WORLDER MODIFICATION (TEMPLATE)

The first, and most-widely known, of the DNAM therapies, the King rewrite is also the most extensive. The primary change is a rebuild of the host's muscular and skeletal system, greatly increasing the strength and density of both. This tends to alter the subject's height as well, resulting in a more compact, but no less massive, individual. Additional changes are made to the host's cardiovascular system, strengthening the heart and altering the circulatory system to ensure efficient blood flow at all times. The lungs were also altered, allowing them to function properly in King's much denser atmosphere.

Another aspect of the King modification is the addition of an environmental symbiote, called the AFS (Atmosphere Filtration Symbiote), a cluster of micro-organisms that, in this case, live in the subject's lungs and filter the sulfur out of

King's air. These symbiotes require the sulfur in the atmosphere in order to live, and if someone leaves King for any length of time, the symbiotes will die, requiring the person to be reinfected with them upon return.

Less well-known, and little-publicized, are the side-effects of the King modifications. The supercharged cardiovascular system, coupled with King's extreme gravity, sees few colonists living past their 50th year. Their hearts and bodies just wear out. The DNAMs didn't provide any sort of additional clotting mechanism, so any lacerations or penetrating wounds tend to be extremely serious, as the powerful cardiovascular system will send blood jetting out of any serious wound.

Special Qualities: All characters who receive the King modification, and pass the required Save, have their bodies transformed into the Mesomorph body type, in addition, they receive all heavy gravity modifications, plus an additional (1d6-3) to Strength and Constitution, and a penalty of (1d6-4) to Dexterity, with a minimum bonus (or penalty) of 1 in all cases. They also receive the Heavy Gravity Adaptation Feat for free.

In any atmosphere type less than Dense (1.25 atm), the character must wear a respirator mask.

Any Lifeblood damage that penetrates armor causes an additional 1d4 points of Lifeblood damage to the character.

Skills: Same as the character

Advancement: By character class

Type: Major (4 weeks)

Price: Free if sponsored, Lv12,500 otherwise. The AFS is Lv100 per treatment.

Rejection Save: Fortitude save vs. DC 14

ZERO-G SPACE ADAPTATION MODIFICATION (TEMPLATE)

Though the King modification is the most noteworthy of the DNAMs, the Zero-G modification is the most common. Practically everyone who expects to spend more than a few days in zero-gravity receives this modification, and it's so wide-spread that Earth's Orbital Quarantine Command (OQC) lets it pass without mention. The Zero-G modification acts to limit muscle degradation and bone decalcification while in zero-gravity.

Like many of the DNAMs, it actually consists of the DNA modification itself, which acts to prevent muscle decay, and an environmental symbiote, in this case a microorganism that fixes calcium out of the bloodstream and back into the bone structure. This symbiote usually needs to be destroyed once the recipient is back in a normal-gravity environment, as some have been known to go awry, and keep fixing additional calcium even though the body no longer needs it. This can result in bone spurs and other ailments, up to and including kidney failure. The symbiote thus needs to be renewed whenever

the host goes back to a zero-gravity environment.

Special Qualities: Allows a character born in zero-gravity or low gravity to use the Zero-Gravity line of the Home World Gravity type, rather than simply being immobilized when in any sort of gravity well. Also acts to reduce the DC of Fortitude saves needed to avoid muscle and bone loss on long space voyages. See the Chapter 16: Space Travel for more information.

Skills: Same as the character

Advancement: By character class

Type: Minor

Price: Initial Treatment: Lv550 Subsequent Treatments (Environmental Symbiote) Lv250

Rejection Save: Fortitude Save vs. DC 10

THINAIR (TEMPLATE)

The Thinair modification was the last of the DNAM treatments to hit the market, developed shortly before the Gene protests led to a moratorium on DANM research., and is aimed at worlds like Crater, where the surface atmospheric pressure is thick enough to breathe, but thin enough to cause a great deal of discomfort. The Thinair modification greatly increases the concentration of blood vessels along the alveoli inside the lungs. This modification acts to increase the amount of oxygen the lungs can draw out of the surrounding air. The downsides of this modification are two-fold. First, normal air feels thick and heavy to breathe, and the increased oxygen can possibly cause the subject to behave erratically. This can be overcome with a special filter mask, which draws out a portion of the atmospheric oxygen. The second drawback is the increased concentration of blood vessels in the upper torso, which can increase the severity of any chest wound. Most consider these drawbacks to be acceptable. This modification is quite popular on Crater, where many of the topside ranchers underwent the modification before the recent security crack-down.

Special Qualities: Allows a character to breathe in Thin and Very Thin atmosphere (<0.60 atm) without a compressor mask. It also adds an additional 1d4 Lifeblood damage to any wound that occurs in location 9 (Chest).

Skills: Same as the character

Advancement: By character class

Type: Minor

Price: Lv1200

Rejection Save: Fortitude DC 12

There are several other DNAM therapies on the market, though most of them are aimed at their original purpose, that of curing genetic disorders. These therapies are all Minor modifications, and cost between Lv500-Lv5000, depending on their seriousness and rarity.

VEHICLES

Vehicles travel by interacting with land, air, or water. Ground vehicles interact by means of wheels, tracks, legs, rails, or air cushions. Air vehicles remain aloft by means of dynamic lifting surfaces (such as rotors or airfoil wings), vectored thrust (where the engines bear the entire weight of the vehicle, without benefit of aerodynamic surfaces) or lifting cells filled with a gas lighter than the background atmosphere. Combinations of all of the above are certainly possible. For water travel, vessels rely on air-filled hulls for buoyancy. These hulls may be designed either to travel completely submerged (as in a submarine), partially submerged, or lifted from the water by hydrofoils.

On Earth and Tirane, all vehicles sold come equipped with TrafCon (Traffic Control) links, allowing them to be driven automatically. These vehicles are also tied into the global satellite network, for both navigation and tracking purposes. Versions sold on colony worlds usually do not have the TrafCon links, nor the tracking modules. The navigation equipment is standard everywhere, however.

An even wider variety of vehicles are produced by the factories of Earth and its colonies in the 24th century than are available today. It would impractical to completely catalog them here, but the following listings give a broad sample of the types of vehicles available and explain their performance capabilities.

Most vehicles are powered by hydrogen fuel cells, and are effective in any environment containing oxygen, though compressor systems may be required for worlds with a low partial-pressure of oxygen.

DESIGN NOTES:

The vehicles of 2320AD were designed with the T20 Vehicle Design system, along with a set of options specific to the 2320AD universe. 2320AD vehicles cannot be recreated with the T20 Vehicle Design system alone.

Vols:

A vol is an abstracted measure of mass and volume. For purposes of conversion, 1 vol = 5 liters.



PUBLIC TRANSPORT:

Most people on the Core Worlds in the 24th century do their daily travelling by means of public transportation. Tube lines, for example, offer a smooth, comfortable ride at very high speeds. Ground cars, though not quite as fast, as just as comfortable thanks to TrafCon systems, and offer added flexibility. Because of the high speeds available to the Tube trains and to TrafCon controlled vehicles, suburban areas can lie much farther from the cities they surround, and those wealthy enough to live in the suburbs enjoy an added sense of security with the increased distance. Ground cars are more used by those living closer to the city, or people who need (or just want) the increased flexibility. Out in the Frontier, however, public transportation is typically not very well-developed, even in the more urbanized areas.

LAND VEHICLES

Land vehicles are, of course, the most commonly used of all vehicles. They run the full range from small civilian recreational vehicles to massive construction equipment and machines of war.

CIVILIAN VEHICLES

Street Monowheel (Medium Wheeled Vehicle): The monowheel is a favorite with young people looking for a fast, impractical vehicle. These small vehicles can be found throughout urban areas of the Core and even on the streets of the more developed Frontier worlds. It is next to useless off-road, however. When the speed drops below 10 kph, a small wheel drops down in front to keep the vehicle stable. The Monowheel is one square wide and one square long.

TL: 11

Price: Lv625

Bushi 918

Class:	Monowheel	EP Output:	6.EP Fuel Cell	(2.74 excess)
Price:	Lv625	Agility:	5	
Tech Level:	11	Initiative:	+5	
Size:	Medium			
Streamlined?:	Standard	AC:	15	
Pressurized?	No	(Size Medium)	0	
Climate Control?	No			
Drive Train:	Wheeled	AR:	0	
Crew:	1	SI:	17	
Passengers:	0	Signature:	-2	
Cargo Space:	8			
Fuel:	0.9			
Range:	330			
Speeds:				
Std. Acceleration=	22kph	Max. Acceleration=	66kph	
Very Slow=	22kph	Slow=	55kph	
Cruising=	110kph	Fast=	165kph	
Max Speed=	220kph	Off-road=	11kph	
Visual:	1 headlight(s)	1 brake light(s)		
Sensors:				
Comm:	2-Way Radio	Range=Medium		
Other Equipment:				

Personal ATV (Large Wheeled Vehicle): The personal ATV is a small, one or two person, open ATV. It sees wide use as a recreational vehicle, but is also used as a utility vehicle and even for exploration. The compact fuel cell gives the small vehicle a very long range. The ATV is one square wide and two squares long.

TL: 11

Price: Lv850

Bridgeport-Swift Sandpiper

Class:	Wheeled ATV	EP Output:	16 EP Fuel Cell	(12.52 excess)
Price:	Lv850	Agility:	4	
Tech Level:	11	Initiative:	+4	
Size:	Large (260 vol)			
Streamlined?:	Standard	AC:	13	
Pressurized?	No	(Size Large)	-1	
Climate Control?	No			
Drive Train:	Wheeled	AR:	0	
Crew:	1	SI:	25	
Passengers:	1	Signature:	-2	
Cargo Space:	20 vol			
Fuel:	9.6 vol			
Range:	660 km			
Speeds:				
Std. Acceleration=	11kph	Max. Acceleration=	44kph	
Very Slow =	11kph	Slow=	28kph	
Cruising=	55kph	Fast=	83kph	
Max Speed=	110kph	Off-road=	11kph	
Visual:	2 headlight(s)	1 brake light(s)	1 spotlight	
Sensors:				
Comm:	2-Way Radio	Range=Long	Radio Receiver	
Other Equipment:	Str 50 Winch			



255

Range Truck (Huge Ground Vehicle): This vehicle, similar in concept to 20th century Humvees and jeeps, is a cross-country vehicle designed to carry passengers and light cargo. On the Core worlds, these vehicles are relatively rare luxury vehicles, but any available models come equipped with the standard TrafCon and navigation/tracking modules. On the Frontier, these vehicles are quite common, in personal, corporate, government and military use, and are widely manufactured under a variety of brands and models. For safety and structural reasons, these vehicles do not feature swap-out bodies, though they are fairly modular. The Range Truck is two squares wide and four squares long.

TL: 11

Price: Lv4200

HOUSTON MOTORS RANGE STAR

Class:	Range Truck	Power Plant	60 EP Fuel Cell (26 excess)
Price:	Lv4200	Agility:	2
Tech Level:	11	Initiative:	+2
Size:	Huge (3200 vl)		
Streamlined?:	Standard	AC:	9
Pressurized?	No	(Size Huge)	-2
Climate Control?	Yes		
Drive Train:	Wheeled	4 wheels	AR: 1
Crew:	1		SI: 52
Passengers:	5		Signature: -1
Cargo Space:	635 vol		
Fuel:	18 vol		
Range:	300 km		
Speeds:			
Std. Acceleration=	10kph	Max. Acceleration=	10kph
Very Slow =	10kph	Slow=	25kph
Cruising=	50kph	Fast=	75kph
Max Speed=	100kph	Off-road=	10kph
Visual:	2 headlight(s)	1 Spotlight(s)	2 brake light(s)
Comm:	2-way radio, range Extreme		
Other Equipment:	Winch, Strength 40	Climate Control	

Family Car (Huge Wheeled Vehicle): This represents a typical family ground car of the type in use on most worlds. It is usually powered by a small fuel cell, though some rare colonies use petrochemical burners instead. The more common cars feature independent motors in each wheel powered by the inboard fuel cell, or fed from a high-density battery. Front and back wheels can steer independently, allowing great maneuverability and ease of parking. Many models can actually swap out the main body shell for a different one in a matter of an hour or less. The cost of one of these modules is typically about 40% of the cost of a complete vehicle, with pickup, van, car, and sporty packages available. The family car is two squares wide and three squares long.

TL: 11

Price: Lv2700

SUMATRA-FABRIQUE SKATE 750

Class:	Skate Ground Car	EP Output:	40 EP fuel cell (15.68 excess)
Price:	Lv2700	Agility:	2
Tech Level:	12	Initiative:	+2
Size:	Huge		
Streamlined?:	Standard	AC:	10
Pressurized?	No	(Size Huge)	-2
Climate Control?	Yes		
Drive Train:	Wheeled	AR:	0
Crew:	1	SI:	50
Passengers:	3	Signature:	-1
Cargo Space:	84 vol		
Fuel:	24 vol		
Range:	720 km		
Speeds:			
Std. Acceleration=	12kph	Max. Acceleration=	24kph
Very Slow =	12kph	Slow=	30kph
Cruising=	60kph	Fast=	90kph
Max Speed=	120kph	Off-road=	12kph
Visual:	2 headlights	HUD with Infrared	2 brake lights
Sensors:			
Comm:	Radio	TrafCon Beacon	
Other Equipment:	Climate Control		

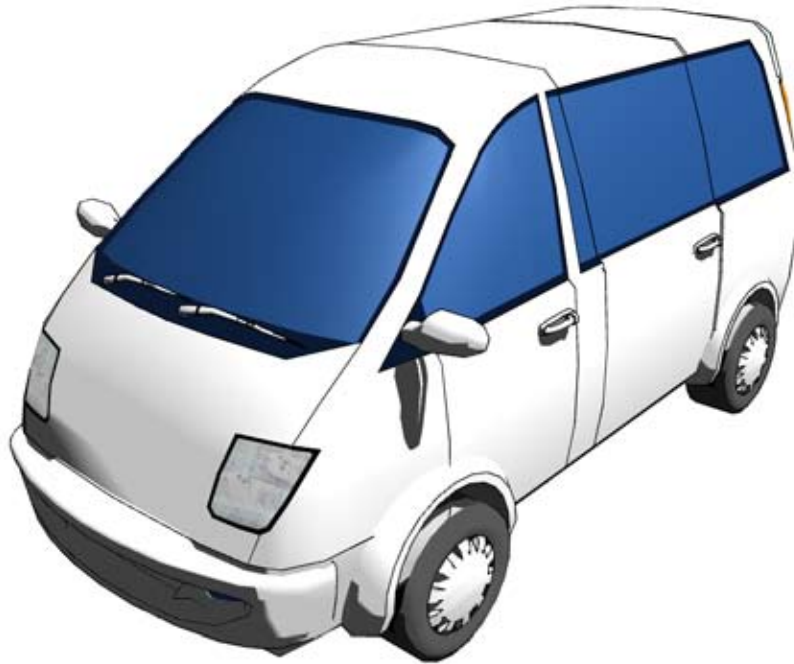
Heavy Truck (Huge Ground Vehicle): This is a specialized cargo hauler for use on frontier worlds. While at its best on roads, its large tires, high ground clearance, and all-wheel drive give it a reasonable off-road capability as well. In military service the vehicle is often equipped with a heavy ring mount on the left side of the cab for either a machinegun or autocannon. Similar versions exist in the Core, but are much less capable of off-road movement, and only Tier Four nations would use them as military vehicles. The Heavy Truck is two squares wide and five squares long.

TL: 11

Price: Lv7200

Ilris 3.5 4x4

Class:	Heavy Cargo Truck	EP Output:	62 EP fuel Cell	(1.05 excess)
Price:	Lv7200	Agility:	0	
Tech Level:	11	Initiative:	+0	
Size:	Huge	7000 vol		
Streamlined?:	Standard	AC:	9	
Pressurized?	No	(Size Huge)	-2	
Climate Control?	Yes			
Drive Train:	Wheeled	6 wheels	AR:	1
Crew:	1		SI:	55
Passengers:	2		Signature:	-1
Cargo Space:	2900 vol			
Fuel:	42 vol			
Range:	500 km			
Speeds:				
Std. Acceleration=	10kph	Max. Acceleration=	10kph	
Very Slow =	10kph	Slow=	25kph	
Cruising=	50kph	Fast=	75kph	
Max Speed=	100kph	Off-road=	10kph	
Visual:	4 headlight(s)	2 brake light(s)		
Sensors:	None			
Comm:	2-Way Radio	Radio Receiver		
Other Equipment:	Winch (Str 200)	Climate Control		



257

Utility Van (Huge Ground Vehicle): This is a general-purpose passenger or cargo hauler used for light loads on roads. Like the family car, the basic frame for this vehicle is modular, and can accept several different chassis models depending on requirements. These modules can typically be swapped out in less than a day. Modules available include a passenger mini-bus, ambulance, utility vehicle, tow truck (with extra fuel cell for more power and weight), and pickup truck. These vehicles are a common sight throughout the Core and any urbanized area in the Colonies. The Utility Van is two squares wide and four squares long.

TL: 11

Price: Lv4800

RAVEN G250

Class:	Cargo Van	EP Output:	32 EP Fuel Cell	(1.50 excess)
Price:	Lv4800		Agility:	0
Tech Level:	11		Initiative:	+0
Size:	Huge (3000 vl)			
Streamlined?:	Standard		AC:	8
Pressurized?	No		(Size Huge)	-2
Climate Control?	Yes			
Drive Train:	Wheeled		AR:	0
Crew:	1		SI:	13/25/51
Passengers:	1		Signature:	-1
Cargo Space:	2075 vol			
Fuel:	9.6 vol			
Range:	300 km			
Speeds:				
Std. Acceleration=	10kph	Max. Acceleration=	10kph	
Very Slow =	10kph	Slow=	25kph	
Cruising=	50kph	Fast=	75kph	
Max Speed=	100kph	Off-road=	10kph	
Visual:	2 headlights	2 brake lights	1 video camera w/IR, and 1 HUD	
Comm:	2-Way Radio	Radio Receiver		
Other Equipment:	Climate Control			

Explorer ATV (Huge Tracked Vehicle): A tracked wilderness vehicle popular with scientific parties. It can double as living quarters in hostile environments and can negotiate most types of terrain. It is designed to float, and a built-in set of propellers can move it across water at up to 20 km/h. Accommodations are provided for 4, and most feature an inflatable, attached shelter, which can be used in almost any environment, to provide roomier quarters or shelter for an additional four. This model includes a fuel station, as described in the equipment section, to further extend its range. The Explorer is three squares wide and six squares long.

TL: 11

Price: Lv20,000

Mule Corp Explorer

Class:	ATV	EP Output:	120 EP Fuel cell	(9.82 excess)
Price:	Lv20,000		Agility:	0
Tech Level:	11		Initiative:	+0
Size:	Huge	6000 vol		
Streamlined?:	Standard		AC:	9
Pressurized?	Yes		(Size Huge)	-2
Climate Control?	Yes			
Drive Train:	Tracked		AR:	1
Crew:	1		SI:	57
Passengers:	3		Signature:	+1
Cargo Space:	1000 vol			
Fuel:	144 vol			
Range:	960 km			
Speeds:				
Std. Acceleration=	8kph	Max. Acceleration=	8kph	
Very Slow =	8kph	Slow=	20kph	
Cruising=	40kph	Fast=	60kph	
Max Speed=	80kph	Off-road=	25kph	
Visual:	2 headlight(s)	1 Spotlight(s)	4 video cameras w/IR, 4 video monitors	
Sensors:	Sonar			
Comm:	Loudspeaker	Radio Receiver	2-Way Radio	Range=V.Long
Other Equipment:	2 x winch (Str 200)	Fuel Station	Inflatable Shelter	
	Fresher, Galley, 4 bunks		Pressurized	Climate Control
Aquatic Drive Train				
Speeds:				
Std. Acceleration=	2kph	Max. Acceleration=	4kph	
Very Slow=	2kph	Slow=	5kph	
Cruising=	10kph	Fast=	15kph	
Max Speed=	20kph	Off-road=	N/A	

258

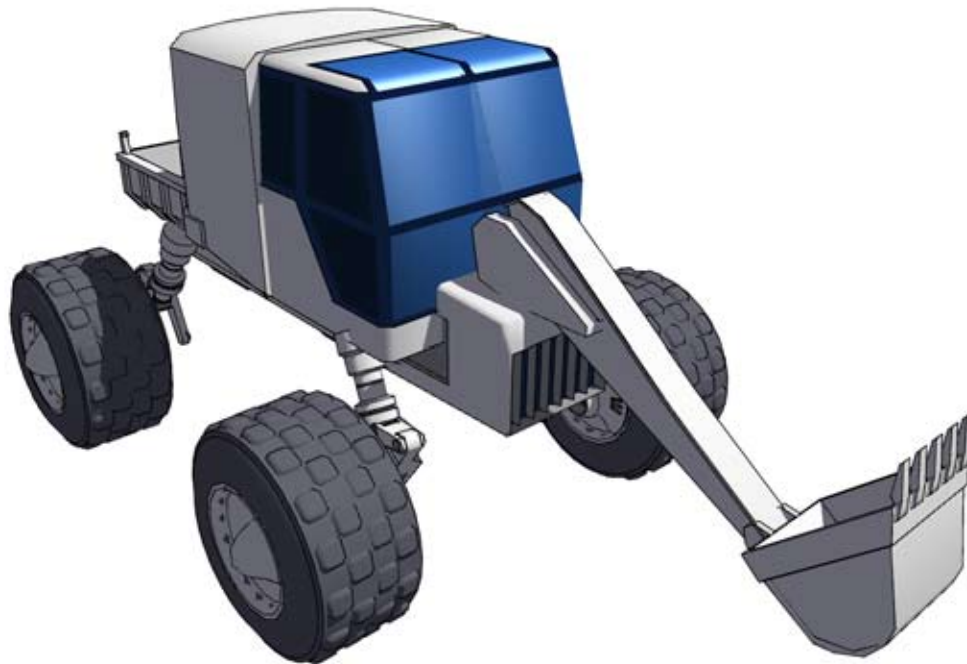
Bridgeport-Swift Songbird (Large Hover Vehicle): The Bridgeport Swift Songbird is a typical small hovercraft found throughout Human space. Though open-topped, it does come equipped with a tarpaulin for inclement weather. Military version sport a pintle mount and feature jump-jets for added terrain-crossing capability. The Songbird is two squares wide and four squares long.

TL: 10

Price: Lv12,000

Songbird

Class:	Hover craft	EP Output:	40 EP Fuel Cell	(8.37 excess)
Price:	Lv12,000		Agility:	0
Tech Level:	10		Initiative:	0
Size:	Large	1450 vol		
Streamlined?:	Standard		AC:	9
Pressurized?	No		(Size Large)	-1
Climate Control?	Yes			
Drive Train:	Advanced Hover		AR:	0
Crew:	1		SI:	42
Passengers:	3		Signature:	+2
Cargo Space:	300 vol			
Fuel:	24 vol	6 hours		
Range:	480 km			
Speeds:				
Std. Acceleration=	16kph	Max. Acceleration=	16 kph	
Very Slow (Stall)=	16kph	Slow=	40kph	
Cruising=	80kph	Fast=	120kph	
Max Speed=	160kph	Off-road=	N/A	
Visual:	4 headlight(s)	2 Spotlights	2 brake lights	
Sensors:				
Comm:	2-Way Radio			
Other Equipment:	Winch Str 200	Climate Control		



259

Mule Corp FarmMaster Tractor/ATV (Huge Ground Vehicle): Designed for use on colony worlds, the FarmMaster is designed as a robust, easy-to-repair vehicle that can perform multiple functions on a distant farm. Though designed primarily as a tractor, the variable transmissions built-in to each of the four large-diameter tires can propel the large, ungainly vehicle at a fair speed. The fuel cell is over-sized, allowing the FarmMaster to be used as power station when it isn't running, and the tractor comes with a complete set of specs for spare parts on a chip, with no royalty fee attached. This allows a colonist to effect any required repair, and fabricate any needed part, without worrying about being hit for royalty fees later. The FarmMaster is three squares wide and five squares long.

TL: 11

Price: Lv15,000

FARMMASTER TRACTOR ATV

Class:	ATV	Power Plant:	40EP Fuel Cell (17 excess)
Price:	Lv15,000	Agility:	1
Tech Level:	11	Initiative:	+1
Size:	Huge	5000 vol	
Streamlined?:	Standard	AC:	10
Pressurized?	No	(Size Huge)	-2
Climate Control?	Yes		
Drive Train:	Wheeled	AR:	1
Crew:	1	SI:	56
Passengers:	2	Signature:	-2
Cargo Space:	300		
Fuel:	480		
Range:	1200		
Speeds:			
Std. Acceleration=	5kph	Max. Acceleration=	5kph
Very Slow =	5kph	Slow=	13kph
Cruising=	25kph	Fast=	38kph
Max Speed=	50kph	Off-road=	5kph
Visual:	2 headlight(s)	2 brake light(s)	2 Spotlight(s)
	2 video camera(s), 4 video monitor(s)		
Additional Equipment:	Fresher, Galley, single bunk 2 x Winch, Strength 100	Vehicle Shop	Climate Control Mechanical Tool kit

CARGO HANDLING EQUIPMENT

These pieces of equipment can be found at warehouses and spaceports across human space, and the exo-loader forms the basis for a number of different machines used in a variety of industrial and commercial roles.

Mule (Large Ground Vehicle): Able to take a variety of custom attachments, from forklift tines to a small earth mover blade or bucket, the versatile little Mule is also used as a tractor for moving large loads in an industrial environment. The Mule is two squares wide and three squares long.

TL: 11

Price: Lv34,000

Mule

Class:	Industrial	EP Output:	50.00 EP battery	(8.65 excess)
Price:	Lv34,000		Agility:	2
Tech Level:	10		Initiative:	+2
Size:	Large	1000 vol		
Streamlined?:	Standard		AC:	11
Pressurized?	No		(Size Large)	-1
Climate Control?	No			
Drive Train:	Wheeled	Over-sized tires	AR:	0
Crew:	1		SI:	35
Passengers:	0		Signature:	-4
Cargo Space:	200 vol			
Battery Life:	8 hours			
Range:	40 km			
Speeds:				
Std. Acceleration=	1kph	Max. Acceleration=	2kph	
Very Slow =	1kph	Slow=	3kph	
Cruising=	5kph	Fast=	8kph	
Max Speed=	10kph	Off-road=	1kph	
Visual:	4 headlights	2 Spotlights	2 brake lights	
Sensors:				
Comm:	2-Way Radio			
Other Equipment:	Manipulators (forklift tines) Str 200 Dex 2		Mech Toolkit	

260

HA-90 Exo-loader (Large Walker Vehicle): In 2308, SorTech of France came out with the second-generation of exo-loader, to compete directly with the older HHMMPT from Australia's Pinchot Industries. The Industrial Loader featured here is the same size as its older competitor, but able to handle more cargo, and is easier to control. It can also accept the Space Maneuver package from the Combat Walker accessory section, and can be worn by someone wearing a light-duty P-suit. The HA-90 is two squares wide and one square long.

TL: 12

Price: Lv7500

Industrial Exo-Skeleton

Class:	HA-90	EP Output:	33 EP fuel cell	
Price:	7,500		Agility:	1
Tech Level:	12		Initiative:	+1
Size:	Large			
Streamlined?:	Standard		AC:	10
Pressurized?	No		(Size Large)	-1
Climate Control?	Yes			
Drive Train:	Legs		AR:	0
Crew:	1		SI:	25
Passengers:	0		Signature:	-3
Cargo Space:	0			
Fuel:	16.5 vol			
Range:	50 vol			
Speeds:				
Std. Acceleration=	1kph	Max. Acceleration=	1kph	
Very Slow =	1kph	Slow=	3kph	
Cruising=	5kph	Fast=	8kph	
Max Speed=	10kph	Off-road=	5kph	
Visual:	2 headlight(s)	Spotlight	2 brake light(s)	
Sensors:				
Comm:				
Other Equipment:	2 Appendages: Str 160, Dex 5			

AIRCRAFT

The following brief listing gives a representative sample of the types of civilian aircraft in widespread use in the year 2320. Virtually all civilian aircraft carry, by law, radio transponders to assist air traffic controllers in aircraft location. Furthermore, on the Core Worlds, aircraft cannot be operated in urban areas unless under remote autopilot from the local TrafCon grid.

Most aircraft engines can operate at one level higher or lower in world gravity (ie an engine built for Normal Gravity would work in a High-Gee and a Low-Gee environment, but wouldn't work in a zero-gravity environment or an Extreme Gravity environment (like King). This takes into account both gravity differences and atmospheric density differences, as in most cases gravity and atmospheric pressure are closely linked

Light Aircraft:

Light aircraft are popular choices on many colony worlds. Most of these aircraft have short or vertical takeoff and landing capability (S/VTOL), and so do not require much investment in landing strips and infrastructure to support them.

Houston Aerospace UV-7 "Howey" Military Liaison and Civilian Light Transport (Huge Tilt-Rotor):

This aircraft combines a vertical takeoff and landing capability with efficient level flight by means of two propfans which rotate on an axis through the centerline of the wings. When horizontal, they provide sufficient thrust to lift the aircraft off the ground. They are then rotated 90 degrees to provide forward thrust, with the conventional wing surfaces taking over lift. The Howey is two squares wide and eight squares long. Wingspan is eight squares

TL: 11

Price: Lv48,500

UV-7 "Howey"

Class:	Tilt-rotor	EP Output:	150 EP Imp. Gas Turbine	77.51 Excess
Price:	Lv48,500		Agility:	5
Tech Level:	11		Initiative:	5
Size:	Huge	2100vl		
Streamlined?:	Yes		AC:	13
Pressurized?	Yes		(Size Huge)	-2
Climate Control?	Yes			
Drive Train:	Tilt-rotor		AR:	0
Crew:	1		SI:	50
Passengers:	4		Signature:	+4
Cargo Space:	50 vol		Take-off Run:	VTOL
Fuel:	150 vol		Landing Run:	VTOL
Range:	1540 km		Clearance:	24m
Speeds:				
Std. Acceleration=	70kph	Max. Acceleration=	70kph	
Very Slow =	70kph	Slow=	175kph	
Cruising=	350kph	Fast=	525kph	
Max Speed=	700kph	Off-road=	N/A	
Visual:	2 headlights, 1 Spotlight, 1 video camera, HUD with IR, Low-light			
Sensors:	Radar	Range=	Short	
Comm:	2-Way Radio	Radio Receiver		
Other Equipment:	Winch	Str 200	Climate Control	

AIRCRAFT STATS:

In addition to the normal set of vehicle statistics, aircraft are also rated for Take-Off Run and Landing Run. This is simply the runway length needed for a safe take-off or landing. Some aircraft are identified as VTOL, and for these aircraft, and additional stat is included: Clearance. Clearance is the landing/take-off area diameter required for safe operation.

AeroDyne Manufacturing, Inc. UV-45 "Gull" Light Transport (Huge Tilt-Rotor): This aircraft operates on a principle similar to that used on the light transport described above. It has improved hover characteristics due to the use of two large-radius conventional propellers. The aircraft's characteristically high wing ensures propeller clearance when landed. This particular model is capable of water landings, and is often used aboard ships. The UV-45 exists in both military and civilian configurations. The military version is virtually identical save for the addition of two external hardpoints for missiles or anti-sub torpedoes and a pair of door guns. The Gull is three squares wide and ten squares long. Wingspan is ten squares.

TL: 11

Price: Lv220,000

UV-45 "Gull"

Class:	Light Transport	EP Output:	300 EP Imp. Gas Turbine	(99.51 excess)
Price:	Lv220,000		Agility:	+4
Tech Level:	12		Initiative:	+4
Size:	Huge	6200 vol		
Streamlined?:	Yes		AC:	17
Pressurized?	Yes		(Size Huge)	-2
Climate Control?	Yes			
Drive Train:	Tilt Rotor	2 rotors	AR:	5
Crew:	2		SI:	58
Passengers:	2		Signature:	+6
Cargo Space:	940 vol		Take-off Run:	VTOL
Fuel:	375 vol		Landing Run:	VTOL
Range:	1650 km		Clearance:	30m
Speeds:				
Std. Acceleration=	60kph	Max. Acceleration=	60kph	
Very Slow =	60kph	Slow=	150kph	
Cruising=	300kph	Fast=	450kph	
Max Speed=	600kph	Off-road=	N/A	
Visual:	6 headlight(s)	2 Spotlight(s)		
Sensors:		Radar	Range=Long	
Comm:		Radio Receiver	2-Way Radio	Range=V. Long
Other Equipment:	Winch Str 200	Fresher	Climate Control	

262



Airships and Wind Effects:

Due to their large size and huge surface area, airships are vulnerable to high winds and have trouble maneuvering. The following table provides a little of DC modifiers for any movement action an airship takes.

Wind Speed	DC
Light	0
Moderate	+5
Strong	+10
Severe	+15
Windstorm	+20
Hurricane	+40
Tornado	+60

Magnus-type LTAs subtract 5 from the above rolls, while the cyclo-crane adds 5

Panavia Loadmaster (Gargantuan Aircraft): Capable of carrying either passengers or freight, this type of heavy-lift aircraft is very useful for quick transfer of large cargo loads on most worlds. The engines are mounted above and ahead of the wings increasing lift at low speeds and giving the aircraft a shorter takeoff distance than would be expected from an aircraft of this size. The Loadmaster is five squares wide and thirty squares long. Wingspan is sixteen squares.

TL: 11

Price: Lv1.5 Million

LOADMASTER

Class:	Heavy Lift	EP Output:	500.00 EP Imp. Gas Turbine	(77.37 excess)
Price:	Lv1.5 million	Agility:	1	
Tech Level:	11	Initiative:	+1	
Size:	Gargantuan	30000 vol		
Streamlined?:	Airframe	AC:	7	
Pressurized?	Yes	(Size Gargantuan)	-4	
Climate Control?	Yes			
Drive Train:	Jet	4 jets	AR:	0
Crew:	4	SI:	78	
Passengers:	0	Signature:	+7	
Cargo Space:	17000	Take-off Run:	225m (STOL)	
Fuel:	1500	Landing Run:	450m (STOL)	
Range:	6480			
Speeds:				
Std. Acceleration=	90kph	Max. Acceleration=	90kph	
Very Slow (Stall)=	90kph	Slow=	225kph	
Cruising=	450kph	Fast=	675kph	
Max Speed=	900kph	Off-road=	N/A	
Visual:	2 headlights, 1 Spotlight, 4 video cameras, 4 video monitors, and 4 HUDs			
Sensors:	Radar	Range=	Medium	
Comm:	2-Way Radio	Range=	Long	
Other Equipment:	Fresher, Galley, 2 bunks, Pressurized, Climate Control			

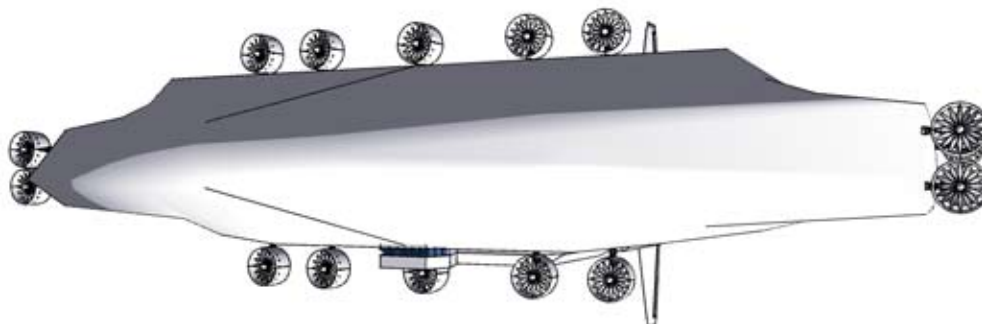
Magnus L-20 Light Duty Zep (Gargantuan Airship): This handy little airship features a spherical, semi-rigid gasbag which, in flight, rotates around a central axis giving the vessel additional lift. The spherical gasbag also eliminates the tendency that larger cigar-shaped airships have of "weathervaning" in high winds (pointing their noses into the wind). This added stability gives it a much better all-weather flight capability. The L-20 is twenty squares wide and twenty squares long. The gondola is three squares wide and eight squares long.

TL: 11

Price: Lv110,000

L-20

Class:	Light Cargo LTA	EP Output:	140.00 EP fuel cell	(1.77 excess)
Price:	Lv110,000	Agility:	0	
Tech Level:	11	Initiative:	0	
Size:	Gargantuan	5000 vol + lift envelope		
Streamlined?:	Standard	AC:	6	
Pressurized?	Yes	(Size Gargantuan)	-4	
Climate Control?	Yes			
Drive Train:	Magnus-effect LTA	AR:	0	
Crew:	3	SI:	55	
Passengers:	0	Signature:	+2	
Cargo Space:	2500 vol	Take-off Run:	VTOL	
Fuel:	168 vol	Landing Run:	VTOL	
Range:	3000 km	Clearance	30m	
Speeds:				
Std. Acceleration=	25kph	Max. Acceleration=	25kph	
Very Slow =	25kph	Slow=	63kph	
Cruising=	125kph	Fast=	188kph	
Max Speed=	250kph	Off-road=	N/A	
Visual:	4 headlights, 2 Spotlights, 2 video cameras, 2 video monitors			
Sensors:	Radar	Range=	Long	
Comm:	2-Way Radio	Range=	V. Long	
Other Equipment:	Fresher, Galley, winch STR=500		Climate Control	



LuftWerk Gz-320 Cargo Airship (Enormous Airship): This helium-filled rigid airship is an efficient and cost-effective means of hauling large cargos to inaccessible areas. Using a lifting-body hull, the Gz-320 can carry immense loads, and doesn't require any supporting infrastructure save a short (though very wide) runway for take-off and landing. Though slower than an airplane, the aerodynamic hull allows it to reach speeds surpassing conventional railways, and is far faster than surface ships. Airfoil airships are the biggest vehicles ever to take to the skies, dwarfing even the largest shuttles and passenger aircraft. The Gz-320 is 300 squares wide and 400 squares long.

TL: 11

Price: MLv1.1

Luftwerk Gz-320

Class:	Cargo LTA	EP Output:	1500.00 EP MHD Turbine (8.78 excess)
Price:	Lv1.1 million	Agility:	0
Tech Level:	11	Initiative:	0
Size:	Enormous	100,000 vol + lift envelope	
Streamlined?:	Yes	AC:	0
Pressurized?	Yes	(Size Enormous)	-10
Climate Control?	Yes		
Drive Train:	Airfoil LTA	AR:	0
Crew:	10	SJ:	96
Passengers:	None	Signature:	+5
Cargo Space:	56000 vol	Take-off Run:	800m
Fuel:	7200 vol	Landing Run:	200m
Range:	10560 km		
Speeds:			
Std. Acceleration=	40kph	Max. Acceleration=	40kph
Very Slow (Stall)=	40kph	Slow=	100kph
Cruising=	200kph	Fast=	300kph
Max Speed=	400kph	Off-road=	N/A
Visual:	6 headlights, 10 Spotlights, 5 video cameras, 10 video monitors w/IR, Low-light		
Sensors:	Radar	Range=V.Long	
Comm:	2-Way Radio	Range=V.Long	
Other Equipment:	3 Freshers, 10 bunks, galley, 12 small cabins	4 winches, Str 500	Climate Control

WATERCRAFT

Waverider Runabout (Large Watercraft): The Waverider Runabout is a small, basic boat used for a variety of purposes, from sport fishing to fish-farming, and even as a light pleasure craft, though its speed is far from extraordinary. The Runabout is two squares wide and four squares long.

TL: 11

Price: Lv14,440

WAVERIDER

Class:	Utility Boat	EP Output:	22.00 EP fuel cell	(8.41 excess)
Price:	Lv14,440		Agility:	1
Tech Level:	11		Initiative:	+1
Size:	Large	1800 vol		
Streamlined?:	Yes		AC:	10
Pressurized?	Yes		(Size Large)	-1
Climate Control?	Yes			
Drive Train:	Water, Surface		AR:	0
Crew:	1		SI:	47
Passengers:	5		Signature:	0
Cargo Space:	60 vol			
Fuel:	13.2 vol			
Range:	396 km			
Speeds:				
Std. Acceleration=	12kph	Max. Acceleration=	12kph	
Very Slow =	12kph	Slow=	30kph	
Cruising=	60kph	Fast=	90kph	
Max Speed=	120kph	Off-road=	N/A	
Visual:	4 headlights	2 Spotlights	Radio Receiver	
Comm:	2-Way Radio	Range=V.Long		
Other Equipment:	None			

Sea Squid Research Submersible (Huge Submarine): The Sea Squid is a utility sub adapted for research purposes. Originally designed to service deep-sea well-heads and thermal generators, it is well suited for a role in deep-water research. The Squid features several manipulators of different size and purpose, and all the manipulators give it an appearance reminiscent of its namesake. The Sea Squid is three squares wide and seven squares long.

TL: 12

Price: Lv85,000

SEA SQUID

Class:	Research Sub	EP Output:	120.00 EP fuel cell	(28.03 excess)
Price:	Lv85,000		Agility:	1
Tech Level:	12		Initiative:	+1
Size:	Huge	8000 vol		
Streamlined?:	Standard		AC:	21
Pressurized?	Yes		(Size Huge)	-2
Climate Control?	Yes			
Drive Train:	Water, Subsurface		AR:	12
Crew:	1		SI:	61
Passengers:	6		Signature:	-4
Cargo Space:	1200 vol		Max. Safe Depth:	18000 m
Fuel:	144 vol			
Range:	480 km			
Speeds:				
Std. Acceleration=	4kph	Max. Acceleration=	4kph	
Very Slow =	4kph	Slow=	10kph	
Cruising=	20kph	Fast=	30kph	
Max Speed=	40kph	Off-road=	N/A	
Visual:	6 headlights, 10 Spotlights, 5 video cameras, 10 video monitors			
Sensors:	Sonar	Range=Medium	Auditory Sensors	
Comm:	Voder	BG Laser Comm	Range=Medium	
		2-Way Radio	Range=V. Long	
Other Equipment:	Fresher, 2 bunks, galley, laboratory Pressurized, Climate Control Manipulators 4 x Str 20, 4 x Str 10 all Dex 12			

Trilon Aquadyne Cargo Vessel (Enormous Swath Watercraft): These large SWATH-hulled cargo vessels ply the waters of the Core worlds and many highly developed Frontier planets. Standard roll-on and roll-off cargo containers can be accommodated in bays high above the water while the large MHD turbines power the ship from the submerged primary hulls. The Aquadyne is forty squares wide and sixty squares long.

TL: 11

Price: MLv3.2

Aquadyne

Class:	Cargo Ship	EP Output:	9400EP MHD Turbine	(93.52 excess)
Price:	MLv3.2	Agility:	0	
Tech Level:	11	Initiative:	+0	
Size:	Enormous	3,000,000vol		
Streamlined?:	Standard	AC:	0	
Pressurized?	No	(Size Enormous)	-10	
Climate Control?	Yes			
Drive Train:	Surface	SWATH Hull	AR:	0
Crew:	10		SI:	601
Passengers:	4		Signature:	+6
Cargo Space:	2,483,000vol			
Fuel:	236880			
Range:	10080 km	2 weeks		
Speeds:				
Std. Acceleration=	6kph	Max. Acceleration=	6kph	
Very Slow=	6kph	Slow=	15kph	
Cruising=	30kph	Fast=	45kph	
Max Speed=	60kph	Off-road=	N/A	
Visual:	50 headlights	10 Spotlights	Range=Close	
	20 video cameras, 6 video monitors		Range=Short	
Sensors:		Radar	Range=Medium	
Comm:	Loudspeaker	2-Way Radio	Range=Long	
Other Equipment:	4 High-Pressure Pumps	16 small cabins	10 freshers	10 person galley
Climate Control				

RAIL TRANSPORTATION

In the 24th century, there are three types of rail transports. Each has its own particular applications. Regardless of the type, rail cars all follow certain standards. Passenger cars are designed to carry people, and include standard cars, which seat 80, sleeper cars, which will accommodate 30, and dining/lounge cars, which have facilities for up to 40 people at a time. Cargo cars vary from boxcars, which can carry up to 50 tons of mixed freight, to more special purpose cars, such as grain carriers, fuel and chemical tanks, and bulk cargo. These more specialized cars can typically carry up to 60 tons. Rail cars are a standard 3 meters wide by 15 meters long.

Conventional Train (Gargantuan Wheeled Vehicle): Trains are efficient means of moving large quantities of cargo and passengers by land. Each car rides on solid wheels which in turn ride on solid tracks. This allows very high pressure loadings (much higher than for vehicles which ride on open ground). Details here are for the conventional train locomotive, which can tow another 200,000 vol of railcars at no penalty. A locomotive is three squares wide and ten squares long.

TL: 11

Price: Lv400,000

BM-98

Class:	Locomotive	EP Output:	2200.00 EP MHD Turbine	(63.18 excess)
Price:	Lv400,000	Agility:	0	
Tech Level:	11	Initiative:	+0	
Size:	Gargantuan	60000vol		
Streamlined?:	Standard	AC:	6	
Pressurized?	Yes	(Size Gargantuan)	-4	
Climate Control?	Yes			
Drive Train:	Wheeled	AR:	0	
Crew:	2	SI:	86	
Passengers:	1	Signature:	+3	
Cargo Space:	0			
Fuel:	2200 vol			
Range:	600 km			
Speeds:				
Std. Acceleration=	12kph	Max. Acceleration=	12kph	
Very Slow =	12kph	Slow=	30kph	
Cruising=	60kph	Fast=	90kph	
Max Speed=	120kph	Off-road=	12kph	
Visual:	2 headlights, 1 Spotlight, 4 video cameras, 4 video monitors, 4 brake light(s)			
Sensors:	Radar	Range=Long		
Comm:	2-Way Radio			
Other Equipment:	Fresher, Galley	Climate Control		

Passenger Railcar (Gargantuan Wheeled Vehicle): This class of railcar would be seen on most routes, capable of carrying 40 passengers in relative comfort. Commuter trains would pack in more passengers, perhaps upwards of 80 or more. The railcar is towed behind a locomotive, and is incapable of movement on its own. Cargo cars would simply have 8000 vol of cargo rather than passengers. Railcars are similar for all type of trains. A railcar is three squares wide and twelve squares long.

TL: 11

Price: Lv13,000

PASSENGER

Class:	Rail Car	EP Output:	14.00 EP fuel cell	(0.49 excess)
Price:	Lv13,000	Agility:	0	
Tech Level:	11	Initiative:	+0	
Size:	Huge	10000 vol		
Streamlined?:	Standard	AC:	8	
Pressurized?	Yes	(Size Huge)	-2	
Climate Control?	Yes			
Drive Train:	Wheeled	AR:	0	
Crew:	0	SI:	65	
Passengers:	40	40 Seats x2	Signature:	-4
Cargo Space:	0			
Fuel:	16.8 vol			
Range:	12 hours			
Speeds:				
Std. Acceleration=	0kph	Max. Acceleration=	0kph	
Very Slow =	0kph	Slow=	0kph	
Cruising=	0kph	Fast=	0kph	
Max Speed=	0kph	Off-road=	0kph	
Visual:	Windows			
Sensors:	None			
Comm:	2-Way Radio			
Other Equipment:	2 Freshers	Climate Control		

Airfilm Train (Gargantuan Air Cushion Vehicle): Airfilm trains also ride on hard rails, but interact by means of a thin, high-pressure airfilm instead of wheels. This allows even higher pressure loadings with very little friction. Emergency wheels are designed to deploy should the air cushion ever fail. The airfilm train can tow another 200,000 vol of railcars at no penalty. Airfilm cars have the same stats as conventional cars. A n airfilm locomotive is three squares wide and ten squares long.

TL: 11

Price: Lv13,000

AFM-35

Class:	Locomotive	EP Output:	7200.00 EP MHD Turbine	(175.65 excess)
Price:	Mlv1.3	Agility:	0	
Tech Level:	11	Initiative:	+0	
Size:	Gargantuan	60000vol		
Streamlined?:	Standard	AC:	6	
Pressurized?	Yes	(Size Gargantuan)	-4	
Climate Control?	Yes			
Drive Train:	Air Cushion	AR:	0	
Crew:	2	SI:	86	
Passengers:	0	Signature:	+5	
Cargo Space:	0			
Fuel:	7200 vol			
Range:	1250 km			
Speeds:				
Std. Acceleration=	25kph	Max. Acceleration=	25kph	
Very Slow =	25kph	Slow=	63kph	
Cruising=	125kph	Fast=	188kph	
Max Speed=	250kph	Off-road=	73kph	
Visual:	2 headlights, 1 Spotlight, 4 brake lights, 4 video cameras, 4 video monitors, and 2 HUDs			
Sensors:	Radar	Range=Long		
Comm:	2-Way Radio	Range=V.Long		
Other Equipment:	Fresher, Galley	Climate Control		

Maglev Trains: On vacuum worlds, it is unfeasible to support a train on a film of air. Instead, a strong magnetic field is generated around the rail that the train travels along. These systems are also used in the tube-train systems of Earth, where they travel at high speeds along partially-evacuated tunnels. Stat-wise, Mag-lev trains are identical to air-film trains

MILITARY VEHICLES

This section includes a few samples of the many different types and classes of military vehicles available. The statistics for weapons and ordnance can be found at the end of this chapter.

Kangaroo V ACV-APC (Huge Advanced Hovercraft): A typical air-cushion, armored personnel carrier, the extra weight of the vehicle is carried at high speed by jet-assisted vectored thrusters. These also give the vehicle a limited jump-jet capability, enabling it to negotiate cliffs and similar obstructions. Each minute in jumpjet mode uses 10 minutes of fuel, and speed is quartered. The Kangaroo V is an updated version of the venerable Kangaroo IV, which saw service with Tanstaafl units throughout the Kafer war, and is no longer considered a frontline unit. The major difference between the older IV and the V model are armament and frontal armor. The Kangaroo V is three squares wide and six squares long.

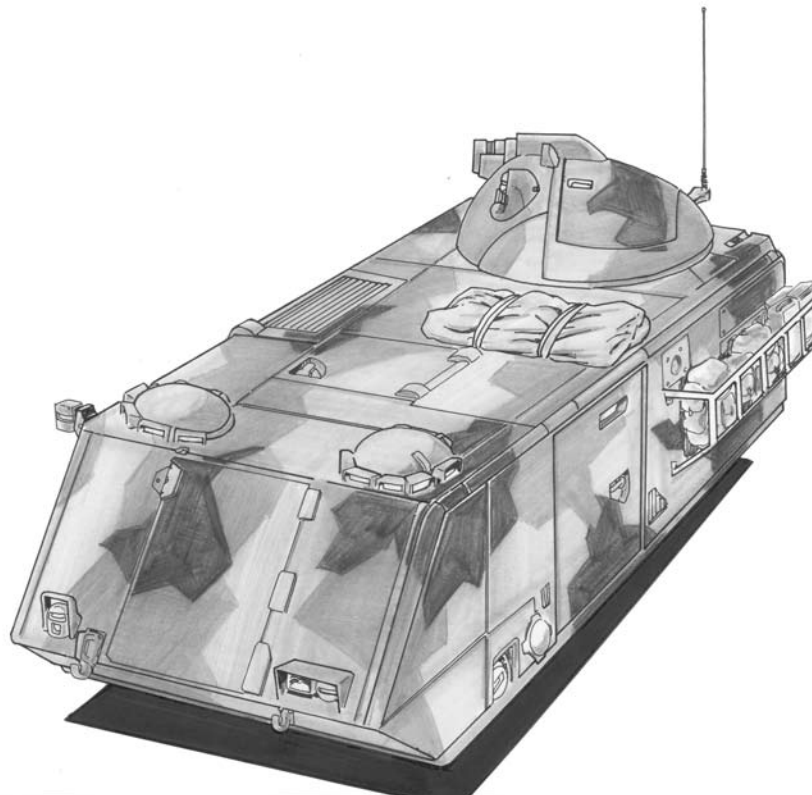
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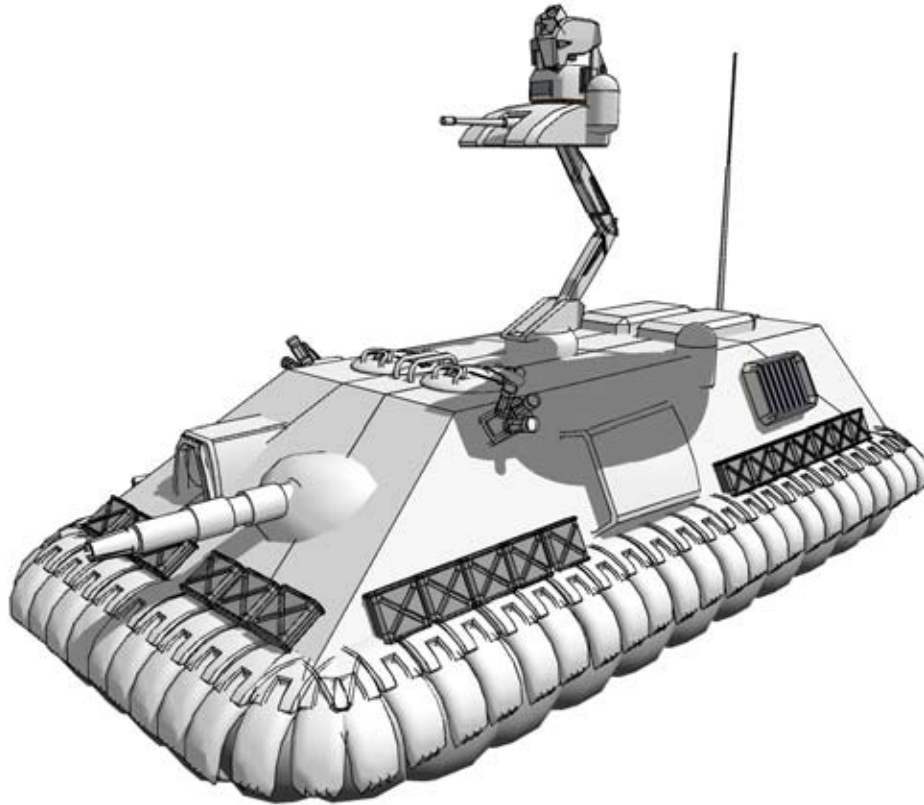
Price: MLv8.2

KANGAROO V

Class:	Hover APV	EP Output:	500EP MHD Turbine (153.14 excess)
Price:	Lv510,000	Agility:	+4
Tech Level:	12	Initiative:	+4
Size:	Huge	8000 vol	
Streamlined?:	Partially	AC:	18
Pressurized?	No	(Size Huge)	-2
Climate Control?	Yes		
Drive Train:	Advanced Hover	w/Jump Jets	AR: 6
Crew:	2	SI:	61
Passengers:	10	Signature:	+4
Cargo Space:	314		
Fuel:	150		
Range:	960	6 hours	
Speeds:			
Std. Acceleration=	32kph	Max. Acceleration=	64kph
Very Slow (Stall)=	32kph	Slow=	80kph
Cruising=	160kph	Fast=	240kph
Max Speed=	320kph	Off-road=	N/A
Visual:	2 headlights	1 Spotlight	
		Lowlight, IR, 4 video cameras, 4 video monitors, and 2 HUDs	
Sensors:	Radar	Range =	Medium
Comm:	2-Way Radio	Range=	Long
Other Equipment:	Targeting computer , Pressurized, Climate Control		

Weapons
CLP1A light plasma gun in remote turret
20mm Gatling in remote turret
2 shot Aero-29 missile launcher
Gatling point defense system
Armor
Front: 12
Overhead: 12
Side: 6
Rear: 3
Bottom: 3
Turret Front: 12
Turret Other: 6





AC-14 (Aero-Char-14) (Huge Advanced Hovercraft): Often called “gunplats” or “gunsleds,” hovercrafts are the cutting edge of heavy ground force units. The Aero-Char 14 is representative of many similar tanks of Kafer War vintage. This is the latest French expeditionary hover tank, and approaches the maximum size for such a vehicle. The AC-14 uses vectored-thrust jets which give it a limited jump jet capability, enabling it to negotiate cliffs and similar obstructions. Each minute in jump-jet mode uses 10 minutes of fuel and speed is quartered. The AC-14 is three squares wide and eight squares long.

TL: 12

Price: MLv8.2

AC-14

Class:	Hovercraft	EP Output:	1000 EP MHD Turbine (567.70 excess)
Price:	MLv8.2	Agility:	4
Tech Level:	12	Initiative:	+4
Size:	Huge	13500vol	
Streamlined?:	Standard	AC:	22
Pressurized?	Yes	(Size Huge)	-2
Climate Control?	Yes		
Drive Train:	Advanced Hover With Jump Jets	AR:	10
Crew:	4	SI:	72
Passengers:	0	Signature:	+6
Cargo Space:	120vol		
Fuel:	200 vol		
Range:	440 km		
Speeds:			
Std. Acceleration=	22kph	Max. Acceleration=	88kph
Very Slow =	22kph	Slow=	55kph
Cruising=	110kph	Fast=	165kph
Max Speed=	220kph	Off-road=	N/A
Visual:	2 headlights, 1 Spotlight, 4 video camera(s), video monitor(s), and 4 HUDs)		
Sensors:	Radar	Range=Long	Ladar
Comm:	Loudspeaker	2-Way Radio	Range=V. Long
		Tight-beam Laser	Range=V. Long
Other Equipment:	Mechanical Toolkit, High-Pressure Pump, 2 Winches (Str1000), Pressurized, Climate Control		

Weapons
75mm Mass Driver w50 rounds
20mm AC on snorkel mount
Laser Anti-Missile system
Hull-mounted launcher for Anti-Char Missiles
Gauss MG at Commander's cupola
Anti-personnel mine belt
Armor
Front: 20
Overhead: 20
Side: 10
Rear: 5
Bottom: 5
Turret Front: 20
Turret Other: 10

MILITARY WATERCRAFT

Um-550 Class Fighter Sub (Huge Watercraft): The short-range fighter sub is a relatively new weapon system designed to operate from a larger mother sub, shore base or even a surface vessel. The Um-550 can dive to a depth of 7500m, which is as deep as any major oceanic settlement. Armament is fairly heavy, but only two of the heavy torpedoes can be carried, along with a few more of the smaller Blowfish defensive torpedoes. Some fighter subs mount a blue-green laser for point defense, but the Um-550 relies on its stealth for protection. The Um-550 is four squares wide and six squares long. Wingspan is ten squares.

TL: 12

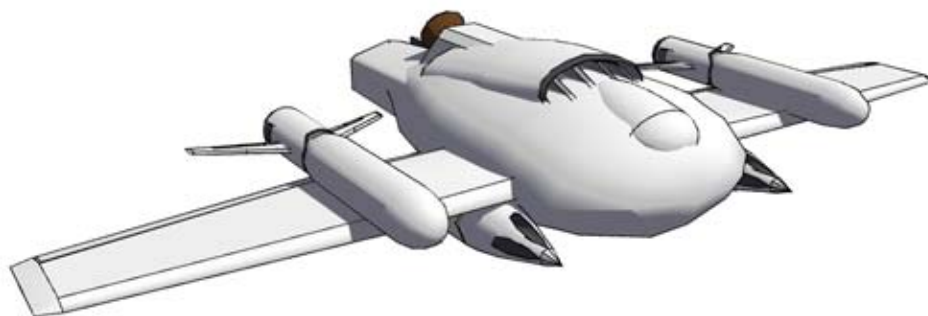
Price: MLv1.7

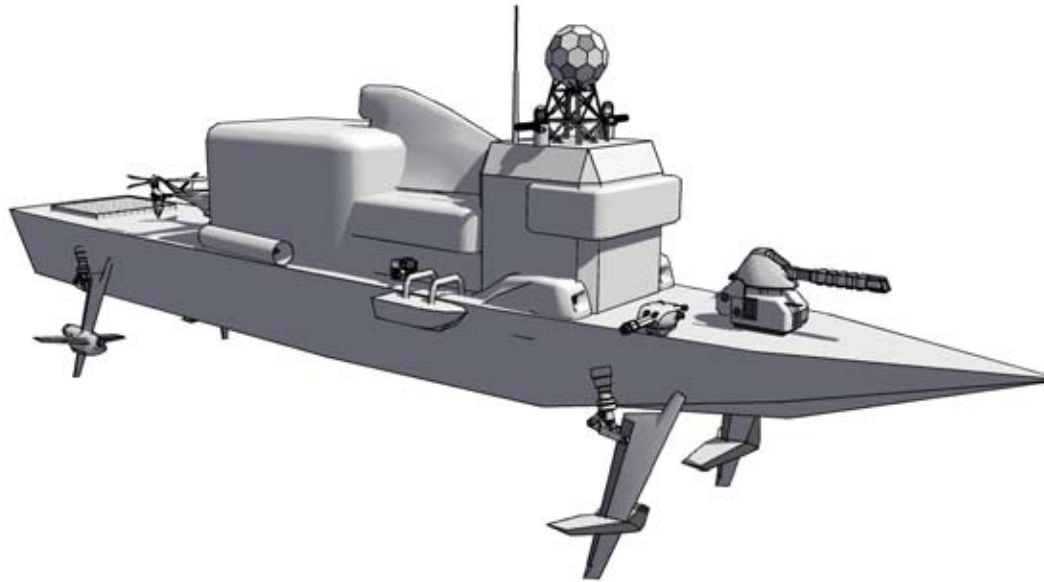
Um-550

Class:	Fighter Sub	EP Output:	230 EP Fuel Cell	(4.87 excess)
Price:	MLv1.7		Agility:	1
Tech Level:	12		Initiative:	+1
Size:	Huge	20000vol		
Streamlined?:	Streamlined		AC:	19
Pressurized?	Yes		(Size Huge)	-2
Climate Control?	Yes			
Drive Train:	Advanced Sub	And Super-cavitating rocket	AR:	10
Crew:	4		SI:	75
Passengers:	0		Signature:	-2
Cargo Space:	0vol		Maximum Safe Depth:	11000 m
Fuel:	200 vol			
Standard Drive		Rocket:	Range:	428 km
Range:	440 km			
Speeds:				
Std. Acceleration=	5 kph	Max. Acceleration=	5 kph	
Very Slow =	40 kph	Slow=	12.5 kph	
Cruising=	25 kph	Fast=	37.5 kph	
Max Speed=	50kph	Off-road=	N/A	
Supercavitating Rocket				
Range:	680 km			
Speeds:				
Std. Acceleration=	40kph	Max. Acceleration=	88kph	
Very Slow =	40kph	Slow=	100kph	
Cruising=	200kph	Fast=	300kph	
Max Speed=	400kph	Off-road=	N/A	
Visual:	1 IR video camera, video monitor			
Sensors:	Sonar	Range=Medium		
Comm:		Tight-beam Laser	Range=V. Long	
Other Equipment:	2 high pressure pumps, Anti-Torpedo Decoy launcher, Pressurized, Climate Control			

Weapons
2 Akula torpedo launchers
2 Blowfish torpedo launchers

270





Leander Batch 5B Hydrofoil Frigate (Colossal Watercraft): The Leander-5B is the latest version of this popular frigate to be deployed by the British Royal Navy. Variants of this design are also in service with the Canadian and Australian navies. The Leander is classed as a frigate as it specializes in power projection; a similar hulled version known as the Achilles destroyer carries more weapons but at the expense of the marine bay and cargo. The light 65mm mass-driver allows the ship to fight without deploying stabilizers, something the heavy guns on larger vessels require. A small tilt-rotor is carried in the vessel's small hanger, and is used for anti-submarine and utility work. Boarding operations are usually conducted using the two small runabout class boats carried amidships on davits. The Leander Batch 5B is six squares wide and forty squares long

TL: 12

Price: MLv23

LEANDER BATCH 5B

Class:	Frigate	EP Output:	12,250 EP MHD Turbine (23.67 excess)
Price:	MLv23	Agility:	1
Tech Level:	12	Initiative:	+0
Size:	Colossal	1,200,000vol	
Streamlined?:	Standard	AC:	8
Pressurized?:	No	(Size Colossal)	-8
Climate Control?:	Yes		
Drive Train:	Hydrofoil	AR:	5
Crew:	30	SI:	235
Passengers:	30	Marine Bay	Signature: +3
Cargo Space:	120vol		
Fuel:	35280 vol		
Range:	24 days		
Speeds:			
		Max. Acceleration=	20kph
Std. Acceleration=	20kph	Slow=	50kph
Very Slow =	20kph	Fast=	150kph
Cruising=	100kph	Off-road=	N/A
Max Speed=	200kph		
Visual:	8 headlights, 1 Spotlight, 4 video cameras, video monitors		
Sensors:	Radar	Range=Long	Ladar
Comm:	Loudspeaker	2-Way Radio	Range=V. Long
		Tight-beam Laser	Range=V. Long
Other Equipment:	UV-45 "Gull" Tilt-Rotor Aircraft in Minimal Hanger, 2 Waverider boats on davits, Pressurized, Climate Control, 4 high pressure pumps, ECM/ECCM, 2 anti-torpedo decoy launchers, 2 anti-missile decoy launchers		

Weapons
1 heavy computer controlled turret with 65-mm Mass Driver Cannon
2 Heavy computer-controlled turrets with Gatling Lasers
2 heavy manned turrets with 5.5-mm Gauss and PGMP-Mk4
64 Aero-29 launchers
2 Blowfish launchers
4 anti-missile PD laser mounds
2 BG PD lasers

MILITARY AIRCRAFT

Merlin GR.4 Attack Fighter (Huge VTOL Jet): The Merlin is a British aircraft optimized to perform best under primitive conditions, a feature extremely useful on Frontier worlds where massive paved airstrips are infrequent except at spaceports. Like most modern military aircraft, the pilot sits in an enclosed, armored cockpit, with all information relayed to his helmet-based display system from an array of sensors and cameras spread throughout the fuselage of the aircraft. The Merlin's vectored thrust engines, in addition to giving it a vertical takeoff capability, also make it extremely maneuverable. The Gr.4 is one squares wide and twelve squares long. Wingspan is ten squares.

TL: 11

Price: Lv300,000

Merlin

Class:	Fighter	EP Output:	150.00	(92.12 excess)
Price:	Lv300,000	Agility:	5	
Tech Level:	11	Initiative:	+5	
Size:	Huge			
Streamlined?:	Airframe	AC:	17	
Pressurized?	Yes	(Size Huge)	-2	
Climate Control?	Yes			
Drive Train:	Advanced Jet	VTOL		
Crew:	1	AR:	4	
Passengers:	1	SI:	55	
Cargo Space:	0 vol	Signature:	+4	
Fuel:	112.5 vol	Take-Off Run:	VTOL	
Range:	1800 km	Landing Run:	VTOL	
Speeds:		Clearance:	30m	
Std. Acceleration=	100kph	Max. Acceleration=	500kph	
Very Slow (Stall)=	100kph	Slow=	250kph	
Cruising=	500kph	Fast=	750kph	
Max Speed=	1000kph	Off-road=	N/A	
Visual:	1 Spotlight(s)			
	4 video cameras w/Low-light and IR, 2 video monitors, and 1 HUD			
Sensors:	Radar		Range=Medium	
Comm:	2-Way Radio		Range=long	
Other Equipment:	decoy dispenser x 2, PD laser system			

Weapons
2 x 20mm Gatlings
w 500 round/gun
6 hardpoints with 1500 vol of stowage.

272



14 VEHICLES

Aircraft and World Gravity:

Simplistically, given that atmospheric density increases as gravity increases, aircraft suffer little effect to their performance in different environments. If you want a bit more detail, modify maximum speed and landing/take-off run by multiplying them by atmospheric pressure (in atmospheres) and dividing it by world gravity. For most worlds, this will end up being the same, but for a few unusual ones it will make a difference.



SA.826F Zephyr 2 Close Support Gunship (Huge X-Wing): This type of aircraft uses the X-Wing concept to achieve a very good level flight performance, full vertical takeoff and landing capability, and excellent hover characteristics. The aircraft is lifted aloft by the overhead, large diameter, four bladed rotors. Forward thrust is provided by pair of shrouded conventional turbines. Once the craft is airborne and close to cruise speed, the rotor is stopped in flight and locked into place, the four blades forming an "X" (hence the name X wing). In this position, the blades provide conventional lift (supplemented by the stub wings, which double as weapon pylons). The Zephyr 2 is one square wide and eight squares long. Wingspan (rotor diameter) is ten squares.

TL: 11

Price: Lv171,000

Zephyr Gunship

Class:	X-Wing	EP Output:	200.00	(171.92 excess)
Price:	Lv171,000	Agility:	+5	
Tech Level:	11	Initiative:	+5	
Size:	Huge			
Streamlined?:	Airframe	AC:	19	
Pressurized?	Yes	(Size Huge)	-2	
Climate Control?	Yes			
Drive Train:	X-Wing	AR:	6	
Crew:	1	SI:	51	
Passengers:	0	Signature:	+4	
Cargo Space:	0	Take-Off Run:	VTOL	
Fuel:	200 vol	Landing Run:	VTOL	
Range:	600 km	Clearance:	30m	
Speeds:				
		Max. Accel-		
Std. Acceleration=	30kph	eration=	150kph	
Very Slow=	30kph	Slow=	75kph	
Cruising=	150kph	Fast=	225kph	
Max Speed=	300kph	Off-road=	N/A	
Visual:	2 headlight(s)	1 Spotlight		
		4 video cameras with IR, low-light, 1 video monitor, and 1 HUD		
Sensors:		Radar	Range=Long	
Comm:		2-Way Radio	Range=Long	
Other Equipment:	2 decoy dispensers, Targeting computer, Video recorder			

Weapons
20mm AC with 200 rounds
6 hardpoints with
600vol available

Viggen -8 Rapier Continental Interceptor: The Rapier sacrifices a certain amount of stealth for a very high (Mach 5+) speed, enabling it to make long-range interceptions of hostile aircraft. The main weapon is a laser cannon operating off of the aircraft's power plant. It is also equipped with a laser-based point-defense system, and a bay for mounting missiles. The pilot of the Rapier sits in a fully enclosed cockpit, with all data supplied by an array of sensors and cameras. In an emergency, the armored canopy shell can be ejected, allowing the pilot to see outside the craft without any sensors. The pilot's lungs are filled with oxygenated fluorocarbon fluids, to help him withstand the extreme stress of maneuvering. The Rapier is the last of the -8 series of hypersonic interceptors to come off Viggen's line. They have since switched production to a new sub-orbital fighter. The Rapier is one square wide and sixteen squares long. Wingspan is twelve squares.

TL: 11

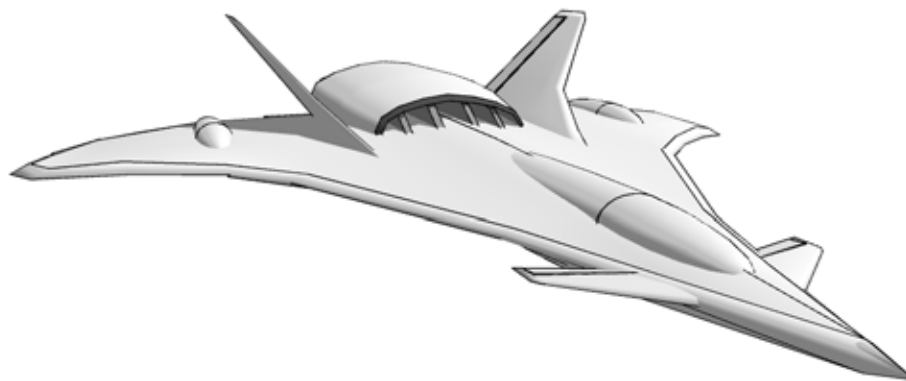
Price: Lv171,000

V-8 Rapier

Class:	Interceptor	EP Output:	600 EP Imp. Turbine	(23.67 excess)
Price:	Lv5.8 million		Agility:	+2
Tech Level:	12		Initiative:	+2
Size:	Huge	8100vol		
Streamlined?:	Hypersonic		AC:	8
Pressurized?	Y		(Size Huge)	-2
Climate Control?	Y			
Drive Train:	Advanced Jet		AR:	0
Crew:	1		SI:	61
Passengers:	N/A		Signature:	+6
Cargo Space:	N/A		Take-Off Run:	1080m
Fuel:	900 vol		Landing Run:	540m
Range:	16,200 km			
Speeds:				
Std. Acceleration=	540kph	Max. Acceleration=	1080kph	
Very Slow (Stall)=	540	Slow=	1350kph	
Cruising=	2700kph	Fast=	4050kph	
Max Speed=	5400kph	Off-road=	N/A	
Visual:	50km range with IR, LI, and HUD			
Sensors:	Radar	Range=Long	Ladar	Range=Long
Comm:		2-Way Radio	Range=V. Long	
		Tight-beam Laser	Range=V. Long	

Weapons
 Laser Cannon
 PD Laser
 Missile Bay w/
 4 Aero-29 missiles

Other Equipment: 2 x Decoy dispensers
 Targeting Computer



COMBAT WALKERS

Combat walkers are armored fighting vehicles based on a small walker chassis. Their role in modern tactics is as a sort of very heavy infantry, and typically operate in support of conventional infantry.

The first true combat walker was built near the middle of the 23rd century. Since that time, a number of other types have been created, but the French BH-24 and the Manchurian Type-44 remain the most commonly encountered varieties.

Combat walkers come in two main forms, the roughly humanoid types, used by most Western militaries, and the pod type, consisting an a completely enclosed pod on top of a set of armored legs, more often used by Manchurian forces and colonial militias. The humanoid types are 2.5-3 meters tall, while the pods are shorter but more bulky, usually 2-2.5 meters tall and 1.5-2 meters long. Humanoid walkers are considered to be armor rather than vehicles for purposes of acting in a round, while pod-types are considered to be vehicles. This means that in any engagement involving both humanoid and pod-type walkers, the pods will always move and act last. However, for purposes of determining damage, both types of walkers are classified as vehicles.

Humanoid-type combat walkers can carry and use conventional weapons in their arms. Any Large-to-Huge - sized weapon can be used as a carried weapon, at a cost of Lv1000 for appropriate sighting equipment to tie the weapon into the walker's fire-control net. Pod-type walkers cannot use carried weapons.

BH-25 Combat Walker: The BH-25 Combat Walker is a French-made suit of powered combat armor. It is a systemic upgrade of the original BH-21 that was first produced late in the period of the Central Asian War. The BH-24 builds on the lessons of the War of German Reunification, and, in particular, the Kafer War.

There are two different models of BH-25 Combat Walker. The basic model has powerful motors in the limbs that are slaved to the pilot's movements, an internal monitor that can expand up to a 360-degree view of the surrounding area, heavy NBC filters to provide clean air to the operator, and three fixed hard-points, one on the right arm, and one on both the right shoulder and left shoulder. A plasma gun in the left arm rounds out the suit's weaponry. The Space Warfare variant, the BH-25 V, is sealed for vacuum, and has air-tanks with a 24-hour duration, along with several maneuvering jets around the body of the suit.

In addition to the Mk4-A3 PGCW on the left arm, typical weapons load-out includes a DunArmCo 9mm rotary gun on the right shoulder, and either a drone mount or a point-defense weapon on the left shoulder. The right arm hard point is typically left open. The BH-24 is one square wide and one square long.

TL: 12

Price: Lv315,000

BH-25

Class:	Combat Walker	EP Output:	10 EP Fuel Cell (1.75 excess)
Price:	Lv315,000	Agility:	1
Tech Level:	12	Initiative:	+1
Size:	Large	400 vol	
Streamlined?:	Standard	AC:	18
Pressurized?	Yes	(Size Large)	-1
Climate Control?	Yes		
Drive Train:	Legs	2	AR: 8
Crew:	1		SI: 27
Passengers:	0		Signature: -4
Cargo Space:	0		
Fuel:	2.1 vol		
Range:	90 km		
Speeds:			
Std. Acceleration=	3kph	Max. Acceleration=	3kph
Very Slow=	3kph	Slow=	8kph
Cruising=	15kph	Fast=	23kph
Max Speed=	30kph	Off-road=	15kph
Visual:	2 headlights	1 Spotlight	
		2 video cameras w/low-light, IR, 1 video monitor, and 1 HUD	
Sensors:	Auditory	Radar	Range=Medium
Comm:	Voder	2-Way Radio	Range=Medium
Other Equipment:	2 Arms Str 24 Dex 10	Pressurized	Climate Control

Weapons
3 hardpoints w
90 vol of
Capacity
Mk4-A3 Plasma gun
in left arm



PzKf-II "Panzerbär": The *Panzerkampfanzug-II "Panzerbär"* is Freihafen's first major entry into the combat walker market and has proved a popular and cheap export item. The original PzKf-I was developed from the Bavarian/German Kz-7. Although this proved an inferior design, it gave a useful platform to develop a more sophisticated combat walker, which became the PzKf-II. The PzKf-II equips the Freiwehr's emerging CW arm and has proved popular with mercenaries and colonial forces along the French Arm.

The PzKf-II is a robust and well-armored humanoid design utilizing well proven, if not cutting edge, Freihafen weapons and electronics. The PzKf-II does not use a modular weapon system and lacks versatility when up against other more modern designs. The PzKf-II's aging chassis also limits its mobility somewhat and it has been unkindly described as lumbering. There are two main PzKf-II models, both of which utilize a rapid fire Frie-Optik 21 70.01 Laser in the right arm; the Ausf A has a powerful 45MW plasma weapon and the Ausf B a hardpoint for Luchs *ausf B* anti-vehicle missiles on the right shoulder. The "Panzerbär" is two squares wide and one square long. In the field, many units use the DunArmCo Mini-12 or similar weapons as a carried weapon for additional anti-personnel and light anti-vehicle work. The PzKf-II is one square wide and one square long.

TL: 11

Price: 120,000

PzKf-II

Class:	Combat Walker	EP Output:	8 EP Fuel Cell (1.49 excess)	
Price:	Lv120,000	Agility:	1	
Tech Level:	11	Initiative:	+1	
Size:	Large	450 vol		
Streamlined?:	Standard	AC:	17	
Pressurized?:	Yes	(Size Large)	-1	
Climate Control?:	Yes	AR:	7	
Drive Train:	Legs	2 legs	SI:	27
Crew:	1	Signature:	-4	
Passengers:	0			
Cargo Space:	0			
Fuel:	2.4 vol			
Range:	60 km			
Speeds:				
Std. Acceleration=	2kph	Max. Acceleration=	2kph	
Very Slow=	2kph	Slow=	5kph	
Cruising=	10kph	Fast=	15kph	
Max Speed=	20kph	Off-road=	10kph	
Visual:	2 headlight(s)	1 Spotlights		
Sensors:		Radar	Range=Short	
		Auditory		
Comm:	Voder	2-Way Radio	Range=Long	
Other Equipment:	2 Arms Str 30 Dex 10 , Climate Control Targeting Computer			

Weapons
70.01 laser rifle in arm mount
Ausf A
A-4 Sturmgewehr In shoulder-mount
Ausf B
2 x Luchs missiles In shoulder mount.

Chyuantii Defense Systems (CDS) Type 14-1 Combat Swimmer: The Type 14-1 is a commercially available combat swimmer suit currently in service with the forces of Heidelshemat. The Type 14-1 is a militarized version of a civilian diving suit used in the commercial exploitation of Syuhlahm's oceans. The Hiedelshematiens purchased a number of suits from Chyuantii Defense Systems along with submersible carriers to get the Type 14-1's close to the shore. This purchase was in reaction to increasing tensions with the neighboring Texan colony over off-shore resources. The Type 14-1 is optimized for littoral operations rather than deep-diving and in Heidelshemat service it equips special amphibious raiding units.

The Type 14-1 is a typical CDS pod-style design, with legs that can fold behind the pod when under secondary submarine drive. The Type 14-1 is a sleek, streamlined design, and although it is not heavily armored, is structurally very strong. The walker has a CDS Type 50 70.01 blue-green laser in a mini-turret on the top of the pod capable of engaging underwater and surface targets. It also has two hardpoints capable of carrying conventional weapons or underwater guided ordnance. The BH-24 is one square wide and two squares long.

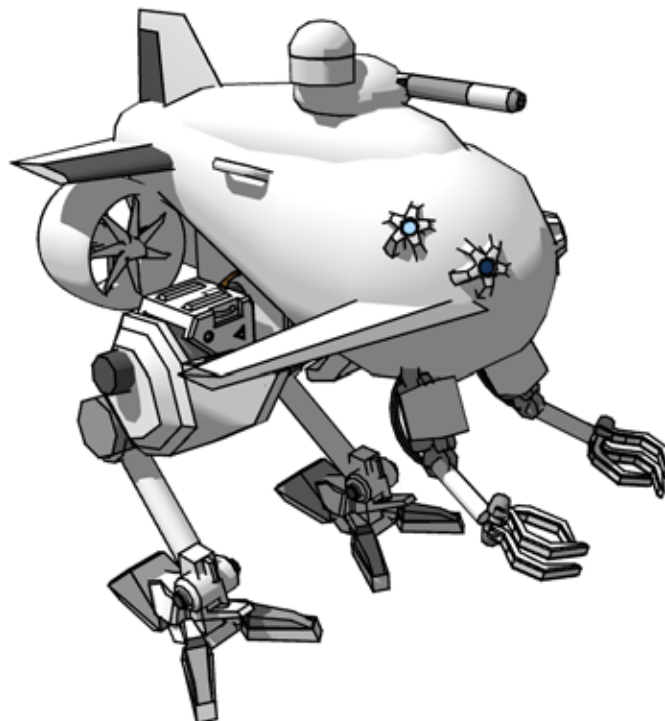
TL: 12

Price: Lv155,000

Type 14-1 Combat Swimmer

Class:	Combat Walker	EP Output:	12EP fuel cell	(1.40 excess)
Price:	Lv155,000		Agility:	1
Tech Level:	12		Initiative:	+1
Size:	Large	520 vol		
Streamlined?:	Partially		AC:	18
Pressurized?	Yes		(Size Large)	-1
Climate Control?	Yes			
Drive Train:	Legs	Sub-surface	AR:	8
Crew:	1		SI:	27
Passengers:	0		Signature:	-4
Cargo Space:	0		Sub Signature:	-8
Fuel:	2.52 vol			
Range:	60 km			
Speeds:				
Std. Acceleration=	2kph	Max. Acceleration=	2kph	
Very Slow=	2kph	Slow=	5kph	
Cruising=	10kph	Fast=	15kph	
Max Speed=	20kph	Off-road=	10kph	
Speeds: (Underwater mode)				
Std. Acceleration=	1kph	Max. Acceleration=	1kph	
Very Slow=	1kph	Slow=	3kph	
Cruising=	6kph	Fast=	9kph	
Max Speed=	12kph	Off-road=	N/A	
Visual:	2 headlights , 4 video cameras w/low-light & IR, video monitor, and HUD			
Sensors:	Sonar, Range=Close, Radar , Range=Medium, Auditory			
Comm:	Voder	2-Way Radio	Range=Long	
Other Equipment:	High Pressure Pump , 2 arms Str 50 Dex 10, Pressurized, Climate Control			

Weapons
BG 70-01 laser rifle in small turret
80 vol on hardpoints



COMBAT WALKER ACCESSORIES

Drone mount: An external, armored carrier for a Hund Whisperdrone (p.00). It includes the compressor to power it, and all necessary cables and bus connections. Information from the drone is displayed on the suit's HUD. The drone can also be used to designate targets for missiles and artillery. (Laser designator range increment 96m). It requires a hardpoint on the walker, or else it must be custom-fitted (3 days, Lv4000, T/Mechanical vs. DC 15).

Weight: 20kg

Size: 20 vol

EP: 1

Price: Lv2000

Anti-personnel belt: Actually more of a harness, the AP belt contains several small explosive flechette mines. It is designed to deal with infantry at close quarters who can easily outflank a combat walker.

Weight: 10 kg

Effect: 6d6 damage **Area of Effect:** 5m **Range Increment:** 5m

Price: Lv10 per mine, Lv120 for the harness

Armored overalls: The joints on humanoid combat walkers are especially vulnerable to shrapnel and battlefield debris. The armored overalls are a set of walker-sized Kevlex overalls that help to protect the walker's vulnerable joints, and have the additional salutary effect of softening the walker's outline, making it blend a little bit easier. The overalls have to be custom-made for each model of walker.

Weight: 22kg

AR: +1 (vehicle scale)

Sig: -1

Price: Lv520 (1560 Cr)

Sensor upgrade kits: The upgrade kit augments the effects of all onboard sensors, giving a +1 circumstance bonus on all Spot checks.

Weight: 2 kg

Price: Lv1200

Space Maneuvering System (SMS): This is an add-on package, consisting of several clusters of compressed gas jets allowing the combat walker greater mobility in zero-gravity environments.

Weight: 120 kg

Effect: +2 to all Zero-G maneuvering rolls

Price: Lv12000

VEHICLE ORDNANCE

These weapons are typical of many of the vehicle-mounted ordnance available. A hardpoint weapon can be mounted on any vehicle hardpoint with enough capacity to carry it..

MISSILES

There are a number of vehicle-mounted missile systems available. There are a few special rules regarding missiles, which are dealt with in the section on vehicle combat.

Guiscard Manta-1: The Manta-1 was one of the first generation of hyperkinetic anti-tank missiles, using a solid-fuel, air-breathing motor to achieve Mach 5 speeds shortly after launch.

Type: Obsolete Vehicle-mounted anti-vehicle missile

Nation: France

Guidance: Automatic

Attack Angle: Selectable

To-Hit Bonus:

Guiscard Aero-29: The Aero-29 is a fast anti-aircraft interceptor missile, using a conventional explosive warhead.

Type: Vehicle-mounted air defense missile Nation: France

Flight time to maximum range: 5 min.

Guidance: Automatic following gunner lock-on

Attack Angle: Direct

Guiscard Aero-22: The Aero-22 is an advanced silhouette-seeking missile that homes in on vehicle profiles. The heavy HEAP warhead is capable of punching most modern armor.

Type: Vehicle-mounted anti-vehicle missile

Nation: France

Guidance: Automatic

Attack Angle: Selectable

Luchs ausf B: The Luchs is a hyperkinetic missile that launches at Mach 7, and damages its target solely through kinetic energy. There is no explosive in the warhead.

Type: Vehicle-mounted anti-vehicle missile

Nation: Germany

Guidance: Automatic

Attack Angle: Selectable

Ohu ausf C: The Ohu is a large, vehicle mounted missile. The heavy warhead consists of three hyperkinetic submunitions that home in on their target.

Type: Vehicle-mounted air defense missile

Nation: Germany

Flight Time to maximum range: 3 min

Guidance: Automatic following gunner lock-on

Attack Angle: Direct

279

Type	Launcher Vol	Missile Vol	Damage	AOE	RoF	Rng	Attack Bonus	Cost, Launcher	Cost, Missile
Manta-1100	20	20	6d12	1	1	3.2 km	+2	4700	6000
Aero-22 90	35	35	8d12	1	1	6 km	+3	4200	7300
Aero-29 90	200	200	3d12	2	1	100 km	+5	3000	25000
Luchs-c 120	18	18	8d12	1	1	2.4 km	+4	4000	5000
Ohu-B 90	100	100	4d12	2	1	50 km	+6	3000	20000

TORPEDOES

Similar in some ways to missiles, torpedoes are water-borne weapons used to attack submarines and surface shipping. Most torpedoes are of the super-cavitating type fired at speeds of up to 500 km/h. However, they are unguided weapons due to the difficulty of getting sensor information through the bubble generated around the weapon. Their high speeds usually mitigate this problem, however. The only counters to these weapons are supercavitating interceptors and point-defense blue-green lasers.

Blowfish: A small torpedo usually used as a defensive weapon on larger boats and a back-up weapon on fighter subs. They can be used as interceptors against incoming torpedoes, with an additional -2 to hit. These are direct-fire, dumb weapons.

Type: Vehicle-mounted mini-torpedo

Nation: Britain

Guidance: Unguided

Attack Angle: Direct

Akula: The Akula is a stealth torpedo developed by Russia as a counter to the big, noisy supercavitating torpedoes. Using a magnetic tunnel drive and a synthetic case, it gets as close to the target as possible before igniting its supercavitating drive

for a 650km/h sprint to the target. It can often get within the minimum range of point defense torpedoes, and only has to worry about the laser systems. These torpedoes are large enough that they can often take a hit from the relatively low-powered lasers on subs.

- Type:** Vehicle-mounted Heavy Torpedo
- Nation:** Russia
- Guidance:** Automatic after gunner lock-on
- Attack Angle:** Direct

Type	Volume							Cost	
	Launcher	Torpedo	Damage	AOE	RoF	Rng	Attack Bonus	Launcher	Missile
Blowfish	100	20	4d12	10	1	1 km	+1	4100	6000
Akula	600	500	6d12	10	1	8 km	+3	4000	5000

BOMBS

200-Kilogram WASP Bomb: The WASP (Wide-Angle Scatterable Projectiles) is an area-denial cluster bomb, throwing out large numbers of grenade-sized bomblets over its area of effect.

- Type:** Aircraft-guided bomb
- Nation:** Generic
- Guidance:** Automatic following gunner lock-on
- Attack Angle:** Direct

200-Kilogram High-Explosive Bomb: This is a typical high-explosive bomb, designed to cause concussion and fragmentation damage to its targets.

- Type:** Aircraft-guided bomb
- Nation:** Generic
- Guidance:** Automatic following gunner lock-on
- Attack Angle:** Direct
- To-Hit Bonus:**

200-Kilogram Incendiary Bomb: The incendiary bomb is loaded with jellied petrochemical fuel, and sticks to anything it hits, burning intensely for 1d6 minutes.

- Type:** Aircraft-guided bomb
- Nation:** Generic
- Guidance:** Automatic following gunner lock-on
- Attack Angle:** Direct

400-Kilogram WASP Bomb: A larger variant of the standard 200-kg bomb, with a larger area of effect.

- Type:** Aircraft-guided bomb
- Nation:** Generic
- Guidance:** Automatic following gunner lock-on
- Attack Angle:** Direct

400-Kilogram FAE Bomb: The fuel-area explosive, or thermobaric explosive, is the most powerful non-nuclear warhead available. It releases gaseous fuel over a large area, and then ignites it to produce an exceptionally powerful explosion with massive over-pressure.

- Type:** Aircraft-guided bomb
- Nation:** Generic
- Guidance:** Automatic following gunner lock-on
- Attack Angle:** Direct

Type	Bomb Vol	Damage	AOE	RoF	Rng	Attack Bonus	Cost
200kg WASP	200	4d12	10	1	6 km	+2	1000

200kg HE	200	8d12	10	1	5 km	+0	1300
200kg Incendiary	200	6d12*	10x50	1	5km	+0	1700
400kg WASP	400	8d12	20	1	5 km	+2	2000
400kg FAE	400	10d12	50	1	4.5 km	+2	4000

Rocket Pods

The two types of rocket pods are defined by the number of shots they hold. Rocket pods can be rippled-fire at a rate up to the number of rockets in each pod. Treat the 7-shot pod as having an RoF of 10, while the 19-shot pod can have an RoF up to 20. Rocket pods are often simply discarded rather than being reloaded.

Weapon	Size	Cost	Damage	AoE	RoF	Rng
70mm-9	200	35000	1d6	5	1/4/7	1.4 km
70mm-19	300	45000	1d6	5	1/4/19	1.4 km

VEHICULAR WEAPONS

These are the stats for all the direct-fire weapons found in this chapter.

Lasers

Weapon	Damage	RoF	Rng
Laser Cannon	3d10	1	Sensors
Gatling Laser	4d10	4	Sensors

Autocannons

Weapon	Damage	RoF	Rng	Ammo volume	Ammo cost
20mm	1d10	10	240	10/20	100/20
30mm	1d12	10	300	10/15	100/40
20mm Gatling	1d10+1	100	240	10/20	100/20
30mm Gatling	1d12+1	80	300	10/15	100/40
10mm Gauss	1d12	100	800	10/50	20/100

Mass-Driver Cannons

Weapon	Damage	RoF	Rng	Ammo volume	Ammo cost
65mm	6d12	5	3 km	1	10
70mm	7d12	5	3.4 km	1.2	12
75mm	8d12	5	3.8 km	1.4	18

Personal Weapons

Weapon	Damage	AoE	RoF	Rng	Ammo volume	Ammo cost
5.5mm MG	1d12 (1d12-5)	0	20	60m	2.5/100	120/100
7.5mm MG	2d12 (1d12-4)	0	20	100m	3.5/100	180/100
9mm MG	2d12 (1d12-4)	0	20	144m	2.5/100	350/100
12mm MG	3d12 (1d12-3)	0	10	250m	6/100	500/100
5.5mm Gauss	3d12 (1d12-3)	0	100	120m	10/1000	100/1000
Plasma Gun (PGMP-Mk4)	(2d10)	0	1	96m	1/10	50/1
Anti-personnel mines	6d6	5	1	20m	-	-

Plasma Guns

Weapon	Damage	AoE	RoF	Rng	Ammo volume	Ammo cost
Light	4d12	5	1	400	1.5	40

COMBAT WALKER WEAPONS

35-01 Laser Rifle: Many combat walkers use this light laser as an integral anti-personnel weapon, as it can be run off the vehicle's power plant.

Type: 35-01 laser rifle

RoF: 3

Range: 72m**Damage:** 2d12 (x2)

70-01 Laser Rifle This is typical of the highest-power anti-personnel lasers found on vehicles and combat walkers. A Blue-Green variant is available for submarine use,

Type: 70-01 laser rifle**ROF:** 1**Range:** 96m**Damage:** 3d12 (x2)**70-01 Blue-Green Laser Rifle****Underwater Use:** Range: 24m Damage: 2d12 (x2)**Surface Use:** Range:72m Damage: 3d12 (x2)

DunArmCo M-600 Rotary Gun: A heavy Gatling-type machinegun often used on aircraft and combat walkers.

Type: 9mm rotary machinegun**Size:** 55 vol with magazine**Magazine:** 1500-round cassette**RoF:** 0/20/100**Range:** 96 m**Damage:** 2d12 (x2)**AP Bonus:** +1

Mk4 PGCW (Plasma Gun, Combat Walker): After many iterations, this is the current version of the Franco-American Mk4 PGCW. Powerful enough for light vehicle and anti-bunker work, yet compact enough to have a large ammunition supply, the Mk4 is ideal for light combat walkers.

Type: Combat Walker 20-MW plasma gun**Size:** 15 vol**Magazine:** 40 cells in external cassette**ROF:** 1**Range:** 96m**Damage:** 8d12 (18)

Jaschonek Waffenfabrik A-4 Sturmgewehr: Though superseded in German service by more modern weapons, the A-4 continues to see use on third-party platforms, including Freihafen's export combat walker, the Panzerkampfanzug-II.

Type: 30-MW plasma gun**Size:** 50 vol**Magazine:** 25-round drum**ROF:** 1**Range:** 60m**Damage:** 3d12 (vehicle scale)

ALIEN TECHNOLOGY

Several of the races encountered by Humanity possess high technology, often the equal of anything produced in Human space.

The Kafers, the Ylii, the Sung, the Pentapods, and to an extent the Ebers, all possessed technological societies. Most Humans are at least vaguely familiar with the artifacts of these races, though the operation of most would be beyond them.

EBER

Eber technology has fallen a great deal since the war that ended their interstellar civilization. The Civilized Ebers have worked themselves up to level about equal to Earth in the days of the Renaissance, while the Nomads seem content to stay fairly primitive.

EBER WEAPONS

MELEE WEAPONS

Eber Edged Pole Arm A long wooden pole surmounted by a heavy steel blade

Eber Long Sword: A slashing weapon designed for use on foot.

Eber Horse Sword: A relatively short, very curved weapon designed to be used while mounted.

Eber Lance: This long wooden weapon is designed to be used from atop a charging E-horse. It can be used in melee combat, but is very clumsy, suffering a -2 to Hit.

Eber Hook Spear: The hook spear is a common weapon among Eber nomads. It is made from the bulb-pole plant, which is common at desert oases, and is specially-designed to pull grunt-bugglies from their dens.

Weapon	Price	TL	Weight	Range	DMG (crit)	Type
Pole Arm	Lv20	1	12kg	3m	1d12 (x2)	Large Piercing/Slashing
Long Sword	Lv200	1	15kg	1.5m	1d10 (x2)	Medium Piercing/Slashing
Horse Sword	Lv150	1	10kg	1.5m	1d8 (x2)	Medium Piercing/Slashing
Lance	Lv80	1	6kg	3m	See Note,	Large Piercing/Slashing
2d10 (x3) on a charge from an E-horse, 1d10 (x2) in melee						
Hook Spear	Lv10	1	15kg	1.5 meters	1d10 (x2)	Large Piercing/Slashing or crushing
Javelin	Lv200	1	15kg	1.5 meters	See note	Large Piercing/Slashing
Used as a stabbing weapon, a javelin has a damage of 1d10 (x2). When thrown, however, the damage increases. Divide the Eber's STR by 5, and roll that many d10's. (STR 15 Eber, 15/5 = 3, so roll 3d10 for damage) Thrown javelins have one level of Armor Piercing.						
Napalm Gourd	Lv5	1	15kg	10 meters	2d10 (x2)	Medium Incendiary
Stink Gourd	Lv200	1	1kg	10 meters	N/A	Medium Gas

PROJECTILE WEAPONS

Eber Javelin: The javelin is the signature weapon of the Eber nomads, and is capable of piercing light vehicle armor, let alone personal armors.

Napalm Gourds: The napalm plant is a wide-spread desert succulent that stores moisture as a sticky, poisonous pitch in its fruit. This pitch is highly inflammable, and the gourd is used in serious warfare by the desert tribes.

Stink Gourds: Stink gourds are used in ritualized combat, almost like a game. The foul-smelling meat of the stink gourd is used to "mark" opponents, as a way of counting coup. It takes a week or so for the stench to wear off.

FIREARMS

The civilized Ebers have developed some primitive firearms, which are slowly finding their way into general use. Only a few have found their way into the hands of the nomads, who consider them to be overly-complicated.

G-D-E Pistol: This is typical of the civilized Eber pistols, equivalent in many ways to the long-barreled cavalry pistols of the late 1700's on Earth. It is a well-made flintlock pistol, firing a heavy ball with a bruising recoil.

Type: 15mm black powder pistol Country: Civilized Eber Length: 41cm (Size=Small) Action: Single shot Ammunition: 15mm ball Muzzle Velocity: 200 mps Magazine: 1 ROF: 1 Range: 20m Damage: 1d8 (x2).

Weight (Empty): 2.2kg

Ammo Weight: 0.05kg

Price: Lv100 (Lv1 for 100 rounds of powder and ball)

G-F-E Arquebus: The arquebus is a longer-barreled version of the pistol, firing a heavier ball. It is rifled, which greatly increases its range. The weapon is rifle-sized for a human, and is -2 to fire. Strength bonuses cancel out this penalty on a 2-for-1 basis. (2 points of Strength bonus cancel out -1 of the penalty.)

Type: 21mm black powder arquebus Country: Civilized Eber Length: 112cm (Size=Medium) Action: Single shot Ammunition: 21mm ball Muzzle Velocity: 420 mps Magazine: 1 ROF: 1 Range: 40m Damage: 1d10 (x2)

Weight (Empty): 3.2kg

Ammo Weight: 0.05kg

Price: Lv100 (Lv1 for 100 rounds of powder and ball)

EBER ARMOR

The civilized Ebers make use of two types of armor: chainmail armor, by far the most common of the two, and plate armor, generally reserved for the most powerful of Ebers. Eber plate is far heavier than human-equivalent armors, and is designed to be able to stop a nomad javelin. It can easily handle the primitive firearms currently in use. The value before the brackets represents the Armor Rating against non-firearm weapons, while the value in brackets represents the Armor Rating against firearms.

Chainmail Vest

Nation: Eber

Weight: 16kg

Area Protected: Torso

AR: 6 (3) (Non-rigid)

Max Dex Bonus: +2

Armor Check Penalty: -3

Speed: 15m

Price: Lv100 (equivalent)

Chainmail Suit

Nation: Eber

Weight: 30kg

Area Protected: Torso and limbs

AR: 6 (3) (Non-rigid)

Max Dex Bonus: +1

Armor Check Penalty: -4

Speed: 10m

Price: Lv200 (equivalent)

Plate Carapace

Nation: Eber

Weight: 24kg

Area Protected: Torso

AR: 12 (6) (Rigid)

Max Dex Bonus: 0

Armor Check Penalty: -5

Speed: 10m

Price: Lv150 (equivalent)

Plate Suit

Nation: Eber

Weight: 45kg

Area Protected: Torso and limbs

AR: 12 (6) (Rigid)

Signature: +2

Max Dex Bonus: -1

Armor Check Penalty: -5

Speed: 10m

Price: Lv500 (equivalent)

KAFERS

Kafer equipment is simple and rugged, designed to accept a great deal of harsh use. Some Human troops have refitted Kafer weapons with Human stocks and grips for just that reason. Although prices are included for some items, Kafer equipment is not ordinarily purchased, it is found, captured, or otherwise acquired at the referee's discretion.

Names for Kafer equipment are usually assigned by the organization first describing it in military or scientific literature, but sometimes reflect the nickname assigned by Human troops. Where known, the Kafer name is included in parentheses.

Kafer Equipment

Ration packs: Kafer ration packs are unappetizing and disgusting to Humans, though edible. It is a sausage-like tube of meat, grain and vegetables in a tough casing, which appear to have partially decomposed before being preserved for travel. Each ration pack will last a Kafer trooper for about a day.

Weight: 0.5kg

Price: N/A

Computer Mark II: When human researchers first discovered this artifact, they were at a loss to explain it. Its design, from the physical shape to the circuitry to the programming was completely different from any other piece of Kafer electronics yet discovered. Contact with the Ylii solved the mystery, however, as it was revealed that the small, compact and powerful computer was a Ylii design, created by slave technicians. Equivalent to a Human portacomp, save that it has an exabyte of internal storage.

Weight: 1.4kg

Price: N/A

Thermal Imager: The Thermal Imager is designed to

allow a Kafer to see in low-light conditions, much like Human gear. It can be used by Humans, but the output from it is uncomfortably bright, and can even damage Human eyes due to the high amount of UV light generated. Allows the Kafer to see in dim red light, or no light at all. The thermal imager negates all penalties for no- or poor-light conditions.

Weight: 2.1kg

Price: N/A

Worry Thing: These round lumps of rock often puzzled Human researchers, and it took until testimony of some Human prisoners from Beta Canum revealed their purpose. They revealed that Kafers put the stone in their mouths and rubbed it around their pedipalps and other oral protrusions. The theory is that this is somehow soothing to a Kafer.

Weight: 0.2kg

Price: N/A

Scepter: Kafers officers carry a scepter into combat, which they use to get their subordinate's attention, and to make them smart. Their method is simple: they use the long metal scepter to beat their underlings until the para-adrenalin rush leaves them smart enough to understand orders.

Weight: 2.7kg

Price: N/A

Pressure Suit The pressure suit is only issued to security troops and officers on Kafer warships. Common soldiers have no means of protection should a ship suffer explosive decompression. These suits have a 9-hour life-support system carried in a robust, armored backpack.

Weight: 12kg

Area Protected: All

Armor Rating: 3 (Inertial) 4 (rear torso) (Rigid)

Max Dex Bonus: +5

Armor Check Penalty: -2

Signature: +1

Price: N/A

KAFER WEAPONS

Kafer weapons tend to be of a simple, uncomplicated design, though possessing a fair degree of sophistication in their manufacture. Sighting tends to be very simple on most infantry weapons, however, some of the special-purpose types can have fairly advanced optics, including low-light, telescopic and rangefinder options.

Horse Pistol (Vved ush): An extremely heavy and rugged revolver. It is oddly shaped, due to the design of the Kafer hand, with a half-ring support which fits around the Kafer's wrist when it grasps the revolver's frame behind the cylinder.

Type: 14.5mm revolver Country: Kafer Length: 31cm

DRUG BUG:

Discovered recently on a captured Kafer raider, this object/creature looks like a fist-sized, scarab beetle with a large proboscis and ten atrophied and essentially useless legs. The example found was dead, but dissection revealed that most of the body cavity was taken up by a large sac (feeding into the proboscis). The proboscis feeds into a digestive tract, leading researchers to believe the creature lives by siphoning fluids from some other form of life, but the sac was puzzling – it has no associated glands, and seems to be oriented to propel something out of the proboscis. Detailed examination made a chilling discovery: the sac contained traces of a compound essentially identical to the Kafer para-adrenal hormone. No evidence of a gland for the secretion of the hormone could be found, but the specimen was partially decomposed by the time it could be examined.

The classified report, issued by ARI to a limited military and governmental mailing list, speculates that the creature is used as by Kafers as a reservoir/injector for an artificial para-adrenal hormone.

Weight: 0.4kg

Price: N/A

(Size=Small) Action: Single shot Ammunition: 14.5x31mm fixed cartridge ball Muzzle Velocity: 490 mps Magazine: 7 round cylinder RoF: 1 Range: 20m Damage: 2d10 (x2).

TL: 10

Weight (Empty): 1.3kg

Magazine Weight: 0.2kg

Price: N/A

Thud Gun (Vved ach*): An assault rifle with integral grenade launcher similar to the American M4. It has the general appearance of a rifle, but the overall shape is oddly curved.

Type: 12.1mm assault rifle with integral 27.2mm grenade launcher Country: Kafer Length: 81cm (Size=Medium) Action: Single shot or bursts Ammunition: 12.1x31mm APHE Muzzle Velocity: 610 mps Magazine: 66 rounds RoF: 1/4/10 Range: 72m Damage: 2d12 (x2) AP Bonus: +1

TL: 10

Weight (Empty): 6.5kg

Magazine Weight: 2kg

Price: N/A

Flashlight (Vved kala'ach*): A heavy and robust laser rifle, the Flashlight is often issued to scouts and snipers, along with orbital assault troops. It also carries the Kafer integral grenade launcher.

Type: 73-01 laser rifle Country: Kafer Length: 76.2cm (Size=Medium) Action: Single shot Pulse Energy: 0.73 mega-

joules Muzzle Velocity: C Magazine: 8.9 mj FDLMS cell (12 pulses) RoF: 1 Range: 112m Damage: 3d12 (x2).

TL: 12

Weight: 3.5kg

Magazine Weight: 1kg

Price: N/A

Double-Thud Gun (Vved ach ul*): The double Thud Gun is the Kafer version of a machinegun, using the ammo and basic layout of a Thudgun, but adding a second barrel to improve the rate of fire. Unlike human designs it incorporates two separate ammunition feeds, one for each barrel.

Type: 12.1mm machinegun Country: Kafer Length: 88cm (Size=Medium) Action: Single shot or bursts Ammunition: 12.1x31mm APHE Muzzle Velocity: 610 mps Magazine: 2x333 rounds RoF: 1/4/20 Range: 96m Damage: 2d12 (x2) AP Bonus: +1.

TL: 11

Weight (Empty): 7.5kg

Magazine Weight: 10kg

Price: N/A

Beamer (Gh'eh Kalech*): High-energy plasma gun found mounted on vehicles.

Type: Vehicle-mounted 40-MW plasma gun Country: Kafer Length: 172cm (Size=Large) Action: Single shot Ammunition: 22x76mm 40-MW photonic core plaser cell Magazine: 100 cells in external hopper RoF: 1 Range: 112m Damage: 9d12 (18).

TL: 12

Weight (Empty): 17kg

Ammunition Weight: 0.65kg

Price: N/A

Tri-Beamer (Gh'eh uch): This vehicle mounted plasma gun can attain a higher rate-of-fire than most plasma weapon, due to the 3-barreled rotary action. Salvaged examples of this weapon are popular among Human troops

Type: Man-portable 26-MW plasma gun Country: Kafer Length: 155cm (Size=Large) Action: Single shot or bursts Ammunition: 19x75mm 26-MW photonic core plaser cell Magazine: 100 cells in external hopper ROF: 3 Range: 96m Damage: 8d12 (18).

TL: 12

Weight (Empty): 23kg

Ammunition Weight: 0.68kg

Price: N/A

Integral Grenade Launcher: This is the typical 27.2mm grenade launcher found on Thudguns and Flashlights. Action: Single-shot Ammunition: 27.2x52mm propelled grenade Muzzle Velocity: 375 mps Magazine: 9 round

detachable box magazine Magazine Weight: 1.9kg RoF: 1 Range: 100m Damage: As Grenade

Kafer Vehicles

Bugbus: The Bugbus is a common transport and personnel carrier in Kafer service. Usually powered by an internal combustion engine that can be tuned to burn anything from gasoline to vegetable oil, the Bugbus is a sturdy and versatile vehicle. The Bugbus is three squares wide and four squares long.

TL: 11

Price: Lv90,000

Deathsled: The Deathsled is the largest hovertank fielded by the Kafers, so large that it doesn't have full jump-jet ability. It can use its jump-jets to cross obstacles no more than 3 meters high and/or 10 meters across. It cannot cross chasms or ravines. The Deathsled is three squares wide and five squares long.

TL: 11

Price: 300,000

Kafer Spacecraft

Kafer Infiltrator: The Kafer infiltrator-scout is one of the smallest Kafer interstellar vessels thus far encountered. Lightly armed, it and its crew try to avoid confrontation when at all possible. The Kafer scout uses its masked hull to good effect, as it lands in an isolated part of a target world and sends out its complement of infiltrators to gather intelligence. For atmospheric maneuvering it uses its fission plant as a nuclear thruster, channeling reaction mass past the reactor to generate thrust. While using the thruster, the reactor doesn't generate any excess power, and the vessel cannot fire its weapons, use active sensors nor engage its stutterwarp drive.

TL: 12

Price: N/A

Buqbus

Class:	Tracked APC	EP Output:	60.00 EP ICE (4.84 excess)
Price:	Lv90,000 (equivalent)	Agility:	0
Tech Level:	11	Initiative:	+0
Size:	Huge (3300 vl)		
Streamlined?:	Standard	AC:	15
Pressurized?	No	(Size Huge)	-2
Climate Control?	Yes		
Drive Train:	Tracked	AR:	7
Crew:	2	SI:	52
Passengers:	12	Signature:	+2
Cargo Space:	200 vol		
Fuel:	72 vol		
Range:	480 km		
Speeds:			
		Max. Acceleration=	8kph
Std. Acceleration=	8kph	Slow=	20kph
Very Slow =	8kph	Fast=	60kph
Cruising=	40kph	Off-road=	25kph
Max Speed=	80kph		
Visual:	Headlightsx6	Spotlightsx2	
Sensors:	None		
Comm:	2-Way Radio	Radio Receiver	
Other Equipment:	Winch (Str 200)		

WEAPONS:

Tri-BEAMER plasma GUN on pintle MOUNT with AR 5 GUN-shield

Armor:

Front: 14

Overhead: 14

Side: 7

Rear: 4

Bottom: 4

DEATHSLED

Class:	Hovertank	EP Output:	700 EP MHD Turbine (58.53 excess)
Price:	Lv300,000	Agility:	2
Tech Level:	12	Initiative:	+2
Size:	Gargantuan	23000vol	
Streamlined?:	Standard	AC:	18
Pressurized?	Yes	(Size Gargantuan)	-4
Climate Control?	Yes		
	Advanced		
Drive Train:	Hover	With Jump jets	AR: 10
Crew:	5		SI: 77
Passengers:	0		Signature: +6
Cargo Space:	0		
Fuel:	420 vol		
Range:	800 km	4 hours	
Speeds:			
		Max. Acceleration=	100kph
Std. Acceleration=	20kph	Slow=	50kph
Very Slow (Stall)=	20kph	Fast=	150kph
Cruising=	100kph	Off-road=	N/A
Max Speed=	200kph		
Visual:	2 headlight(s)	1 Spotlight(s)	4 video cameras w/LI, 4 video monitors
Sensors:		Radar	Range=Medium
Comm:	Loudspeaker	2-Way Radio	Range=Very Long
Other Equipment:	1 decoy dispenser , 1 winch str 200		

Weapons

78mm mass driver (equivalent to human 75mm) in crewed heavy turret

23.2mm autocannon in commander's

cupola Beamer plasma gun in cupola

2 missiles (equivalent to Antichar mis-

siles

Armor:

Front: 20

Overhead: 15

Side: 10

Rear: 5

Bottom: 5

Turret Front: 20

Turret Other: 10

OMEGA

Class:	Infiltrator
Tech Level:	12
Profile:	
	Radial: -2
	Lateral: 1
Size:	420 ton Wedge Synthetic Hull
Main Computer:	Model/4
Sensor Range:	
	Active: 15hexes
	Passive: 5hexes
AC:	18
AR:	8
SI:	163
Signature	
	Radial Reflected: 5
	Lateral Reflected: 7
	Radiated: 6/3
Screens:	Rating: 0
Streamlining:	Hybrid Lifting Body Airframe
Atmospheric Speed:	Maximum 4700 km/h
Atmospheric Agility:	-6
Take-OffRun:	VTOL Landing Run:VTOL
Atmospheric Cruise:	940 km/h Duration:Unlimited
Flight Avionics:	Model 2
Thruster Rating:	2G Nuclear-Thermal Thruster
Thruster Fuel:	47.04dtons LHyd
	Duration 14minutes
Cargo to Low Orbit:	5.31dtons
Cargo to High Orbit:	1.3275dtons
Stutterwarp Speed:	Loaded: 2.537ly/day
	Unloaded: 2.652ly/day
Tactical Speed:	5
Stutterwarp Agility:	5
Power Plant:	60EP Fission Reactor
Power Plant Fuel:	N/A dtons
Solar Cells:	0 m2 Output: 0
Batteries:	EP Output: 0
	Duration: 0day
Life Support:	Basic Military 0man/days
	Basic Civilian 0man/days
	Extended Military 18360man/days
	Luxury Civilian 0man/days
Crew:	
	Bridge: 54
	Engineering: 37
	Gunnery: 13
	Ship's Troops: 20
	Medical: 2
	Stewards 3
	Maintenance: 0
	Total: 129
Passengers	
	High: 0
	Middle: 0
Stateroom	4
Small Cabin	0
Berth	130
Freezer Tube	0
Fresher	8
Autodoc	0
Couch	0
Sickbay	0
Vehicle shop	1
Laboratory	0
Engineering Shop	1
Cargo:	32.31dtons
Spin Habitat:	N/A None
	0G
Radiation Screen:	150rads/hour
Storm Shelter;	900Rads/hour
Comm. Range:	Long Range
Other Sensors:	Navigational Radar, Gravitational Scanner, Deep System Scanner
Small Craft:	0tons, in
Other:	
Price:	65.12MLv

TTAs	0	UTES?
Missile Controllers	4	
Lasers:	0	
EAS-1000 Laser	2xMasked	4 y
Particle Beams		
BMZ-150	2xMasked	2
Missiles:		
X-Ray		4

PENTAPOD

Possibly the most alien of the technological races encountered, the Pentapods are nonetheless one of Humanity's closest friends. Their technology is based almost exclusively on genetic engineering. Their tools, weapons, and vehicles are alive, and they travel the stars in living, self-aware starships. They make a wide range of tools and enhancements designed for the Human market, some of which are detailed in Chapter 11: Equipment.

PENTAPOD EQUIPMENT

SENSORS

The Pentapods have a variety of sensors, most of which are designed to track and categorize life forms. The sophistication of some of these sensors is near-magical to Human observers, with some able to differentiate and categorize cerebral functions from a distance. All the sensors resemble large, legless insects, with a bioluminescent screen to display information. Human-useable models are available for twice the price.

Basic: The basic life scanner has a range of 500 meters, and can categorize animals on the basis of size and metabolism. It adds +2 to Spot Rolls for finding any sort of life form.

Weight: 2.5kg
Price: Lv5000

Standard: The standard life scanner has a range of 500 meters as well, but can categorize life based not just on size and metabolism, but also has the ability to perform rough categorization based on level of mental activity. +4 to Spot Rolls.

Weight: 7kg
Price: Lv9000

Advanced: The advanced life scanner significantly improves on the mental activity sensing functions of the standard scanner. It can finely categorize mental activity, and can differentiate sapient life from non-sapient life. It otherwise has the capabilities of the standard scanner.

Weight: 12kg
Price: Lv22,000

Biot controllers A biot controller is a device the Pentapod use to keep control of their biological robots, or biots. Biot controllers are implanted biotech radios that receive signals from a remote controller device, and either stimulate or suppress neurochemical or hormonal activity in the target. This gives the Pentapod with the biot controller a +4 on any task that involves commanding the biot.

Weight: 1.1kg
Price: Lv3500

PENTAPOD WEAPONS

Pentapod weapons are largely adaptations of tools, or else were designed for police duties, to handle the rare bullet or construct that loses sight of their purpose. They have yet to manufacture any real military weapons, instead equipping their Warrior biots with adapted human-made weapons, typically the AS-99 or FAM-90bis.

"Tooth Gun" The rounds from the so-called Tooth Gun bear an uncanny resemblance to human molars, but are actually used in construction, like a biotech nail gun. The tooth gun takes that one step further, and modifies the basic design for use as a weapon. It has a very short range however. This creature is capable of making its own ammunition, but it takes a day to make a full magazine. The Pentapods have bred a separate creature that is much more effective at making ammunition.

Type: Organic Carbine Country: Pentapod Length: 67cm (Size=Medium) Action: Single shot or bursts Ammunition: 6.2x14mm organic "tooth" Muzzle Velocity: 710 mps Magazine: 32 rounds Magazine Gas Production is sufficient to fire 100 rounds/day ROF: 1/3 Range: 60m Damage: 1d10 (x2).

TL: N/A
Weight (Empty): 2.2kg
Magazine Weight: 0.1kg
Price: Lv6700

Ammo Maker: A small sessile creature that can make new rounds for the tooth gun at the rate of approximately 100 per day, given sufficient raw materials. It also can refill the gas reservoirs on the gun, allowing it to fire up to 500 rounds a day.

TL: N/A
Weight: 4kg
Price: Lv3200

Flechette Gun: One of the few purpose-built Pentapod weapons, the flechette gun is a creature that uses high-pressure air to propel long darts at its target. The darts are often chemically-treated by the gun for specific effects, selected by the user.

Type: 3.2mm flechette gun Country: Pentapod Length: 81cm (Size=Medium) Action: Single shot or bursts Ammunition: 3.2x22mm organic flechettes Muzzle Velocity: 540mps Magazine: 60 rounds ROF: 1/3 Range: 40m Damage: 1d8 (x2).

Flechette Effects

Tranquillize/Paralyze: Injects a paralytic agent into the target. Fortitude Save vs. DC 19 or be paralyzed. Often used to reclaim bullets for repurposing. The result of a save is -3 to

all actions for 1d6 minutes.

Kill: Injects poison into the target. Fortitude Save vs. DC 20 or die. Save is vs. DC 30 for a Pentapod. The result of a save is 1d6 damage, directly to Lifeblood.

Consume: The consumer dart releases a horde of tailored fungal spores in the target. The spores are keyed to the first organic material they encounter, and will utterly consume anything they come into contact with that matches the original material. Fortitude Save vs. DC 20 or be killed, otherwise take 3d12 damage.

TL: N/A

Weight (Empty): 3.3kg

Magazine Weight: 0.3kg

Price: Lv320

Biolaser: This purpose-built weapon can also be implanted into a Pentapod, and is almost undetectable that way. After all, who knows what's normal for Pentapod internal organs? Powered by an organic battery, the organic chemical laser has enough power for five shots before needing time to rest (about twenty minutes) during which time it also needs to be replenished with the chemicals the laser requires. Some examples of this weapon have recently begun to turn up in human hands (literally) as implanted weapons.

Type: 20-01 biolaser Country: Pentapod Length: 22cm (Size=Small) Action: Single shot Ammunition: N/A Muzzle Velocity: C Magazine: 5 rounds ROF: 1 Range: 30m Damage: 1d10 (x2)

Weight (Empty): 2.1kg

Magazine Weight: N/A

Price: Lv3000

PENTAPOD SERVITORS (BIOTS)

Servitors, or biots as they are sometimes called, are intelligent, or nearly intelligent, Pentapod constructs that use something other than Pentapods as the base organism. These constructs are considered to be even more disposable than the Pentapods themselves, and the Pentapods are careful to keep evidence of their sentient nature from humans. Biots retain much of their original species intelligence, but the Pentapods use the biot controller to keep them restrained. It is possible that the Pentapods can use DNA modification technology to construct the servitors from the base stock, but most servitors are from the breeding vats.

Warrior: This new servitor class arose from the chaos surrounding the death of Star Gazer. The majority of the Pentapod "gods" decided that they needed a warrior class to protect them, as the basic "bullet" Pentapod didn't have the skills, or disposition, for sudden violence. Initial research on this servitor used humans as base stock, but some Pentapods, closely involved in human "market research" came to the conclusion that if humanity ever found out about these experiments, their reaction would be very bad. So Kafers were chosen, with the initial "donors" provided by the research program that would eventually create the so-called Pentapod Revenge.

The base stock is heavily-modified to disguise its origins, but little was done other than that. Temperamentally, the Warriors are still Kafers, complete with the stress-response. This is used in conjunction with the biot controller to maintain control of this warrior race. Further research is concentrating on making them more controllable without dulling their capacity for violence.

Appearance: The base Kafer has been heavily modified, rebuilt along a radially-symmetrical plan. They have three upper limbs, shaped much like Pentapod limbs, and two lower limbs still bearing some resemblance to the original Kafer legs. The head has been repositioned, so the mouth points up, and now five eye-stalks ring the three-lobed jaw. The carapace has been thinned, yet toughened, and now surrounds the entire torso, providing it with basic armor.

Stats: As biots, almost all examples of this type will be identical, without even the limited variation allowed to the Pentapods themselves. Biots are not products of the Pentapod gods, unlike the Pentapods, but instead originate in the Pentapod's massive organic brood vats.

PENTAPOD VEHICLES

Most Pentapod ground vehicles are vaguely-insectoid walkers, but other forms of locations are occasionally seen, including the infamous "slug".

Walker Transport: The walker transport is a very common design in the dry parts of Pentapod cities, and is designed to carry up to 8 Human-sized passengers, or 16 Pentapods. The walker is three squares wide and four squares long.

Common Trooper															
Grav	N														
Str	15	Dex	13	Con	16	Int	4 (12)	Wis	11	Chr	4 (11)	Edu	3	Soc	-
Init	+1 (+5)	AC	12	AR	1	Spd	9m	Fort	+4 (+5)	Will	+1 (+2)	Ref	+5(+8)	SZ	M
Attacks	+4 (+6) Flechette Gun (1d8 (x2) Rng 40m RoF: 1/3 60 rounds) .														
Feats	Weapon Proficiency (Marksman), Weapon Proficiency (Combat Rifleman), Weapon Proficiency (Heavy Weapons), Brawling, Toughness, Endurance, Stealthy, (Lightning Reflexes, Tactics, Improved Initiative),														
Skills	Driving 8, Spot 6, Survival 7, Gambling 1(5), T/Mechanical -2														
Equipment	Thud gun, 4 hand grenades, 4 propelled grenades, combat knife, 2 weeks rations, string of human ears														

Walker Transport

Class:	Walker ATV	EP Output:	34.00	(1.78 excess)
Price:	340,920.00	Agility:	0	
Tech Level:	11	Initiative:	+0	
Size:	Huge	4000 vol		
Streamlined?:	Standard	AC:	8	
Pressurized?	No	(Size Huge)	-2	
Climate Control?	No			
Drive Train:	Legs	6 legs	AR:	0
Crew:	2	Stamina:	53	
Passengers:	8	Lifeblood:	40	
Cargo Space:	500	Signature:	+2	
Fuel:	102			
Range:	180	3 hours		
Speeds:				
Std. Acceleration=	6kph	Max. Acceleration=	6kph	
Very Slow (Stall)=	6kph	Slow=	15kph	
Cruising=	30kph	Fast=	45kph	
Max Speed=	60kph	Off-road=	30kph	
Visual:	2 biological headlights, 4 compound eyes with IR capability			
Sensors:	None			
Comm:	None			

Other Equipment: 2 Arms Strength 80Dex 12
Int: 12 Wis: 10 Con:40

PENTAPOD SHIPS

Pentapod vessels do not require a crew for basic operations, only to give the ship directions. Control of the vessel is accomplished via Nodes. The Master Node is the central intelligence for the vessel, and directs all the other Nodes in their tasks. The Master Node is intelligent, but it wholly without drive or ambition. Note that Pentapod vessels do not have radiation screens or storm shelters, and instead rely on their own intrinsic genetic repair capabilities. Pentapod vessels are very careful to stay out of the danger zone of solar flares.

VoidShark-class Defensive: The Pentapods have recognized that since their contact with humanity, they face the possibility of attack, an idea essentially unknown to them until that time. Part of their response to this knowledge was the class of vessel known as a "Defensive." Fast, lightly armored, and mounting human-made weapons, the defensive is a good vessel, but neither the construct itself nor the Pentapod crew have the reactions and tactical planning ability required to fight a battle in space. This was proved beyond a doubt when the Pentapod Transport Blue Skies and her escort of six defensives were attacked by a Kafer deep-raider squadron in 2307. Only one of the defensives survived, or rather some of its crew did. The construct itself was killed.

For reasons unknown, the Voidshark is a long, sleek vessel, with the insectoid look of Pentapod rigid-hulled vessels, yet with an air of menace reminiscent of a barracuda. This vessel is not capable of atmospheric operations, but looks like it should be.

Dark Venturer-class Tradeship/Transport: Originally used to transport bulk organic material between the various Pentapod colony worlds; the tradeship is now engaged in ferrying goods the human marketplace, often in exchange for goods whose function can only be guessed at by the ship, let alone its crew. Like all Pentapod starships, the tradeship is fully sentient, yet has no ambition of its own. It is utterly incapable of taking any action without orders, but it follows those orders unquestioningly. Tradeships are a relatively common sight at Beta Canum and Tirane, though in the Sol system they are not permitted to approach any closer than the enclave on Mars.

These huge, globular ships have a vaguely glistening look to them, and their hulls are made up of some sort of vacuum-proof slime-like material. They are incapable of landing. It was a modified Tradeship that was ferrying Star Gazer to Beta Canum when the Kafer raider squadron hit, and despite its vast size, it was quickly destroyed by the Kafer vessels.

Name:	VoidShark		
Class:	Defender		
Tech Level:	New Commercial		
Profile:			
	Radial:	-2	
	Lateral:	0	
Size:	300dton	Rigid Bio-hull	
Main Computer:	Model/0		
Sensor Range:			
	Active:	7hexes	
	Passive:	5hexes	
AC:	16		
AR:	0		
SI:	145		
Signature			
	Radial Reflected:	4	
	Lateral Reflected:	6	
	Radiated:	3/3	
Screens:	Rating:	0	
Streamlining:	Standard		
Atmospheric Speed:	Maximum	N/A	
Atmospheric Agility:	N/A		
Flight Avionics:	Model 2		
Thruster Rating:	0	0	
Thruster Fuel:	0dtons	HRF	
	Duration	0minutes	
Cargo to Low Orbit:	N/A	dtons	
Cargo to High Orbit:	N/A	dtons	
Stutterwarp Speed:	Loaded:	2.912ly/day	
	Unloaded:	2.93ly/day	
Tactical Speed:	6		
Stutterwarp Agility:	6		
Power Plant:	60EP Pentapod Thermal Plant		
Power Plant Fuel:	N/A	dtons	
Solar Cells:	0 m2	Output:	0
Batteries:	EP Output:	0	
	Duration:	168day	
Life Support:	Biomass	18dtons	
	Basic Civilian	200man/days	
	Extended Military	0man/days	
	Luxury Civilian	0man/days	
Nodes:	Master Node	1 Int 18 Wis 16 Cha 14 Edu 20	
	Engineering Node	11	
	Slave Node (Gunnery)	8	
	Slave Node	20	
Passengers	High:	0	
	Middle:	10	
Stateroom	36		
Small Cabin	0		
Berth	0		
Freezer Tube	0		
Fresher	0		
Autodoc	2		
Couch	0		
Sickbay	0		
Vehicle shop	0		
Laboratory	1		
Engineering Shop	1		
Cargo:	5.54dtons		
Radiation Screen:	0rads/hour		
Comm. Range:	Long Range		
Other Sensors:	Navigational Radar		
	Advanced Life Sensors		
Small Craft:	0tons, in		
Other:			
Price:	308.37MLv		

TTAs	2	UTES?
Missile Controllers	2	
Point Defense:		
Type 17 DC	1	
Lasers:	0	
EA-122	4	Y
Missiles:		
Ritage-2	2	

Name:	Dark Venturer	
Class:	Tradeship	
Tech Level:	New Military	
Profile:		
	Radial:	2
	Lateral:	2
Size:	4000ton	Viscous Bio-hull
Main Computer:	N/A	
Sensor Range:		
	Active:	0hexes
	Passive:	0hexes
AC:	10	
AR:	0	
SI:	350	
Signature		
	Radial Reflected:	6
	Lateral Reflected:	6
	Radiated:	77
Screens:	Rating:	0
Streamlining:	None	
Atmospheric Speed:	Maximum	N/A
Atmospheric Agility:	N/A	
Flight Avionics:	Model 4	
Thruster Rating:	0	0
Thruster Fuel:	0dtons	HRF
	Duration	0minutes
Cargo to Low Orbit:	N/A	dtons
Cargo to High Orbit:	N/A	dtons
Stutterwarp Speed:	Loaded:	2.394ly/day
	Unloaded:	2.621ly/day
Tactical Speed:	5	
Stutterwarp Agility:	5	
Power Plant:	800EP Pentapod Thermal Plant	
Power Plant Fuel:	N/A	dtons
Solar Cells:	0 m2	Output: 0
Batteries:	EP Output:	0
	Duration:	168day
Life Support:	Biomass	1200dtons
	Basic Civilian	364man/days
	Extended Military	0man/days
	Luxury Civilian	0man/days
Crew:	Master Node	54
	Engineering Node	80
	Slave Node (Gunnery)	15
	Slave Node	0
	Medical:	9
	Stewards	3
	Maintenance:	0
	Total:	161
Passengers	High:	0
	Middle:	400
Stateroom	200	
Small Cabin	0	
Berth	0	
Freezer Tube	0	
Fresher	10	
Autodoc	4	
Couch	0	
Sickbay	2	
Vehicle shop	1	
Laboratory	4	
Engineering Shop	1	
Cargo:	948.03dtons	
Radiation Screen:	0rads/hour	
Storm Shelter:	1200rads/hour	
Comm. Range:	Very Long Range	
Other Sensors:	Navigational Radar	
	Advanced Life Sensors	
	Deep System Scanner	
Small Craft:	10x30tons, in	External Sling
Other:		
Price:	3821.42MLv	

Point Defense:	UTES?
Type 17 DC	10

SUNG

Sung equipment is usually of high quality and light in weight. Though not as durable as comparable human items, they work well for the slighter Sung. Most Sung soldiers do not wear any armor heavier than inertial armor, as they would be unable to fly effectively.

WEAPONS

Sung infantry make considerable use of flying, most often very low level, as part of their assault tactics. To assist in this, their weapons are as light-weight as possible. Long ago, the Sung hit upon rocket-propelled weapons as being ideal, and now most Sung small arms are gyro weapons. As the round takes awhile to accelerate to full speed, gyro weapons do half damage out until the 3rd range increment, after which they do full damage.

Jz-92 Gyrojet Rifle: This rifle is the standard military small arm of the Akcheetoon nation, and similar designs are used by all other nations. It combines an 8.2mm gyrojet launcher with a 34.6mm rocket launcher.

Type: 8.2mm gyrojet assault rifle Country: Sung Length: 81cm (Size=Medium) Action: Single shot or bursts Ammunition: 8.2x51mm APHE rockets Muzzle Velocity: 310 mps Magazine: 55 rounds ROF: 1/3 Range: 50m Damage: 1d12 (x2) AP Bonus: +1

TL: 11

Weight (Empty): 2.1kg

Magazine Weight: 0.2kg

Price: Lv375 (Lv2 for box of 100 rounds)

Launcher: A pre-loaded, disposable APHE rocket launcher.

Type: 34.6mm rocket Action: Single shot Ammunition: 34.6x63mm APHE rockets Muzzle Velocity: 290 mps Magazine: 3 rounds Magazine Weight: 0.9kg ROF: 1 Range: 100m Damage: 5d10 (x2) (Lv10 per rocket).

TL: 10

Price: Lv750

Vz-22 Gyrojet Pistol: The 10.2mm Vz-22 is a common military sidearm, and is also in use with a number of police forces.

Type: 10.2mm gyrojet pistol Country: Sung Length: 31cm (Size=Small) Action: Single shot Ammunition: 10.2x22mm rockets Muzzle Velocity: 240 mps Magazine: 15 rounds ROF: 1 Range: 40m Damage: 1d10 (x2).

TL: 10

Weight (Empty): 0.5kg

Magazine Weight: 0.1kg

Price: Lv120 (Lv1 for box of 100 rounds)

Vaxar Spring Pistol: The spring pistol is an unusual

weapon. It uses a small electric motor to tightly wind a coil spring, which is used to almost soundlessly propel small darts. In Sung political wars, they are often poisoned or treated with psychotropic drugs for assassinations.

Type: 3.7mm dart pistol Country: Sung Length: 8cm (Size=Tiny) Action: Single shot Ammunition: 3.7x14mm darts Muzzle Velocity: 230 mps Magazine: 10 rounds ROF: 1 Range: 20m Damage: 1d6 (x2).

TL: 11

Weight (Empty): 0.15kg

Magazine Weight: 0.1kg

Price: N/A

VEHICLES

Because they fly, Sung don't make much use of commuter-type vehicles, except for delivery vehicles. Nor do they have a well-developed public transportation system. By preference, as much travel as possible is by air. This has severe social ramification when a Sung is too old or infirm to fly, and many choose suicide.

Axtek'a Lz-809 Fan Tank: Pushing Sung engineering concepts to the limit, the fantank is more of a low-flying aircraft than an actual tank. It is relatively well armored, and quite well-armed for its size, but it is no match for a human hover tank. Armament consists of a heavy 62mm 3-barrelled ETC gun, along with two pods of two missiles each. During the Slaver War, the predecessor of this vehicle was used extensively in the limited ground fighting between the Sung and the combined Canadian-Manchurian expeditionary force. The Axtek'a is three squares wide and four squares long.

SPACECRAFT

Within the last 20 years, the Sung have started operating their own starships. The ships themselves are designed and built by the Sung, but the stutterwarp is of human manufacture. The Sung still have a great many system craft plying the spaceways of their home system, using a mix of ion drive and magnetic sail technologies.

Sung Brilliant Starshine-class Stutterwarp vessel: The Brilliant Starshine-class is a wholly Sung-designed and built starship, save for the actual stutterwarp drive itself, which is purchased as a sealed unit. Using the standard Sung combination of solar panels and batteries, the design is efficient, and even rather fast for a heavy merchant. Several human merchant corporations have expressed interest in the design, which, while expensive, is economical to maintain. However, the extremely high reflected signature of the solar panels is a cause for concern in some quarters, who feel that the ship is much too visible, and vulnerable.

The Sung counter, that, under Sos-soon-atkacharr, the Human fleets are obligated to protect them, or else let them have the weapons to protect themselves.

FANTANK

Class:	Fan Tank	EP Output:	600 EP MHD Turbine (309.43 excess)	Heavy Turret w/ 62mm ETC rotary cannon
Price:	1976296	Agility:	5	Laser Anti-missile System in cupola
Tech Level:	12	Initiative:	+5	Anti-personnel gyro machinegun in cupola
Size:	Huge	11500 vol		2x decoy dispensers
Streamlined?:	Partially	AC:	21	Armor:
Pressurized?	Yes	(Size Huge)	-2	Front 16
Climate Control?	Yes			Overhead: 12
Drive Train:	WIGE	AR:	8	Side: 8
Crew:	4	SI:	68	Rear:4
Passengers:	0	Signature:	+6	Underside:4
Cargo Space:	0			Turret Front:12
Fuel:	180 vol			Turret Side: 8
Range:	1350 km	6 hours		
Speeds:				
Std. Acceleration=	45kph	Max. Acceleration=	225kph	
Very Slow (Stall)=	45kph	Slow=	113kph	
Cruising=	225kph	Fast=	338kph	
Max Speed=	450kph	Off-road=	N/A	
Visual:	2 headlights, 1 Spotlight, 4 video cameras, and 4 HUDs , With IR, LIR			
Sensors:	Radar	Range=Medium	Ladar	Range=Medium
Comm:	Voder	2-Way Radio	Range=Long	

Other Equipment:

62mm ETC rotary cannon

Weapon	Damage	AoE	RoF	Rng	Ammo volume	Ammo cost
62mm ETC	6d12	-	10	2.6 km	3	50

Name:	Brilliant Starshine	
Class:	Cargo	
Tech Level:	12	
Profile:		
	Radial:	-2
	Lateral:	0
Size:	600 Ton Cylindrical Synthetic Hull	
Main Computer:	Model/4	
Sensor Range:		
	Active:	7hexes
	Passive:	5hexes
AC:	10	
AR:	0	
SI:	190	
Signature		
	Radial Reflected:	20
	Lateral Reflected:	20
	Radiated:	5/5
Streamlining:	None	
Atmospheric Speed:	Maximum	N/A
Atmospheric Agility:	N/A	
Flight Avionics:	Model 3	
Thruster Rating:	0	0
Thruster Fuel:	0dtons	HRF
	Duration	0minutes
Cargo to Low Orbit:	N/A	dtons
Cargo to High Orbit:	N/A	dtons
Stutterwarp Speed:	Loaded:	1.317ly/day
	Unloaded:	1.642ly/day
Tactical Speed:	3	
Stutterwarp Agility:	3	
Power Plant:	0	0
Power Plant Fuel:	N/A	dtons
Solar Cells:	23520 m2	Output: 168
Batteries:	EP Output:	50
	Duration:	7days
Life Support:	Basic Civilian	576man/days
Crew:	Bridge:	10
	Engineering:	2
	Gunnery:	2
	Ship's Troops:	0
	Medical:	0
	Stewards:	0
	Maintenance:	0
	Total:	14
Passengers	High:	0
	Middle:	0
Stateroom	14	
Small Cabin	10	
Berth	0	
Freezer Tube	0	
Fresher	8	
Autodoc	4	
Couch	0	
Sickbay	1	
Vehicle shop	0	
Laboratory	0	
Engineering Shop	1	
Cargo:	289.87dtons	
Spin Habitat:	N/A	None
	0G	
Radiation Screen:	400rads/hour	
Storm Shelter:	2400rads/hour	
Comm. Range:	Very Long Range	
Other Sensors:	Navigational Radar	
	Gravitational Scanner	
	Deep System Scanner	
Small Craft:	0tons, in	
Other:		
Price:	228.82MLv	

Point Defense:	UTES?	
Type 17 DC	1	N/A

YLII

Ylii equipment tends to be very well-made, sturdy and robust. The Ylii are locked at TL 12, save for their environmental and computer technology, which are both at TL 16. Because of their advanced computer technology, Ylii stutter-warp drives operate at TL 14.

EQUIPMENT

All Ylii equipment will be compact and built to last. Ylii do not see any value in planned obsolescence. Ylii analogs of most human equipment are available, and will be 20% lighter and smaller (if possible) than the Human equivalents. Ylii equipment is typically no more advanced than Human designs, but it is usually more refined and elegant.

Ylii Portacomp: The Portacomp is a recent design aimed at Human markets. It is extremely expensive, but is very powerful. It operates off of voice and manual input, and outputs via either a built-in screen or a retinal projector that sends the image right inside the viewer's eye, making it completely private.

TL: 16
CPU: 120
Model: B12
Int: 2
PP: 14/6
Weight: 0.5kg
Price: Lv7500

YLII WEAPONS

The Ylii have little in the way of deadly anti-personnel weapons. Police and security forces are armed with non-lethal weapons. The neural disruptor is a Ylii development, and works on any species with a spinal cord. The neural scrambler is the only Ylii lethal weapon commonly available to security forces, and uses the same technology as the disruptor, only more powerful. It kills by using a narrow EM pulse to scramble neural pathways. These Ylii weapons formed the basis of the Human neural weapon designs in use with the occupation troops on the Kafer homeworld. Ignore AR for purposes of armor calculation when using Neural weapons.

Ylii C'lie Neural Disrupter. The neural disrupter is a small pistol-sized weapon, and has two power settings: stun and kill. A code must be entered on the weapon to enable the kill setting. Non-Ylii receive a +4 on the save to avoid its effects.

Effect: Stun: Target must make a Fort Save vs. DC 18 or fall unconscious for 3d4 minutes. Success still means a -2 on all actions for 3d6 rounds.

Kill: Target must make a Fort Save vs. DC 16 or be killed.

Effect if the save is passed are the same as if a Stun save failed.

Type: Neural Disrupter Pistol Country: Ylii Length: 37cm
Action: Single shot Muzzle Velocity: C Magazine: 20mj LMS cell (40 pulses) Range: 50m Damage: see below

TL: 14

Weight (Empty): 1.5kg

Price: Lv1250 (Lv10 for 20mj disposable LMS cell)

Ylii G'esx Neural Scrambler The scrambler is a rifle-sized weapon designed to overload the higher functions of the victim's nervous system. Non-Ylii receive a +4 on the save to avoid its effects.

Effect: Target must save a Fort save vs. DC 18 or suffer a permanent 1d6 loss to one of INT, WIS, or CHA

Type: Neural Scrambler Rifle Country: Ylii Length: 83cm
Action: Single shot Muzzle Velocity: C Magazine: 40mj LMS cell (20 pulses) Range: 72m Damage: See below

TL: 14

Weight (Empty): 3.5kg

Price: Lv12,750 (Lv100 for 40mj disposable LMS cell)

Neural Shield: A neural shield is a close-knit weave of metal mesh that covers the entire body. It grounds the EM pulse from neural weapons, and so gives an AR of 6 vs. neural weapons. The shield can be layered with other armors at no penalty.

Type: Neural Shield Country: Ylii Area Protected: Full-Body AR: 0 (+4 on saves vs. Neural Weapons) Max Dex Bonus: - Armor Check Penalty: 0 Speed: -

TL: 14

Weight: 1kg

Price: Lv1400

Ylii Vehicles

Ylii Flier (Huge Aircraft): The Ylii flier is a general purpose VTOL aircraft used by the Ylii in a variety of roles. It sees uses as everything from a VIP transport of a Search-and-Rescue vehicle. Though the standard design is unarmored, the mercenaries of the American-Australian Volunteer Force have retrofitted them with light weapons and missiles. The flier is 6 squares wide (including drive fans) and four squares long, the fuselage is only two squares wide..

TL: 12

Price: MLv 3.3

Ylii Flier

Class:	Aircraft	EP Output:	1000EP Gas Turbine	(626.21 excess)	Weapons
Price:	MLv3.3		Agility:	8	
Tech Level:	12		Initiative:	+8	
Size:	Huge	14000 vol			
Streamlined?:	Airframe		AC:	16	
Pressurized?	Yes		(Size Huge)	-2	
Climate Control?	Yes				
Drive Train:	Jet	VTOL	AR:	0	
Crew:	2		SI:	73	
Passengers:	4		Signature:		
Cargo Space:	0		Take-Off Run:	VTOL	
Fuel:	1500vol		Landing Run:	VTOL	
Range:	12000 km	6 hours	Clearance:	20m	
Speeds:					
Std. Acceleration=	200kph	Max. Acceleration=	1600kph		
Very Slow =	200kph	Slow=	500kph		
Cruising=	1000kph	Fast=	1500kph		
Max Speed=	2000kph	Off-road=	N/A		
Visual:	2 headlight(s)	1 Spotlight(s)	Video with LI, IR, 2 HUDS		
Sensors:	Ladar	Range=Long	Radar	Range = Long	
	Auditory	Range= Short	Olfactory	Range=Close	
	Tactile				
Comm:	Voder	2-Way Radio	Range=Very Long		
Other Equipment:	2 Arms Str 8 Dex 14 Str 20 Winch		Medical Kit	Electronics Kit	
	Galley, Autodoc (x2)				

Ylii SPACECRAFT

Ylii spacecraft are all based on spherical hulls ranging in size from the 4m diameter Eyeball sensor drone to the 200m diameter Megaball transport (the naming of these vessels is Human). Though the drives aren't that much better than Human systems, the programming for the control software is significantly better, allowing the Ylii to get better performance out of their drives.

Softball Courier: The 15-meter softball is the smallest of the 'manned' Ylii vessels, and is capable of interstellar travel. The vessel is a tight design, and only has 5 days of endurance. It is very fast, however, and can reach the maximum 7.7 light year range of its stutterwarp in less than two days. It currently holds the record for fastest crewed spacecraft in known space.

TL: 12

Price: MLv64.67

Name:	Softball		
Class:	Courier		
Tech Level:	12		
Profile:			
	Radial:	-1	
	Lateral:	-1	
Size:	120 Ton Spherical Synthetic Hull		
Main Computer:	Model/4		
Sensor Range:			
	Active:	0hexes	
	Passive:	0hexes	
AC:	22		
AR:	1		
SI:	118		
Signature			
	Radial Reflected:	4	
	Lateral Reflected:	4	
	Radiated:	4/1	
Screens:	Rating:	0	
Streamlining:	None		
Atmospheric Speed:	Maximum	N/A	
Atmospheric Agility:	N/A		
Flight Avionics:	Model 1		
Thruster Rating:	0		0
Thruster Fuel:	0dtons	HRF	
	Duration	0minutes	
Cargo to Low Orbit:	N/A		dtons
Cargo to High Orbit:	N/A		dtons
Stutterwarp Speed:	Loaded:	5.342ly/day	
	Unloaded:	5.433ly/day	
Tactical Speed:	11		
Stutterwarp Agility:	11		
Power Plant:	18EP MHD Turbine		
Power Plant Fuel:	68.04dtons		
Solar Cells:	0 m2	Output:	0
Batteries:	EP Output:	0	
	Duration:	168day	
Life Support:	Basic Military	10man/days	
	Basic Civilian	0man/days	
	Extended Military	0man/days	
	Luxury Civilian	0man/days	
Crew:	Bridge:	6	
	Engineering:	7	
	Gunnery:	0	
	Ship's Troops:	0	
	Medical:	0	
	Stewards:	0	
	Maintenance:	0	
	Total:	13	
Passengers	High:	0	
	Middle:	0	
Stateroom	0		
Small Cabin	4		
Berth	0		
Freezer Tube	0		
Fresher	1		
Cargo:	5.93dtons		
Radiation Screen:	150rads/hour		
Storm Shelter:	900rads/hour		
Comm. Range:	Very Long Range		
Other Sensors:	Navigational Radar		
	Deep System Scanner		
Price:	64.67MLv		



AQUILAN TECHNOLOGY

The Aquilans were a highly advanced star-faring culture, with technology at least equal to Humanity's current level. Though much of the Aquilan's architecture is crumbling into ruins, the technology guarding them is still very capable. Indeed, one of the mysteries surrounding the Aquilans is how their equipment remains in such good shape 400 years after they abandoned it.

Aquilan Guard Robot: The Guard Robot is quite common in and around Aquilan facilities. One has never been captured intact, as they fight until reduced to scrap. Armament varies, but is usually energy based. These four-legged, man-sized machines will fire until they no longer can, then attempt to close with their opponent. Once they are within two meters they will self-destruct in a powerful explosion. The guard robot is one square wide and two squares long.

TL: 12+
Price: N/A

Aquilan Sentinel: In many ways a space-based version of the Guard Robot, the Sentinel is similar to Human designs. It is a large drone equipped with a stutterwarp drive and a large detonation laser warhead. The computer controlling it

seems to be somewhat more sophisticated than comparable Human models.

TL: 12+
Price: N/A

300

Guard Robot

Class:	Walker	EP Output:	6.7 EP Battery (0.18 excess)
Price:	N/A	Agility:	0
Tech Level:	12	Initiative:	0
Size:	Large	300 vol	
Streamlined?:	Humanoid	AC:	12
Pressurized?	No	(Size Large)	-1
Climate Control?	No		
Drive Train:	Legs	4 legs	AR: 3
Crew:	1	SI:	25
Passengers:	0	Signature:	-2
Cargo Space:	0		
Fuel:	0		
Range:	200 km	10 hours	
Speeds:			
Std. Acceleration=	2kph	Max. Acceleration=	2kph
Very Slow (Stall)=	2kph	Slow=	5kph
Cruising=	10kph	Fast=	15kph
Max Speed=	20kph	Off-road=	10kph
Visual:	1 Spotlights	2 video cameras w/ IR, Low-light	
Sensors:	Radar	Range=Short	
	Auditory	Tactile	
Comm:	Voder	2-Way Radio	Range=Long

Other Equipment: Laser Rifle Bomb (Damage 4d20, Blast 6 meters increment 6 meters)
Manipulator Arms Str 20 Dex 14, Robot Brain Int 10 Wis 0 Edu 10 Cha 0 Soc 0, Low Autonomous Logic, Full Verbal Command,
Skills: Spot +10, Hide +8. Other Programs: Gunnery, Weapons Systems; BAB: +3

SENTINEL CHANGES:

Speed:	5Profile:	Lateral:	-3Radial:	-4
Signature:	Reflected:	Lateral:	1Radial:	1Radiated: -2
Sensors:	Active:	7Passive:	64Other:	
AC:	15AR:	0Agility:	3SI:	0
Warhead Type:	Detonation Laser	Size:	14Duration:	unknownPrice: N/A
Damage:	3d10x2d12	Range:	0#Shots:	1USP: 8

LITTLE GUYS

Scattered through the remains of their system-spanning society are relics of the Little Guys. These vary from barely functional to full capable, though the former certainly far outnumber the latter.

One interesting thing about Little Guy relics is that there seems to have been two different levels of technology involved in the war, and some of the devices found would not fit the hand of a Little Guy. Too little is known of the war to make any judgments, however.

Warbots: The Bayern rescued a number of Little Guys from a moon base on the farther satellite of their homeworld. They had been waging a decades-long war against a group of warbots (warrior robots).

These warbots can also be found on the surface of the homeworld, guarding what were once important facilities but are now little more than glassy ruins. These tracked robots are still quite maneuverable, and very tough. The warbot is two squares wide and two squares long.

TL: 11

Price: N/A

MODERN LITTLE GUY TECHNOLOGY

The colonists landed from the moon base by the Bayern, along with some others rescued by a later Human expedition, enjoy a considerable technological advantage over their competitors.

Among other things, the Little Guy colonists have guns, black powder weapons that are hard-hitting and relatively

easy to use.

Little Guy Musket

Type: 9.4mm black powder rifle Country: Little Guy colonists Weight (Empty):4.2kg Length: 141cm (Size=Medium) Action: Single shot Ammunition: 9.4mm ball Muzzle Velocity: 220 mps Magazine: 1 Ammo Weight: 0.05kg ROF: 1 Range: 36m Damage: 1d6(x2).

MEDUSAN ARTIFACTS

Medusan technology appears to have been primarily bio-technological, like the Pentapods, but even more advanced. In addition, however, they possessed conventional technology at least on par with current Human levels.

The most notable Medusan artifact was the so-called "Memory Plant," which appears to have been some sort of log recording device. Rumors of its telepathic ability are simply that, rumors. The bio-tech device merely possessed an extremely advanced interface, which could record thoughts and impressions. The Memory Plant was able to download its recordings to a receptive Human brain, which gave Humanity the first glimpse of the long-ago war between the Medusae and the beings they called "The Enemy". Though the subject of the download was driven psychotic by the experience, he was able to give Human researchers a great deal of information as they strove to cure him.

The crater gardens of Kanata, along with Kanata's unusual flora and fauna are thought to be Medusae remnants as well.

Warbot

Class:	Tracked AFV	EP Output:	25 EP Battery	(5.27 excess)
Price:	401,051.20	Agility:	+2	
Tech Level:	11	Initiative:	+2	
Size:	Large			
Streamlined?:	Standard	AC:	19	
Pressurized?	No	(Size Large)	-1	
Climate Control?	No			
Drive Train:	Tracked	AR:	8	
Crew:	0	SI:	32	
Passengers:	0	Signature:		
Cargo Space:	0			
Fuel:	0			
Range:	0			
Speeds:				
Std. Acceleration=	6kph	Max. Acceleration=	6kph	
Very Slow (Stall)=	6kph	Slow=	15kph	
Cruising=	30kph	Fast=	45kph	
Max Speed=	60kph	Off-road=	20kph	
Visual:	1 Spotlight(s)	3 video cameras w/IR, Low-light		
Sensors:	Radar	Range=Medium		
	Auditory	Tactile		
	Enhanced Olfactory			
Comm:	Voder	2-Way Radio	Range=Long	

Other Equipment: 2x70-01 laser rifle, 1x 32mm grenade launcher in small turret

Manipulator Arms Str 30 Dex 10, Robot Brain Int 10 Wis 0 Edu 10 Cha 0 Soc 0, Low Autonomous Logic, Full Verbal Command,

Skills: Spot +10, Hide +8. Other Programs: Gunnery, Weapons Systems; BAB: +3

MEMORY PLANT:

The public explanation of the Plant downplays the device's telepathic ability. It is up to individual GMs as to what is the truth in this situation.

ENEMY ARTIFACTS

Very little is known about the Medusan's Enemy. Beyond basic body height, and to an extent shape, nothing more is known. The only technological artifact of theirs was found in an underwater pyramid on Aurore. It was a knife, stuck into a wall in the otherwise empty stone structure. The knife came out easily, and is exceptionally sharp. Even particle microscopy has failed to resolve the weapon's edge. It can cut anything, given sufficient force, and itself is next to impossible to break. Using a specially-developed wire knife, researchers were barely able to peel a small sliver off the knife for analysis. The sample rapidly deteriorated.

The Astronomischen Rechen-Institut has the knife at their facilities at the University of Heidelberg, where it is booked for years into the future by scientists wanting to examine it.

SPACE TRAVEL

The society of 2320AD is highly technical and highly mobile, and the ultimate expression of both these traits is space travel.

Spacecraft and starships are extremely complicated pieces of engineering, yet at the same time they are quite commonplace in the 24th century. Estimates run as high as 20,000 ships engaged in commercial operations throughout Human space, though the majority of those are spaceplanes, shuttles and other small craft. There are a number of tasks and operations associated with space craft, which will be looked into further in this chapter.

INTERFACE TRAVEL

Interface travel is the process of getting to and from orbit, and is one of the most expensive parts of space travel in 2320. On Earth, Tirane, and Beta Canum Venaticorum, there are beanstalks, orbital elevators which greatly reduce the costs associated with getting to and from orbit. However, these elevators often have long waiting times, and the time to orbit via these constructs can be upwards of five days. Other methods include spaceplanes, rotons (rotary rockets), rockets, and catapults, all of which are discussed in the following sections.

BEANSTALK OPERATIONS

The most advanced, most comfortable, and cheapest method of getting into orbit is the space elevator, or Beanstalk, as it is often known. It is also the slowest, tak-

ing about five days to reach geosynchronous orbit. Beanstalk travel is accomplished via elevator cars that travel along the cable, pulling themselves along through a series of redundant linear-magnetic motors. The motors are typically replaced at the end of each journey to or from orbit, whereupon they would have logged 35,000 kilometers.

During the trip to orbit, the passengers will experience a fall-off in gravity. By the end of the first day of travel, gravity in the capsule is just 0.2 G, but doesn't reach 0 G until the end of the fifth day, when the capsule reaches geosynchronous orbit.

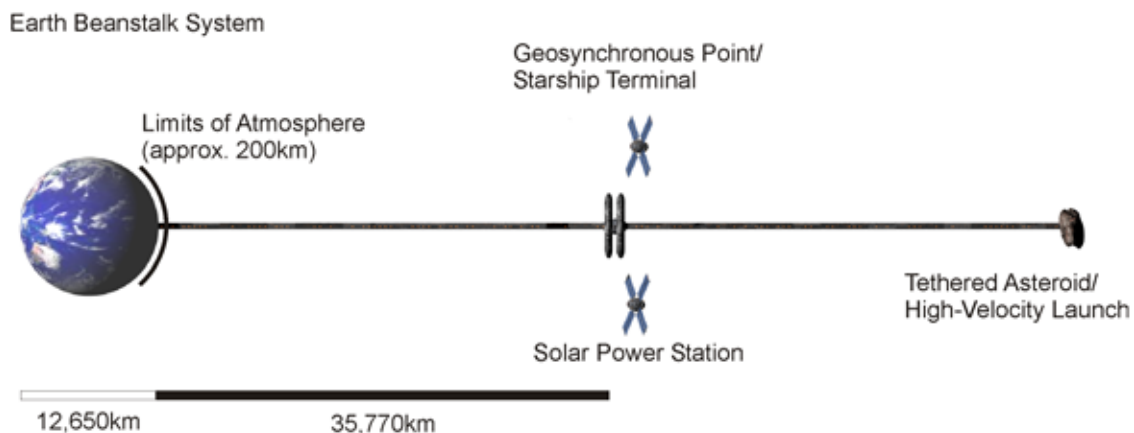
Travel on a Beanstalk carriage is usually quite luxurious, with many of the carriages designed around a 19th century rail car theme, or some other period in history.

MURDER ON THE MATAGLAP EXPRESS:

On a trip up the Indonesian Beanstalk, one of the passengers is murdered, and the PCs look like the prime suspects. Can they clear their name in the four days before the capsule reaches Mataglap station?

SPACEPLANE OPERATIONS

The spaceplane provides a relatively luxurious flight to orbit. Smaller models are dedicated to passenger carriage, while many larger models are used exclusively for freight. The spaceplane has largely replaced the shuttle in most interface operations. In part because of its ability to maneuver, the spaceplane is also the preferred method of interface travel for the military. Newer space planes used MHD thrusters, usu-



(Note: Objects are NOT to scale)

ally the hybrid air-breathing/liquid fuel variety, while older models use a scramjet/rocket engine. On high-gravity worlds, or for heavy cargos, solid-fuel boosters are sometimes required. Spaceplanes are operated in a similar fashion to 20th century airlines, though the trips are usually much shorter.

Launch: T/Astrogration vs. DC 10

Flight: Pilot vs. DC 12

Orbital Insertion: Pilot vs. DC 14

Requires Vessel/Small Craft Proficiency and Pilot Skill

Skill Roll Modifiers: Zero-gravity (0-0.4 G) +4, Low-Gravity (0.4-0.8 G) +2, Normal 0, High Gravity (1.25+) -2
+1 per computer model number

ROTON OPERATIONS

Far away from civilized airfields and runways, the roton can land in any clearing big enough for its wide rotors, without the environmental damage of conventional drive systems. However, its lack of atmospheric maneuvering ability restricts it to the civilian sector. Most rotons are not able to operate on high-gee worlds, as they are not designed to accepted auxiliary boosters.

Launch: T/Astrogration vs. DC 12

Flight: Pilot vs. DC 14

Orbital Insertion: Pilot vs. DC 14

Requires Vessel/Small Craft Proficiency and Pilot Skill

Skill Roll Modifiers: Zero-gravity (0-0.4 G) +4, Low-Gravity (0.4-0.8 G) +2, Normal 0, High Gravity (1.25+) -2
+1 per computer model number

ROCKET OPERATIONS

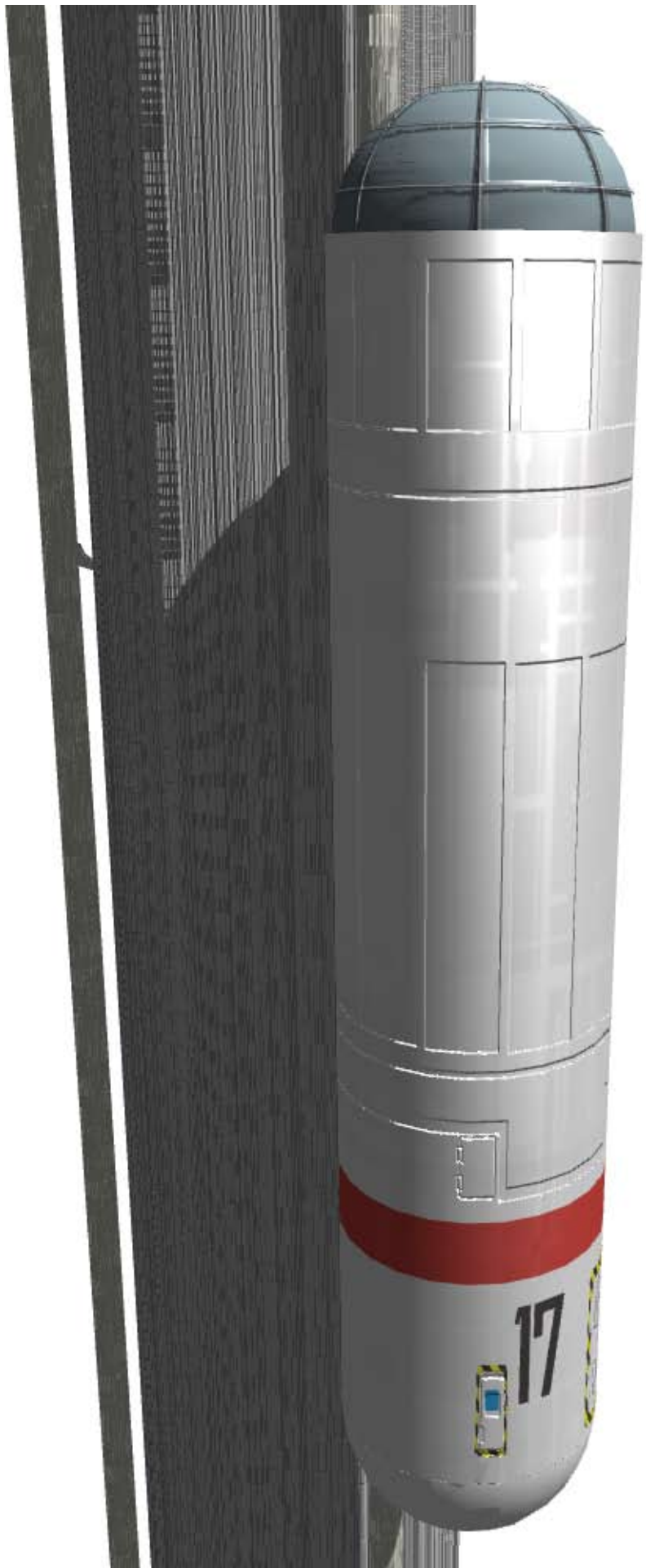
Simple, reliable and cheap, basic rockets are used to provide disposable cargo lifting to orbit. Only rarely are they used for passengers. Rockets carry fairly large payloads for their size and cost, but are not reusable.

Launch: T/Astrogration vs. DC 14

Orbital Insertion: Pilot vs. DC 16

Requires Vessel/Small Craft Proficiency and Pilot Skill. These checks can be accomplished remotely.

Skill Roll Modifiers: Zero-gravity (0-0.4 G) +4, Low-Gravity (0.4-0.8 G) +2, Normal 0, High Gravity (1.25+) -2
+1 per computer model number



CATAPULT OPERATIONS

The last method of orbital access is only suitable for inert cargo, as the heavy accelerations of the catapult render it unsuitable for live cargo. Catapult sleds are often launched with accelerations of 100 G or more. As they are powered by a ground-based system, the catapult is one of the most cost-effective forms of interface travel for durable goods. Flight time for a catapult sled is only a couple of minutes, or even less.

Only one task roll is required of an operator to place a cargo in orbit:

Astrogation vs. DC 14 (+2 DC for world gravities 1.12 or higher) (-2 DC for world gravities 0.74 or lower)

TIME TO ORBIT

The time required for an interface vessel to reach low orbit is equal to (the square root of (2 x world gravity / space-craft acceleration)) x 10.

Time to reach high orbit is double this amount.

On a world without an atmosphere, or for non-space-plane vehicles, subtract the gravity of the world from the vehicle's acceleration calculating time-to-orbit. Spaceplanes do not subtract the world's gravity from their acceleration for purposes of this calculation. Low orbit is usually between 120 and 300 kilometers in altitude, while high orbit is between 400 and 600 kilometers in altitude.

REENTRY AND LANDING

Landing on a planet is typically a simpler proposition than getting off of it, but there are some factors to keep in mind.

DEAD GLIDERS

An unpowered landing can be made by any airframe vessel. The world has to have an atmosphere for this method. Most commercial spaceplanes use this method.

Reentry: T/Astrogation vs. DC 16

Flight: Pilot vs. DC 14

Landing: Pilot vs. DC 14

Requires Vessel/Small Craft Proficiency and Pilot Skill

Modifiers: Zero-gravity (0-0.4 G) +4, Low-Gravity (0.4-0.8 G) +2, Normal 0, High Gravity (1.25+) -2
+1 per computer model number.

POWERED LANDING (ATMOSPHERE)

Spaceplanes can make powered landings, if need be, and military landing craft use it extensively.

Reentry: T/Astrogation vs. DC 16

Flight: Pilot vs. DC 12

Landing: Pilot vs. DC 12

Requires Vessel/Small Craft Proficiency and Pilot Skill

Modifiers: Zero-gravity (0-0.4 G) +4, Low-Gravity (0.4-0.8 G) +2, Normal 0, High Gravity (1.25+) -2
+1 per computer model number.

POWERED LANDING (VACUUM)

Used by landers on airless worlds.

Reentry: N/A

Flight: Pilot vs. DC 14

Landing: Pilot vs. DC 14

Requires Vessel/Small Craft Proficiency and Pilot Skill

Modifiers: Zero-gravity (0-0.4 G) +4, Low-Gravity (0.4-0.8 G) +2, Normal 0, High Gravity (1.25+) -2
+1 per computer model number.

ROTONS

The roton is a combination of a ballistic drop coupled with a powered landing from its rotors. On a vacuum world the roton uses the same series of tasks as any vessel making a powered landing in vacuum.

Reentry: T/Astrogation vs. DC 16

Flight: Pilot vs. DC 14

Landing: Pilot vs. DC 12

Requires Vessel/Small Craft Proficiency and Pilot Skill

Modifiers: Zero-gravity (0-0.4 G) +4, Low-Gravity (0.4-0.8 G) +2, Normal 0, High Gravity (1.25+) -2
+1 per computer model number.

BALLISTIC DROPS

Ballistic drops use a method similar to the first manned space flights, and just drop the reentry vehicle into the atmosphere. A simple ablative heat shield and parachutes slow the vehicle down enough for it to land. After the ballistic package reenters an atmosphere it can no longer be effectively controlled.

Reentry: Astrogation vs. DC 16

Flight: N/A

Landing: N/A

Requires Vessel/Small Craft Proficiency and Pilot Skill

Modifiers: Zero-gravity (0-0.4 G) +4, Low-Gravity (0.4-0.8 G) +2, Normal 0, High Gravity (1.25+) -2
+1 per computer model number.

Note that any of these Skill checks can be made by a remote operator or computer program.

TRAVEL TIME

Time from orbit is based on world size, and atmosphere type, modified by whether the vehicle is a dead glider, a ballistic drop or a powered landing.

Even the powered vehicles generally glide for a good portion of their drop, largely to save fuel.

TRAVEL TIME, FROM ORBIT

Glider (shuttle or spaceplane): Travel Time = 10 x square root of (2 x world gravity)

Ballistic Drop: Travel Time = 15 x square root of (2 x world gravity)

Powered Landing: Travel Time = 7 x square root of (2 x world gravity)

Powered Landing (vacuum world): Travel Time = 5 x square root of (2 x world gravity)

DAMAGE AND REENTRY

Any vehicle that has taken more than 5% of its SI in damage will be unable to attempt atmospheric re-entry, as its heat shield will have been compromised. A skilled pilot may attempt to do so, but the reentry roll goes to DC 28. Failing this roll means that the vessel is destroyed on re-entry.

SYSTEM SHIPS

Systems ships are slow, low-powered stutterwarp vessels designed for carrying cargo across interplanetary distances. Beyond the system's FTL shelf they can actually manage FTL speeds, making transport beyond the shelf very fast. Transport in the rest of the system is relatively slow, though still more effective than reaction-drive vessels. These ships use very small and inexpensive stutterwarp drives, allowing even non-star-faring nations and organizations access to interplanetary space.

Lucky Cats:

Many merchant vessels carry a ship's cat. The Japanese will tell you this is because it has long been a tradition on Japanese vessels to carry a tortoiseshell cat for luck, and how at the end of the Twilight War, the Japanese had the world's only major merchant fleet. Other nations, the Japanese say, picked up on the idea, and spacers being a superstitious lot, continued it themselves.

The tradition of a ship's cat, however (tortoiseshell or otherwise), was common on surface ships of all nations long before the Twilight War, and it is inevitable (people being what they are), that the custom continued on space ships.

ZERO-GRAVITY

Prolonged exposure to zero-gravity can have detrimental health effects. The OG DNA modification largely alleviates these problems, but they can still strike.

For every week in a zero-gravity environment, characters must make a Fortitude save vs. DC 12, increasing by 1 per week. If they fail, they suffer a cumulative -1 to both Str and Con due to muscle and bone degradation.

The OG DNA modification gives a +6 to all rolls to avoid stat loss.

ARTIFICIAL GRAVITY/ SPIN HABITATS

For any sort of long-duration flight, artificial gravity is necessary to maintain the health and well-being of the crew. The low gravities generated by spin habitats do contribute, but still require stringent exercise and metabolic treatments. The psychological effects cannot be ignored; even minimal gravity allows the crew to eat, sleep, and perform other daily functions in relative comfort and ease.

Many voyages between the stars can require weeks, or even months, to reach their destinations, so some sort of artificial gravity is necessary. The only practical way to accomplish this in 2320 is through the use of spin habitats, which provide a sensation of gravity through centripetal force.

Spun Hull: This is the simplest, but usually largest, spin habitat type available. The hull is simply a large cylinder that spins around its axis, providing gravity along the edge of the cylinder. Due to Coriolis effects, the central part of the cylinder (within a radius of 6 meters) is unusable for crew or passengers, and is usually used for cargo, fuel and low maintenance machinery. More often the hull is built as a torus, and the central core is occupied by a non-spinning drive/power plant module. Most large space stations are constructed in this fashion.

Double Hull: The outer hull spins but surrounds an enclosed inner hull which does not. The design is most useful for large designs, as the enclosed central hull is at least 9 meters in radius.

Hamster Cage: The hamster cage is a cylindrical module that is at least 9 meters in radius, and spins to create an artificial gravity. Unlike other designs, the hamster cage is usually set at right angles to the hull, and is usually installed in counter-rotating pairs. This eliminates torque effects on the ship's attitude.

Spin capsules: The spin capsule system is a set of small capsules at the end of a long rotating arm. Most ships have between one and four of these capsules, though two is the most common number.

Extendable spin capsules The extendable spin capsule can retract against a vessel's hull, minimizing the target profile and reducing the vulnerability of the ship's life support sections in combat.

Two-body: Two ships of the same size can join up via a retractable tower or pylon, and spin around the common center of mass. This was common in older vessels, and still sees use in the Hercules-class tug.

All the different types of spin habitats have essentially the same effect. The perceived gravity inside the spin habitat depends on two factors: diameter of the habitat, and speed

of rotation. The larger the habitat, the slower it has to rotate to produce a certain felt gravity. The faster a spin habitat rotates, the higher the felt gravity for a certain radius.

Radius	3 RPM	2 RPM	1 RPM	<1 RPM
15m	0.15g	0.07g	0.02g	0.01g
30m	0.30g	0.13g	0.03g	0.02g
45m	0.45g	0.20g	0.05g	0.03g
60m	0.60g	0.27g	0.07g	0.04g

High RPM values can have a negative effect on balance, and can even induce nausea. Anything over 4 RPM is distinctly unhealthy, while 1-3 RPM can have negative side-effects. Civilian ships will rarely rotate at more than 1 RPM, while military ships may go up to 3 RPM.

SPACE STATIONS:

Space stations are usually designed with a very large radius, and usually spin at rates under 1 RPM. The large space habitats only spin at about 1/3 RPM. Many large stations feature several rings or habitat zones to provide lighter or heavier gravity than normal.

The following chart contains the normal RPM values found in most ships. The Fortitude Save DC is the roll that must be made to avoid nausea and dizziness. If the roll is failed, then the effects of the next column take effect. This roll is made each week. Note that the lowered Con caused by the nausea and dizziness will reduce Fort Saves, making it less likely that the unfortunate will pass the next Save.

RPM	Fortitude Save DC	Effect if failed
3	16	-3 Dex, -2 Con
2	13	-2 Dex, -1 Con
1	10	-1 Dex

RADIATION

There are many different sources of radiation in space. Fission and fusion power plants produce significant amounts of radiation, as do nuclear weapons and particle beam weapons. Operating stutterwarps also produce radiation, though usually in small amounts. Additionally, all stars output large amounts of radiation, and during flares and storms can put out lethal doses in a short amount of time. Any planet that has a magnetic field also possesses radiation belts, as the magnetic field captures energetic particles put out by the local star. Gas giants in particular often have extremely intense radiation belts.

Source	Severity	Rads/hour
Fission Power Plant Breach	Severe	400
Fusion Power Plant Breach	Moderate	180
Operating stutterwarp	N/A	2
Solar Radiation	Mild	50
Solar Flare	Lethal	800-1000
Radiation Belt (Terrestrial)	Moderate	200
Radiation Belt (Gas Giant)	Lethal	800-900

For protection from radiation, ships usually use a Lafarge radiation screen, an electromagnetic screen that blocks high energy charged particles. It is less effective against other types of radiation, though these can usually be blocked or at least attenuated by the hull. Nor is the radiation screen effective against particle beam weapons, as those weapons use neutral particles. However, the screen is somewhat effective against the secondary particles spalled off from a particle beam strike. (Reduce severity of radiation damage by one level, e.g. Severe to Moderate. Many survey vessels, space stations, and other long-duration vessels contain a storm cellar, a small chamber usually placed in the middle of a large tank, or series of tanks, of water.

STUTTERWARP

The stutterwarp drive is one of the more complex technologies created by humanity, and few profess to completely understand it. It enables faster-than-light travel, giving people access to the stars. It stands out as the only watershed theoretical breakthrough which took place between the beginning of the global recovery from World War III and the present (2320 AD). This discovery was made in 2080 AD at the new large French synchrocyclotron facility at Grenoble. On August 18th of that year, a complete hydrogen molecule was induced to perform a microscopic quantum jump. Within two years the experiment had been replicated at the C.E.R.N. facility in Switzerland, and a small group of theoretical physicists had realized that mankind had finally discovered the key to the stars. However, scaling up the Jerome effect (Named for Dr. Emile Francois Jerome, 2021-2103) from moving a single hydrogen molecule to moving a large fabricated spacecraft was a long, complex, and extremely expensive proposition. It was not until 2136 AD that the first unmanned stellar probe was launched, and eight more years passed before manned survey ships were launched to the stars. These early designs were quite slow compared to modern vessels, but actually had the same range: 7.7 light years.

THE BASICS

Stutterwarp drives operate on the same principles as the tunneling phenomenon that can occasionally be observed in some sub-atomic particles. The tunneling effect allows a physical mass to be moved from one location in space to another, instantaneously, without passing through the intervening space.

The distance that a stutterwarp vessel travels is relatively short, and depends on local gravity conditions, but in interstellar space each jump is typically several hundred meters. Stutterwarp drives cycles several hundred thousand times per second, though, depending on the rotational rate of the core, thus moving very quickly.

Objects traveling via stutterwarp do not have a true

velocity, despite appearances. If the stutterwarp drive is stopped, the vessel stops as well. While under stutterwarp, a vessel actually retains the velocity it had prior to the engagement of the drive, and will once again resume moving at that velocity when the drive stops. Though this does present some difficulties in maneuvering, most pilots are up to the task.

The most important part of the stutterwarp drive is the stutterwarp core, an intricate spiral of superconducting ceramic doped with crystalline tantalum. This core is spun at over on hundred thousand rpm in a shielded chamber at the heart of the drive mechanism.

As the core jumps it carries the vessel along with it, thanks to the superconducting field it generates.

CONSIDERATIONS OF STUTTERWARP TRAVEL

The Threshold: Stutterwarp drives exhibit a severe drop-off in efficiency when within a gravity well of 0.00011 G or greater. Stutterwarp efficiency falls off by an order of magnitude, reducing the vessel to sub-FTL speeds. The FTL Threshold is a reference to the distance from a system's star that stutterwarp performance degrades to the point where the ship drops below FTL speeds. To determine the stutterwarp shelf of any given system, use the following formula:
 $R = 2.45 \times M^{1/2} = 2.45 \times \text{Squareroot}(M)$

Where R is the star's threshold radius measured in astronomical units, and M is the mass of the star measured in solar masses (1 solar mass = 1.99×10^{27} tons).

To determine the stutterwarp threshold for any given planet, use the following formula:

$$AS = (((1/(0.00011 \times G))^{1/2}) - 1) \times R$$

G = world gravity, in Gs

R = world radius, in kilometers

AS = Altitude of stutterwarp threshold, in kilometers

The Stutterwarp shelf would occur at roughly 35,000 km above an Earth-sized world (As long as the world in question is in unstressed space.)

The Wall: The Stutterwarp wall is the point at which stutterwarp efficiencies drop to the point where they end up being slower than conventional reaction drives. They are, however, still usable. This occurs within a gravity well of 0.11 G, which is also the minimum gravity well required for discharging a stutterwarp. To determine the FTL wall for any system, use the following formula:

$$R = 0.078 \times M^{1/2} = 0.078 \times \text{Squareroot}(M)$$

Where R is the star's wall radius measured in astronomical units, and M is the mass of the star measured in solar masses (1 solar mass = 1.99×10^{27} tons).

To determine the stutterwarp wall for any given planet, use the following formula:

$$AW = (((1/(0.11 \times G))^{1/2}) - 1) \times R$$

G = world gravity, in Gs

R = world radius, in kilometers

AW = Altitude of stutterwarp wall, in kilometers

The stutterwarp wall is approximately 13,500 km above Earth.

NAVAL TERMINOLOGY:

Many space navies are based on their wet naval ancestors. In these militaries, alternate terms are used instead of Threshold and Wall. The Deeps: The Deeps are the volume of unstressed space, where a starship can operate at FTL speeds, Deep space, in other words. The Deeps begin at the system Shelf. The Shelf: Naval term for the Stutterwarp Threshold. The Shallows: Volume of space between the system's Shelf and the Wall, defined below. FTL travel is not possible in the shallows.

The Beach: Naval term used for the Stutterwarp Wall. Operating too close to the edge of the Shallows might lead a vessel to accidentally lose stutterwarp headway, and become Beached.

Orbital Transfers: Beyond the wall, stutterwarp vessels are typically slower than reaction drives, their major advantage being that stutterwarp drives do not require any reaction mass. A stutterwarp drive can be used to maneuver from the Wall down to the low orbit range of most landers and spaceplanes. However, care must be taken to not enter an atmosphere with an operating stutterwarp, as quantum interactions will usually destroy the drive. Nor can a stutterwarp be used to land, even on an airless world, due to the risk of quantum interactions while under stutterwarp. Another issue is that the vessel has retained whatever velocity it had prior to the stutterwarp being engaged, which could present many problems. To avoid this risk, no ship will approach closer than the 0.95 G gradient, which for Earth is 165 km.

Speeds: A stutterwarp operates at three speeds: FTL, sub-FTL, and orbital. FTL speed is the listed speed of the vessel in light years/day. Sub-FTL speeds are used when the vessel has passed the stutterwarp shelf, and are arrived at by multiplying the listed speed (in LY/day) by 0.645 to get the speed in AU/day. Orbital speeds are used after the ship has hit the Wall, and are useful for little more than transfer orbits. Ships at orbital speed must subtract the world's surface gravity from their warp efficiency rating, and then multiply the new number by 10000 to determine their speed in kilometers per hour.

Range: Quantum interactions as the drive moves through space build up what some have dubbed a "gravistatic" charge on the tantalum coils of a ship's drive. This is compounded by real-space intersections with hydrogen

atoms and other bits of matter as the Stutterwarp moves along, interposing itself on each bit of space it jumps into. As the coils build up the charge, it starts to distort the crystal shape of the atoms in the drive coil. After a critical level has been reached, typically after 7.7 light years, the Tantalum drive core spontaneously decays into Hafnium, and releases an intense, lethal burst of radiation. The radiation is of Lethal Severity and the discharge usually destroys the drive room, along with the drive. The radiation burst usually kills the crew outright.

Once a ship arrives in a gravity well of at least 0.11G, the ships can discharge the drive. The gravity well attracts the "gravistatic" charge from the drive coils over the course of several hours, allowing the crystal structure of the coil to return to normal. Discharge time is a function of the distance traveled, and take about 6 hours per light year traveled. Thus a full 7.7 light year voyage would take 44.2 hours to discharge.

TANTALUM Availability:

Tantalum is a very rare element, and the isotope Ta-180 even moreso. The Ta-180 isotope is the only one that can be used in a stardrive. It has only a limited availability, and though the quantities used in the construction of a stardrive are relatively small, it is still a managed resource. This limited availability ensures that only a limited number of ships can be built per year. A tantalum-180 find of any size is enough to make its discoverers very wealthy.

Delaying Discharge: It is possible for a skilled Engineer to delay the discharge time by up to 24 hours. It is extremely difficult to do, and the risks are likewise extremely high.

Delay Discharge, T/Engineering DC22 (-1 DC per Computer Model number)

The intent to Delay Discharge must be declared before the vessel starts out. The above skill check is rolled for then, but the GM should keep the number a secret until the vessel passes 7.7 light years. If the roll failed, the drive core decays as above. If the roll succeeded, the ship can travel an additional day at full speed. You cannot Take 10 or Take 20 on this roll due to its extreme uncertainty, even if you possess the Professional Specialization Feat which would otherwise allow you to do so.

Stutterwarp Communications: The stutterwarp drive itself can be used to communicate. By flicking the drive on and off, gravitic pulses can be sent out and detected from anywhere in the system. Though these pulses are limited to light-speed, they are the most effective broadcast transmitter available. Any stutterwarp ship can transmit, but a grav scanner is required to receive the signal. Communication rate is

Brazilian Tests:

Brazil has always been interested in the technique of delaying discharge, as it can cut months off the trip to their colony at Procyon. In recent weeks, Brazil has sent out test vessels with some of the crew provided by British Exo-Space. There are even rumors of an alien being sighted boarding the Brazilian vessel. According to the rumors, the test vessel arrived at Paulo only two weeks after it departed Earth.

very slow, as each pulse takes over a second to send, so it is generally limited to short code phrases.

STUTTERWARP TUGS

Stutterwarp tugs are vessels designed to breach the 7.7 light-year limit on starship ranges. The tugs carry the vessel out 3.85 light years, half the tug's range. The tug then brings the carried vessel's drives online, and it makes the remainder of the journey, allowing the carried vessel to travel up to 11.55 light years. In order to return, there must be a tug at the other end to bring the ship a third of the way back.

Though simple in concept, the execution of Stutterwarp tug technology is difficult in practice. This likewise applies to ships using disposable Stutterwarp drives, such as the Bayern. Any Stutterwarp drive that is online as a vessel moves through space builds up a charge, as described above. It doesn't matter whether the drive is actually doing anything or not, it still builds up a charge. The only way to move a drive safely without incurring a charge is to take it off-line. For a Stutterwarp, this means despinning the drive core, turning off the electromagnetic field produced by the drive, and properly storing the core so it can be safely used again. This is relatively easy provided the drive does not have a charge. The tricky part is getting the drive core going again. Not only does it have to be brought back up to speed, but great care has to be taken to ensure that it is properly aligned, both with its housing and with the electromagnetic field of the drive, and the ship itself. This is a painstaking operation, one normally conducted inside the stutterwarp discharge limit of a gravity well where the gravity gradient provides the necessary alignment without the need for specialized equipment.

Stutterwarp tugs use newly developed technology that allows the alignment of a stutterwarp drive unit outside of a gravity well. The Bayern used a First Generation calibrator, which took a considerable volume of space on the ship. Newer tugs use a Second Generation calibrator that is much more portable, but more expensive.

A stutterwarp tug contains a portable stutterwarp alignment matrix, and uses that to bring the drives of a towed vessel back online while a ship is in deep space. The new, Second Generation calibrator technology is covered by several American and international patents, which won't run out

until 2327. Until then, Trilon and the Pioneer Society are doing their best to cover as much ground, and make as much money, as possible.

Argentina's recent entry into the tug field has both Trion and the Pioneer Society crying foul.

STUTTERWARP TUG VARIANT:

The Life Foundation has pioneered a variation on the stutterwarp tug technology. Their tugs are much simpler, as they don't incorporate a stutterwarp drive tuner. Instead, the tug tows a vessel to a deep-space station, which has a First Generation tuner. This station brings the towed vessel's stutterwarp drive back up, while the tug returns home. This system requires two stations, one for the journey out, and the other for the return trip.

Brown Dwarfs: Brown Dwarfs are massive sub-stellar objects, and are often described as failed stars. Many times more massive than Jupiter, yet considerably less massive than the sun, Brown Dwarfs are another method to break the 7.7 light year barrier on Stutterwarp travel. They serve as a convenient discharge point in deep space, and, unlike a much smaller rogue planet, are at least possible to discover.

Brown dwarfs can be found in interstellar space, though they are difficult to find, and sometimes a brown dwarf is ideally placed to provide a bridge to stars that would otherwise be out of range of a stutterwarp drive vessel. One such brown dwarf is used to make the connection to the Beta Aquilae cluster; another is part of the Back Door route to Ylii and Kafer space. The latest discovery allows passage along the Bayern corridor, with the aid of a stutterwarp tug system leased from Trilon.

EASY SYSTEM LINK OPTIONS:

Astronomers suspect that there are many brown dwarfs and other interstellar planets out there. If you need a link to a system for your campaign, placing a brown dwarf is an easy option. Tugs and stations are harder options, but perhaps more rewarding and less of a deus ex machina solution.

Appearance and Effects of Stutterwarp Travel:

From a ship traveling less than the speed of light, there is no discernable change in the view outside the vessel. However, to an external viewer, a stutterwarp vessel moving at sub-light velocities appears to be blurred, with the blurring getting more pronounced the faster the vessel goes. This is a function of quantum indeterminacy, as the vessel's position become a probability cone rather than vector. To an extent, though, the blurring effect is an optical illusion resulting from persistence of vision in the observer. Sensor systems are not so confused, but still are unable to get an absolute lock on a stutterwarp vessel's position.

Once a vessel goes faster-than-light, the visual effects

become even more spectacular. To an outside observer, the vessel is so blurred as to be practically invisible. This is an effect of both the probability cone of the vessel becoming very elongated and diffuse, and the persistence-of-vision illusion. However, as an FTL vessel comes up to an observer, and passes them, a most unusual effect occurs. Though the vessel itself is practically invisible, the images of it as it stuttered along have more-or-less solidified, and to the outside observer, as the vessel passes, he can see images of it moving away in both directions! The image moving in the direction the vessel came from is the termination image, or chaser.

To an observer on the ship, the only thing most observer see is the stars have become squiggly lines rather than points. This is an indeterminacy issue stemming from the drive. The most spectacular effect, though, is the termination image mentioned earlier. Should the ship should suddenly drop out of stutterwarp, all the light from previous positions of the ship will "catch up" to the stopped vessel. The effect is as if the image is moving away, as light from the nearest points catches up first, and the image seems to recede away.

There is a subtle time distortion involved with the stutterwarp drive operation, such that clocks on the vessels are out by approximately 1 second per light year once they've finished their voyage, compared to local clocks using Sirius as an astronomical reference point. No one knows the cause of the apparent time-dilation, but apart from having to reset timepieces it doesn't cause any problems.

STARSHIP OPERATING COSTS

Service	Core Cost	Frontier Cost
OQC Inspection	Lv1000	N/A
Fuel, per dton*	Lv2000	Lv1800
Nuclear Reactor Core	40% of reactor cost	60% of reactor cost
Reaction Mass, per dton ^H	Lv1000	Lv900
Annual Maintenance	Lv100/ton of ship	Lv200/ton of ship
Berthing Fees	Core Cost	Frontier Cost
Orbital	Lv100 per ton/week	Lv50 per ton/week
Surface	Lv10 per ton/week	Free
Life Support	Core Cost	Frontier Cost
Basic Military	Lv20 per man/day	Lv30 per man/day
Long-duration Military	Lv40 per man/day	Lv60 per man/day
Basic Civilian	Lv30 per man/day	Lv40 per man/day
Luxury Civilian	Lv60 per man/day	Lv80 per man/day

*Power plant fuel is both Liquid Oxygen (LOX) and Liquid Hydrogen (L-Hyd).

^HReaction mass is liquid hydrogen, and is only used for nuclear rockets. Conventional thrusters use the same fuel as power plants.

Nuclear (fission) reactors have to have their core replaced about every five years.

CREW SALARIES

Crew Position	Standard Rate	Expert Rate*
Pilot	Lv4000	Lv6000
Navigator	Lv3000	Lv4500
Sensor Operations	Lv3000	Lv4000
Engineer	Lv4000	Lv5500
Gunner	Lv2000	Lv3000
Small Craft Pilot	Lv3000	Lv4500
Remote Pilot	Lv3000	Lv4000
Steward	Lv2000	Lv4000
Cargo Handler	Lv1000	Lv1500
Medical	Lv4000	Lv6000

*Character Level >10

Pay rates are per month. Crewmembers on commercial vessels can elect to take cargo space in lieu of pay, at the rate of Lv500 per 0.25 tons of cargo space. This space can be used however the crew member wants, as long as it isn't illegal and places no additional demands on the ship's systems or crew. This space is often used for personal storage, recreation or, most often, as freelance cargo space.

CHARTER RATES

This section uses the rules on page 358 of the THB.

INTERFACE VESSELS

Interface vessels are chartered by the hour, with a minimum of 12 hours, at a rate of Lv1000 per dton of vessel per hour. This is further modified by the surface gravity (in Gs) of the world where the vessel is being chartered with the lowest modifier possible being 0.1. So an 80 dton vessel, chartered for 20 hours on a 0.5 G world, would cost $Lv1000 \times 80 \times 12 \times 0.5 = Lv48,000$

STARSHIPS

Starships are chartered in blocs of 2 weeks at a time

Vessel Capability	Accommodation	Cost
Interface		
Includes 1 complete interface operation per 2-week bloc	Per dton of available cargo space Per Luxury Passenger accommodation available Per Economy Passenger accommodation available	Lv100000 Lv10000 Lv6000
Non-Interface		
All interface costs to be paid separately	Per dton of available cargo space Per Luxury Passenger accommodation available Per Economy Passenger accommodation available	Lv1000 Lv2000 Lv1000

PASSENGERS

Passengers are available as per the table on page 357 of the THB. However, costs are different. Use the tables below to determine interface costs, per passenger, and further on

the interstellar travel costs, per person. Travel costs for system ships are usually 10-20% of the cost of interstellar vessels.

INTERFACE COSTS

Costs to and from orbit depend on vehicle type and world size.

Vehicle Type	Passenger		Cargo (dton)	
	To Orbit	From Orbit	To Orbit	From Orbit
Spaceplane	Lv3000	Lv300	Lv30000	Lv3000
Roton	Lv3000	Lv300	Lv30000	Lv3000
Rocket	N/A	N/A	Lv15000	N/A
Catapult	N/A	N/A	Lv5000	N/A
Dead Glider	N/A	Lv400	N/A	Lv2000
Ballistic Drop	N/A	Lv160	N/A	Lv1000
Beanstalk	Lv500	Lv500	Lv5000	Lv5000

Costs for all interface transport are modified by the world's gravity. Multiply the cost from the table above by world gravity (in Gs) to get the final cost.

Worlds without an atmosphere halve the costs to orbit, and multiply costs from orbit by 5. (In other words, the cost to and from orbit is the same.) The listed cost for the beanstalk is for any of the beanstalks in Human space, whether on Earth, Tirane, or Beta Canum. Tickets for luxury class can run 2-5x higher than those listed.

STAR TRAVEL

Many commercial vessels carry passengers as well as cargo. The cost for interstellar travel depends on the distance covered and the comfort of the accommodations. There are two general classes of interstellar passenger, luxury and economy, which correspond to the T20 classifications of High and Middle. A third type is found in 2320 which is not found in T20: steerage. Steerage accommodations are not in actual cabins, but rather in the cargo area when there is room left over. Steerage is often partly subsidized by governments, as they attempt to ship people off to the colonies. Frozen sleep roughly corresponds to T20 Low Berth, but Frozen Sleep is technically a more difficult proposition in 2320AD than in T20, and is usually only used for the bulk movement of colonists and animals, not for passengers. The costs listed below are per light year traveled.

Passage Type	Minimum	Luggage	Cost/light-year
	Comfort	Allowance	
High (Luxury)	0	0.1 dton	Lv500
Middle (Economy)	-2	0.05 dton	Lv100
Steerage	N/A	N/A	Lv50
Frozen Sleep	N/A	1 dton	Lv2000 (flat cost)
Cargo	N/A	N/A	Lv750/dton

High Passage: High Passage includes a single-occupancy stateroom, the best meals, and free access to all of the vessel's recreation facilities.

Middle Passage: Middle Passage includes either a

double occupancy stateroom or a single occupancy cabin. Includes basic meals and access to the ship's recreation facilities at a pay-per-use rate.

Steerage: No room is provided for steerage passengers, who must either sleep in bunks or be housed in the vessel's cargo bay. One meal a day only is provided. Steerage passenger must buy or bring food for the other meals. No access to recreation facilities.

Frozen Sleep: Frozen sleep is only used for shipping large numbers of people or animals at once. It isn't dangerous, but it is debilitating. Passengers in Frozen Sleep lose 1 point each of STR, DEX and CON per month in the freezer tubes. Regaining these lost points takes 1d6/2 months, per point. (So two points lost means 1d6 months to recover them all.)

Frozen sleep costs are per trip, not per light-year.

COMFORT LEVEL

Type of Accommodation	Comfort Level
Small Cabin	-1
Stateroom	0
Berth (Bunk)	-2
Shared Accommodation	Additional -1 per person
Artificial Gravity	+2

Comfort level affects all crew operations, and is used as a modifier in all shipboard tasks.

STARSHIP COMBAT

Starship combat in 2320AD uses the rules from Traveller D20, with a few changes, outlined below. The first section details the changes to the simple starship combat system, while the second details changes to the advanced starship combat system. At the end of the section are found new damage tables for 2320AD starships.

Starship combat in 2320AD is conceptually quite different from T20. The end result, and game play, is quite similar, however.

Stutterwarp travel introduces some interesting variables into the realm of combat. For vessels at FTL pseudo-velocities, ship-to-ship combat is effectively impossible. Targeting systems are unreliable, weapons are speed-of-light only, and a ship's probability cone is so elongated that the chances of actually hitting it, even with a long burst, are minimal.

It is at sub-FTL velocities that actual starship combat can occur. Because a stutterwarping vessel does not present a target that can be accurately pinpointed, weapons fire is against the so-called "probability cone" of a stutterwarp vessel, effectively all the points in space it could possibly appear in over a given space of time, and for a given drive performance level. This actually involves a fair degree of human intuition, which is why human crews are still required to man and fire

a ship's guns and control its missiles. Thus, all weapons fire in continuous bursts that last for most of a round, as the firing vessel attempts to blanket a hostile vessel's probability cone.

Once a hit has occurred, often the target vessel will have suffered serious damage. In particular, detonation lasers are liable to cripple or destroy smaller vessels, and seriously damage or cripple even large vessels.

CHANGES TO BASIC STARSHIP COMBAT

Only a few things are changed in the Basic system, as it is abstracted already. This combat system is intended for actions only involving a small number of ships, either in a head-on encounter or a chase.

Time scale: Is changed from 20 minutes per turn to 5 minutes per turn

Agility: Due to the nature of their drive systems, starships in 2320AD use their Tactical Speed as their Agility Rating.

Profile: In most small combats, the Profile used will be the Radial Profile, as a vessel is usually chasing someone or being chased. This is used in place of Size modifiers.

Non-stutterwarp vessels: For the purpose of these rules, non-stutterwarp vessels are effectively standing still, have 0 Agility, attacking vessels receive a +5 bonus on all attack rolls, and all weapons do double damage.

Missiles and Drones: In 2320AD, missile and drones are treated just like any other vessel on the board, with the following rules: Missiles and drones always move last. Missile sensors are forward-looking only, not all-around like ships and sensor drones.

Submunitions: Submunitions can be fired at any time during the weapons fire phase as long as the controlling ship is within 3 hexes. Submunitions have a rate-of-fire, as designated in the design system. They can drop any number of submunitions up to the listed rate of fire, but must fire all of them at the same target.

PILOT/DRIVER ACTIONS

Adjust Speed: Starships in 2320AD do not have acceleration ratings. The vessel's speed may be increased or decreased up to the vessel's maximum tactical speed..

Adjust Range Modifiers: For stutterwarp vessels, use the difference in tactical speed between the two vessels as a modifier. If the pursuing vessel has a higher current speed, then the modifier is negative. If the vessel being pursued has the higher speed, then the modifier is positive.

SENSOR OPERATOR ACTIONS

Sensor Targeting: The sensor operator may attempt to spend the round providing improved fire control and targeting data to the gunners, hopefully increasing their chances

of hitting their targets. The sensor operator should roll 1d20 + his T/Sensors skill + the Sensor Model Number + the Signature rating of the other vessel to check for success for each vessel that is to be targeted. The DC for this task is 17 or the current Sensor Jamming rating of the target. If successful, all gunners on the vessel may add a bonus equal to the Main Computer Model Number to their attack rolls this round. This is a full round action.

GUNNER ACTIONS

Attack: A gunner may attack any target within the range of the weapon system they are manning. UTES mounts may fire independently, while weapons in a TTA-controlled battery must all fire at the same target.

1d20 + Gunnery Skill + Target Profile Modifier + Weapon USP + Targeting Bonus + Range Penalty = AC hit

Point Defense Sandcasters: Not available in 2320AD.

Point Defense Repulsors: Not available in 2320AD.

Point Defense Lasers: Heavy Lasers and Heavy Particle Accelerators cannot be used for point defense. Point Defense is handled somewhat differently for 2320AD. Point Defense fire is resolved as normal fire against a vessel, with suitable modifiers for the missile's small size. Point Defense Clusters add +2 to their targeting rolls. Missiles are targeted using their Radial Profiles.

Screens: Activating the screens requires a Gunner Action. Screens add their USP ratings to the target's defense score for all attacks while the screen is up.

Screens cannot be engaged while the vessel is at all-stop, and add their rating to the ship's radiated signature. Screens are more effective against lasers than particle beam weapons, and halve their USP factor against particle beam strikes.

Defensive screens marginally degrade the effectiveness of sensors. Subtract 1 from all T/Sensor Skill rolls, including spotting and targeting, when the screens are in use.

ENGINEER/MECHANIC ACTIONS

Excess Power Routing: 2320AD starships can use excess power to generate emergency Agility. There is a risk of damaging the stutterwarp drive by doing so. T/Engineering vs. DC14 to avoid damaging the drive.

Damage Control: If a ship has extra engineers or mechanics, they can be formed into damage control parties. For every 3 extra engineers/mechanics (or fraction thereof), the ship can have 1 damage control party. At the end of every combat round, each damage control party can attempt to repair one point of Hull SI, or 1 Critical Hit. Use the highest T/

STARSHIPS vs. VEHICLES:

Due to the normal operating ranges and high power of starship weapons, when used at close planetary ranges, they are scaled up as normal for T20 (+5 Dice of damage) when attacking vehicles. They are also scaled up when attacking starships at these short ranges. Starship lasers have an effective rate of fire of 10, while particle beam weapons have a rate of fire of 5. However, vehicle weapons are NOT scaled down when attacking starships. Starships and spacecraft in 2320AD are notably more fragile than their T20 counterparts, and consequently suffer normal damage from vehicular weapons.

Mechanical or T/Engineering skill from each damage control party, and add +1 per member of the party.

Hull SI Repair: T/Mechanical, or T/Engineering DC15

Critical Hit Repair: T/Mechanical DC 17, or T/Engineering DC15

DAMAGE

STRUCTURAL INTEGRITY (SI) DAMAGE

A starship cannot simply keep taking damage until it reaches 0 SI without suffering some ill effects along the way. At 25% of the listed SI, the ship's hull suffers a Minor Breach. At 50% of the listed SI, the hull suffers a Major Breach. The consequences of these breaches are explained below.

Minor Hull Breach	Reduce AR by 50%
	All masking equipment stops functioning. Radiated signature goes to unmasked value.
	Add 1 to Reflected Signature.
Major Hull Breach	Reduce AR to 0
	Double all radiated and reflected signatures.

Otherwise, use the Damage rules of T20, substituting the following tables:

All Weapons		Radiation Weapons (Particle Accelerators and Detonation Lasers)	
1d100	Subtable	1d100	Subtable
01-23	Miscellaneous	01-45	Fire Control
24-50	Fuel	46-88	Electronics
51-72	Fire Control	89-97	Crew
73-89	Engineering	98+	Special
90-92	Screens		
93-94	Electronics	Weapon Platform	Modifier
95	Crew	Particle Gun	+5 (applies to both tables)
96+	Special	Detonation Laser	+10 (does not apply to the radiation table)

Miscellaneous Subtable

1d100	Specific Location
01-40	Cargo Hold
41-60	Staterooms
61-70	Small Craft
71-75	Ship's Vehicle
76-80	Engineering/Vehicle Shop
81-85	Sickbay/Lab
86-90	Ship's Locker
91-93	Magazine
94-95	Fuel Processing
96-98	Spin Machinery
99-00	Life Support

Fuel Subtable

1d100	Specific Location
01-20	Processing Plant or Fuel Feed Equipment
21-100	Fuel Tanks

Fire Control Subtable

1d100	Specific Location
01-70	Battery
71-85	TTA
86-90	Submunition Dispenser
96-100	Missile Bay

Engineering Subtable

1d100	Specific Location
01-29	Thruster
30-65	Stutterwarp Drive
66-100	Power Plant

Special Subtable

1d100	Specific Location
01-02	Ships Troops killed
03-05	Fire Control Out
06-10	Roll on the Crew sub-table
11-20	Power Plant Disabled
21-35	One Hanger/Boat Deck/Vehicle Storage
36-65	Stutterwarp Drive Disabled
66-80	One Screen Disabled
81-90	Thruster Destroyed
91-95	Computer Destroyed
96-98	Bridge Destroyed
99-00	Vessel Vaporized

USING THE ADVANCED STARSHIP COMBAT SYSTEM

Advanced Vehicle and Starship Combat

THE COMBAT ROUND

Each round on the Strategic Scale in 2320AD represents six hours in the game environment, while each hex is roughly equal to 6 million kilometers. On the tactical plot, each hex is equal to 300,000 kilometers, while each round represents 20 minutes of time in the game environment.

ATTACKS OF OPPORTUNITY

The threat area of a vessel in combat on the Tactical plot is 300,000 km, or every hex adjacent to its current position. Attacks of Opportunity are not possible on the strategic plot. Any crewmember serving as a gunner on a ship with an attack of opportunity and with a weapon capable of bearing on the target may take action. In addition, all point defense clusters may automatically make an attack of opportunity on any object that passes into the threat area, unless that object is identified as friendly, generally by some sort of recognition code.

ADVANCED ACTIONS

Pilot/AstroGATOR

Movement in 2320AD is simpler than in T20. Ships do not accelerate; they have fixed movement rating based on the efficiency of their drives. Most of the advanced Pilot actions are not available.

Move: A ship can move a number of hexes up to the tactical speed rating of its stutterwarp drive. This is referred to as the ship's movement points (MP).

All-Stop: A ship can declare an All-Stop, where it shuts down its stutterwarp drive. A ship at All-Stop halves its radiated signature, cannot use its Screens, and can change facing (at no movement point cost) to any desired facing. Vessels at All-Stop may not fire submunitions.

Turn: Stutterwarp vessels have a pseudo-inertia, which limits how fast they can turn. In order to turn through one hexside facing, a vessel must pay a certain number of movement points. A vessel's ability to turn is based solely on its classification: remote object, small craft or large craft. A remote object pays one MP per hexside turned, while a small craft pays two, and a large craft pays three. A vessel can turn at any point in its movement, or stand still. This is a movement action with a base DC of 0.

Accelerate, Bank, Braking Drift, Decelerate, Drift, and Maintain Course and Speed are not used.

Spin Habitats and Combat:

If a ship goes into combat with an operating spin habitat, it must add one to the number of MP required to make a turn. This does not apply to hamster cage designs, or any other design where the spin habs occur in counter-rotating pairs.

SENSOR OPERATOR Tasks**STRATEGIC Plot**

Detect Vessel: On the strategic plot, a vessel can only be detected if the detecting vessel has operating grav sensors. Even then, the resolution of the grav scanners is insufficient to provide targeting information or any sort of detailed information on the other vessel other than that it is using a stutterwarp, and general heading and speed.

$1d20 + T/Sensors + \text{computer model number}$ vs. DC 20

TACTICAL Plot

Detect Vessel: On the tactical plot, things get more complicated. A vessel must be resolved and locked-on by the opposing vessel's sensors before it can be fired on. Any vessel within the auto-detect range automatically also has a lock-on. If it moves beyond the auto-detect range (explained below), then the Sensor operator has to roll to maintain the lock, as outlined below.

Active Sensors: A ship's active sensor range, plus the reflected signature of the target vessel, equals the auto-detect range for the target vessel. To detect a vessel beyond that range is a task: $1d20 + T/Sensors + \text{computer model number}$ vs. DC 14, +2 DC per additional hex. So if a ship's active sensor range is 7 hexes, and the target's reflected signature is 3, then it would be automatically detected at a range of 10 hexes. To attempt to resolve it at 12 hexes, the Sensor Operator would have to roll vs. DC 18.

Passive Sensors: A ship's passive sensor range, plus the radiated signature of the target vessel, equal the auto-detect range for that vessel. To detect a vessel beyond that range is a task: $1d20 + T/Sensors + \text{computer model number}$ vs. DC 16, +2 DC per additional hex.

In a similar vein, Passive Sensors can detect the operation of Active Sensors at a range of $2x \text{ Active Sensor Range} + \text{Passive Sensor Range}$. So if a vessel is using a range 10 Active Sensor, a vessel with a range 3 Passive Sensors could detect him at 23 hexes.

Maintain Target Lock: If a target moves past the auto-detect range, the sensor operator must make a roll to maintain a lock. $1d20 + T/Sensors + \text{computer model number} + \text{target signature}$ vs. DC 14. The DC goes up by 2 for each hex past the first. A lock can be maintained on a num-

ber of vessels equal to $2x$ the computer model number of the targeting vessel. The DC also goes by 2 for each additional vessel the sensor operator is trying to maintain a lock on.

DAMAGE

Use the damage tables from the Basic Starship Combat Section, above.



STARSHIPS AND SPACECRAFT

Starships and their support structures, including interface vessels and space stations, are the lifeblood of Human economy, and a literal lifeline for most colonies, which could not exist without continued interstellar travel. This chapter describes and details many of the ships in operation in Human space, but there are many more.

STARSHIP COMPONENTS

SENSORS

Sensors are the eyes of a starship, and come in several types: Navigational, Tactical, and Survey.

NAVIGATIONAL SENSORS

The basic navigation radar is in widespread usage on civilian vessels, which do not require the long range or accuracy of the military sensors. They also lack the precision required to generate the firing solution for a weapon, and are most often used as a collision-avoidance system.

Gravitational sensors are mass detectors, used for a variety of purposes, including density-mapping planets and asteroids. They can also be used to detect masses at a distance, and so are useful in system surveys. Due to the gravitational signature of an operating stutterwarp, they can likewise detect ships in operation at ranges of several light minutes, but they are sufficiently inaccurate that they cannot be used to generate a firing solution, nor get a clear idea of what they are dealing with. That is what the tactical sensors are for. All they can determine is the presence of an active stutterwarp. No other information can be generated from the gravitational sensors. Triangulating with another ship can help fix a position, but due to light speed communication delays, it is not likely to help that much.

The Deep System Scanner is a whole-sky-looking passive system, and is the primary method of navigation. It can see a planet a 1 AU and spot ships at roughly 1 light minute, which is 3 hexes on the strategic plot. This is otherwise known as “black globe range”, where an object is spotted, but no details can be discerned from it.

TACTICAL SENSORS

Tactical sensors are the active and passive arrays of a vessel, and are used to obtain detailed

information about a target and to generate firing solutions for a ship's weapons. This firing solution is then “handed-off” to the targeting systems controlling the weapons.

Active Sensors: Active sensors are a combination of phased array radar and lidar systems, and can be spotted by passive systems at very long ranges.

Passive Sensors: Passive sensors are a combination of multi-spectrum optical and radio telescopes and radar receivers. Passive sensors can not be detected by other vessels, but they do not have the range of active systems.

SURVEY SENSORS

Survey sensors have no tactical value, but do have strategic value, as their usefulness is more long-term. They are employed in the survey and mapping of planets and other small bodies in space.

Cartographic Sensors: The basic cartographic array is a photographic mapping system, using both visible light and infrared. The Advanced cartographic sensor package adds radar mapping and deep-radar capabilities to the basic package. The values listed under Notes are the modifier these sensors grant to tasks making use of them.

Life Sensors: Life sensors are an add-on array of tools that extend the capabilities of the advanced cartographic sensors. They are used to look for the tell-tale signs that life may be present on a world, and range from spectrographic analyzers to advanced computer programs that hunt for patterns that would indicate the possibility of life. They cannot be used to give exact information, such as “Captain, I detect three life-forms on that alien vessel, two humanoid and one Eber.” They are not that exact, and are not designed for that purpose.

Survey Sensors	Range	Bonus
Cartographic		
Minimal	Short	+1
Standard	Medium	+2
Advanced	Long	+3
Life		
Minimal	Close	+1
Standard	Short	+2
Advanced	Medium	+3

The listed bonus is for all P/Survey Skill Checks conducted.

TARGETING SYSTEMS

All weapons have to have some sort of targeting and tracking system. Most modern designs use some variant of the UTES mount, the Unified Targeting and Engagement System, where the required sensors are installed on each turret. This provides multiple levels of redundancy to all weapons, and provides mission flexibility by allowing batteries to be reconfigured as need be.

The Target Tracking Array is a separate mount, and provides all targeting and tracking information for the weapons in a single battery. This system is less expensive, but lacks the flexibility of the UTES mount.

Missile Directors are dedicated tight-beam laser or maser communicators for controlling missiles. Each missile in flight has to have a missile director.

DEFENSES

Screens: The military protective screen consists of thousands of reflective foil strips held in a dense protective sphere around the hull by an electromagnetic field generator. These strips serve to reflect and dissipate a significant fraction of the energy directed at them. The strips are not perfectly reflective, however, and absorbing even a small portion of the energy in a laser or particle beam strike is enough to destroy the reflectivity of the foil strip, which leads to it being vaporized milliseconds after being struck. It is thus possible to burn through a protective screen, but this reduces the effectiveness of the weapon so used. Screens are more effective against lasers than particle beam weapons.

Point Defense Clusters (PDC): Though all energy weapons aboard a ship may be used for point defense, the point defense cluster specializes in it. A PDC is a set of rapid-firing, short-range laser weapons designed with a UTES targeting system and set to fire automatically. Anything without the proper recognition code that gets within the range of the system is fired on. The lower power of the system means that it is not very capable versus ships, but against missiles and even fighters it is very effective.

WEAPONS

Laser weapons are rapid-pulse energy weapons, designed to fire several bursts along the probability cone of a stutterwarping target. Typical laser mounts have a rate-of-fire of between 3 and 6 shots per minute.

Particle Beam Weapons are not as fast to fire as lasers (and thus not as accurate). Particle-beam weapons do inflict more damage, along with secondary radiation effects. Like the lasers, they are fired as a series as pulses against stutterwarping targets. Typical particle-beam mounts have a rate-of-fire of between 2 and 4 shots per minute.

WEAPON MOUNTS

Fixed: Fixed gun mounts are limited traverse mounts that only fire into one aspect.

External: External mounts are basic gun turrets, mounted on the outside of the hull.

Jack: Jack turrets are limited traverse turrets protected by the hull armor of the ship. Other weapon mounts are considered to be outside the armor belt of the ship. Any vessel designed for reentry will have its weapons in jack turrets.

Masked: A masked turret is constructed to minimize its reflected signature.

Gun Towers: Gun towers extend the weapon away from the hull, allowing it to fire into a larger arc, though the vessel thus presents a much larger target.

SUBMUNITIONS

Submunitions are small nuclear-bomb-pumped detonation lasers, and are classified as dropped ordnance. They have no integral drive system. A starship drops the submunition, and feeds it targeting information as the vessel moves away. When the dropping vessel is safely out of blast range, the submunition explodes, firing the laser.

Missiles

Missiles in 2320AD are all stutterwarp-driven, and come in several types: Nuclear-bomb-pumped laser missiles, remote drones armed with a conventional laser or particle-beam system, and bus missiles, which act as a delivery vehicle for several smaller warheads. Most missiles are remote-piloted vehicles, and require a dedicated communicator on the controlling vessel. Bomb-pumped missiles are quite rare, and extremely illegal for a civilian to have any. A civilian with one of these weapons usually means that someone needs to be tried for treason. Smart missiles are capable of self-targeting, but are quite inaccurate.

DRONES

Drones are remotely-piloted space vehicles, usually used for remote sensor operations. Some models are also used as decoys, or for point defense. Aside from point-defense systems, drones are not typically armed. Drones are usually larger than missiles, and like missiles require a dedicated communicator on the controlling vessel.

POWERPLANTS

Fuel Cells: Fuel cells are used for low-power applications and backup systems. The other advantage of fuel cells is that they can be made into a closed system. In this way, they recover the water exhaust from the fuel cell, and once in a target solar system can deploy a solar array to crack the water back into hydrogen and oxygen fuel. Though there is inevitably some loss in this regenerative cycle, it contributes greatly to extending the endurance of fuel-cell powered craft.

MHD (Magnetohydrodynamic) Turbines: The MHD turbine is a method of direct electrical conversion, using the hot exhaust of a turbine to generate a current by seeding the exhaust with charged particles. The movement of the exhaust through a set of coils creates a current, and MHD turbines are usually used in high-power, short-duration roles. They also are the most common type of power plant found in civilian short-haul vessels.

Fusion Reactors: Utilizing the deuterium-Helium-3 fusion reaction, modern fusion reactors are fairly compact and quite safe, though the engineering overhead on them does limit the lower end of their size. The fuel module for these reactors is sealed, and the supply of Dt/He-3 fuel is designed to last the life of the reactor, which is generally rated at 25 years.

Fission Reactors: Modern fission reactors are built with sealed fuel modules, which are designed to last about 5 years. Fission plants are relatively inexpensive for their power output, but are quite large and require larger crews than other power plants. Replacing the fuel core is also not a trivial job

THRUSTERS

Ships in 2320AD require reaction drives to reach orbit from a planet's surface. Even in 2320, these systems are large, bulky and consume vast quantities of fuel. Most starships dispense with thrusters, save for station-keeping and reaction-control systems, which are included in the cost and volume of the hull. Most worlds have dedicated interface vehicles to handle surface-to-orbit traffic. Only the smallest of the ships will have any sort of landing capability.

Thruster: A thruster is a high-efficiency MHD-plasma rocket, designed as an add-on to an MHD turbine. It acts like an afterburner on the high-velocity exhaust of the turbine. While in operation, a thruster-equipped MHD turbine produces only minimal power for life-support and electronics. Vessels operating on thrusters cannot use active sensors or energy weapons unless they have some sort of alternate power plant.

A thruster unit requires an MHD turbine, and generates thrust based on the power output of the turbine. In addition to the fuel requirements of the turbine itself, a thruster also requires fuel.

Air-breathing thrusters use 1/3 the fuel of a standard thruster while in atmosphere, but are larger and more costly. For atmospheric-only operations, they consume thruster fuel at 5% of the normal rate. Power plant fuel may be transferred to the thruster tanks, but not generally during flight.

Nuclear Thruster: A nuclear thruster requires a fission or fusion power plant, and works by running the reaction mass past (or through) the extremely hot core of the reactor. Radiation can be an issue with these drives, and so they are rarely seen on modern civilian landing craft.

ROTON

The ROTON is a high-efficiency chemical rocket of unique design. It is, in effect, a space-helicopter. Thrust from the engine, mounted on top of the vehicle, is diverted to several rotors arrayed at the top of the vehicle. The thrust of the engine causes the rotors to spin, generating additional lift, while at the same time the spinning action pumps fuel into the engine, without the weight and complexity of turbo-pumps. The efficiency of the system approaches that of a MHD thruster, without the complexity. The rotors are also used to land the craft, letting it use unprepared surfaces. The main drawback of this design is the lack of atmospheric maneuverability, and its dependence on refined hydrocarbons for fuel.

SOLID FUEL ROCKETS

Solid fuel rockets are most often used as boosters, and are usually disposable. They consist of a thin composite or metal skin wrapped around a core of solid fuel. Unlike the solid-fuel systems of the early space-age, these rockets can be throttled back, stopped, and restarted.

LIQUID-FUEL ROCKETS

Liquid-fuel rockets are a simpler method of moving bulk cargos into orbit. They are cheaper to build than most other types of reaction drives, though less efficient, and are often disposable.



Explanation of Datablock

Name:	Name of the vessel
Class:	Type of Vessel
Tech Level:	Technology level of construction
Profile:	Used instead of Size for targeting purposes
	Radial: Front or Back
	Lateral: Side, Top, Bottom
Size:	Ship's size (in dtons) and hull material
Main Computer:	Model number of computer
Sensor Range:	Active: Range in tactical hexes (1 hex=1 light second) Passive: Range in tactical hexes (1 hex=1 light second)
AC:	Vessel's Armor Class
AR:	Vessel's Armor Rating
SI:	Structural Integrity
Signature	Used for spotting with sensors
	Radial Reflected: Front or back
	Lateral Reflected: Sides or top/bottom
	Radiated: Power plant signature Normal/Masked
Screens:	Defensive screens present and their rating
	Unstreamlined, standard and airframe Airframe further broken down into standard, lifting body and hybrid lifting body
Streamlining:	Maximum atmospheric speed at full burn
Atmospheric Speed:	Agility Rating while in an atmosphere
Atmospheric Agility:	Runway length required for takeoff on a 1G world. VTOL capability is noted here.
Take-Off Run:	Runway length required for landing on a 1G world. VTOL capability is noted here.
Landing Run:	This entry is for ROTON vessels. Also notes the number of blades in the rotor.
Rotor Diameter:	Landing space required for any VTOL vessel. This is the diameter of the clearing required.
Clearance:	Maximum cruise speed for an air-breathing thruster operating in turbofan mode.
Atmospheric Cruise:	Duration in hours.
Flight Avionics:	Level of Flight Avionics, necessary for atmospheric flight
Thruster Rating:	Maximum Acceleration and Type of thruster
Thruster Fuel:	Thruster Fuel Volume
Duration	Thruster Maximum Burn time at maximum acceleration, in minutes
	Air-breathing Thruster Maximum Burn time at maximum acceleration, in minutes
Airborne Duration	Dtons of cargo to low-orbit (approximately 200 km)
Cargo to Low Orbit:	Dtons of cargo to high-orbit (approximately 500 km)
Cargo to High Orbit:	Maximum stutterwarp speed, in light years/day
Stutterwarp Speed:	Speed in hexes per round for tactical game
Tactical Speed:	Same as speed in hexes, for tactical game
Stutterwarp Agility:	Power Plant type and output
Power Plant:	Dtons of fuel available for the power plant
Power Plant Fuel:	Area of solar cells, if present, and output
Solar Cells:	Batteries, if present, and output
Batteries:	Duration: Duration of batteries at maximum output
Life Support:	Number of man-day of life-support (food, air, water) available
	Basic Military Standard military rations and supplies for short-duration missions
	Basic Civilian Standard civilian food and supplies for middle passengers and crew
	Extended Military Standard military rations and supplies for long-duration missions
	Luxury Civilian Standard civilian food and supplies for high passengers
Crew:	Bridge: Operation and command of the
	Engineering: Run ship's drives and power plants
	Gunnery: Operate all weapons and screens
	Ship's Troops: Either defensive troops or surface operations team
	Medical: Required for large vessels and passenger vessels
	Stewards: Required for large vessels and passenger vessels
	Maintenance: Look after the and maintain the ship, aside from engineering spaces
	Total: Total crew complement

Passengers	High: Number of luxury passengers carried
	Middle: Number of regular passengers carried
Stateroom	Large cabin, suitable for double-occupancy
Small Cabin	Small cabin, usually only suitable for a single occupant
Berth	Bunk, usually used for ship's troops or steerage passengers
Freezer Tube	Hibernation chamber, 1-person capacity
Fresher	Combination washroom/shower/laundry
Autodoc	Automated 1-person medical bed
Couch	Acceleration Couch
Sickbay	2-bed sickbay
	Dedicated workshop for carried vessels and vehicles, including drones and missiles
Vehicle shop	Scientific Laboratory
Laboratory	Dedicated workshop for ship's drives and systems
Engineering Shop	Any cargo carried
Cargo:	Spin habitat type, radius, RPM and felt gravity (if present)
Spin Habitat:	Radiation screen, if present, and strength
Radiation Screen:	Solar storm/flare shelter, if present, and strength
Strom Shelter:	Communications range, in T20 Range Bands
Comm. Range:	This includes navigational, cartographic, and life sensors
Other Sensors:	Any carried small craft or vehicles, number, and what sort of fitting.
Small Craft:	Anything else of note.
Other:	Price in MLv (millions of Livre)
Price:	

INTERFACE VESSELS

The designation of Interface Vessel covers everything from disposable rockets to combat landers, as long as they are designed to take-off from, or land on, a planet. Most interface vessels are air-breathing spaceplanes, and the cargo shuttles of earlier years have fallen by the wayside in the face of these more efficient designs. ROTONS are often seen throughout the Frontier, and conventional rockets are still widely used as a cheap method of interface travel.

Star Carrier XVII Cargo Rocket: The Star Carrier is a two-stage Manchurian design that is found throughout the Frontier. Cheap, reliable and disposable, the Star Carrier is useful for putting large cargos into orbit.

Name:	Star Carrier XVIII-A		
Class:	Cargo Rocket First Stage		
Tech Level:	Old Commercial		
Profile:	Radial:	-3	
	Lateral:	-2	
With Second Stage	Radial:	-3	
	Lateral:	-2	
Size:	30 dton Cylindrical Metallic Hull		
Main Computer:	Model/1		
Sensor Range:	Active:	0	hexes
	Passive:	0	hexes
AC:	10		
AR:	0		
SI:	42		
Signature	Radial Reflected:	1	
	Lateral Reflected:	4	
	Radiated:	1/1	
Screens:	Rating:	0	
Streamlining:	Standard		
Atmospheric Speed:	Maximum	5300	km/h
Atmospheric Agility:	N/A		
Flight Avionics:	Model 1		
Thruster Rating:	3	G Liquid-Fuel Rocket	
Thruster Fuel:	11.25	dtons	HRF
Duration	5	minutes	
Cargo to Low Orbit:	N/A		dtons
Cargo to High Orbit:	N/A		dtons
Stutterwarp Speed:	Loaded:	0	ly/day
	Unloaded:	0	ly/day
Tactical Speed:	0		
Stutterwarp Agility:	0		

Power Plant:	0	0
Power Plant Fuel:	N/A	dtons
Cargo:	20.41	dtons
Comm. Range:	Long Range	
Other Sensors:		
Small Craft:	20 dton upper stage	
Other:		
Cost:	0.75MLv (disposable)	



The Star Carrier Series is capable of lofting a number of upper stage designs into orbit. The cargo stage described below is the most common, but others include space defense missiles, mines, and even small manned vessels.

Name:	Star Carrier XVIII-B	
Class:	Cargo Rocket Second Stage	
Tech Level:	Old Commercial	
Profile:	Radial:	-3
	Lateral:	-2
Size:	20 dton Cylindrical Metallic Hull	
Main Computer:	Model/1	
Sensor Range:	Active:	0hexes
	Passive:	0hexes
AC:	10	
AR:	0	
SI:	80	
Signature	Radial Reflected:	1
	Lateral Reflected:	3
	Radiated:	11
Screens:	Rating:	0
Streamlining:	Standard	
Atmospheric Speed:	Maximum	N/A
Atmospheric Agility:	N/A	
Flight Avionics:	Model 1	
Thruster Rating:	2G Liquid-Fuel Rocket	
Thruster Fuel:	3.6dtons	HRF
	Duration	6minutes
Cargo to Low Orbit:	9.06dtons	
Cargo to High Orbit:	2.265dtons	
Stutterwarp Speed:	Loaded:	0ly/day
	Unloaded:	0ly/day
Tactical Speed:	0	
Stutterwarp Agility:	0	
Power Plant:	None	
Power Plant Fuel:	N/A	
Cargo:	9.06dtons	
Comm. Range:	Long Range	
Other Sensors:	N/A	
Cost:	0.63MLv (disposable)	

TL: 10

First Example Laid Down: 2212

Last Example Laid Down: In production

Number Produced: Unknown

Producing Nation: All

Price: MLv1.38 (both stages)

DynaTech H50 Boosters: The booster is designed to assist a spacecraft in taking off, either to reduce the time to orbit, or to lift the vessel against a higher-than-normal gravity. The Dynatech Booster be used as an add-on to other thrust systems, or it can be used alone. The H50 is a reusable design, though it is inexpensive enough that many operators do not bother with recovery operations.

For every 50 tons of vessel being boosted, divide thrust from the booster by 2. So a 50 ton fighter, with one booster and no thruster of its own, would develop 2.4 gees at liftoff. A 100-ton spaceplane, with a 2 G thruster and two boosters, would develop 4.4 G of thrust, more than sufficient to achieve orbit around even a world as massive as King. For dense cargos, use the tonnage/thrust modification rules in Chapter 18, page XX.

Name:	H50	
Class:	Booster	
Tech Level:	New Commercial	
Profile:		
	Radial:	-0
	Lateral:	-2
Size:	50 ton Cylindrical Metallic Hull	
Main Computer:	Model/0	
Sensor Range:		
	Active:	0hexes
	Passive:	0hexes
AC:	10	
AR:	0	
SI:	87.5	
Signature		
	Radial Reflected:	0
	Lateral Reflected:	4
	Radiated:	0/0
Screens:	Rating:	0
Streamlining:	Standard	
Atmospheric Speed:	Maximum	N/A
Atmospheric Agility:	N/A	
Flight Avionics:	None	
Thruster Rating:	12G Solid-Fuel Rocket	
Thruster Fuel:	0dtons	HRF
	Duration	0minutes
Cargo to Low Orbit:	2dtons	
Cargo to High Orbit:	0.5dtons	
Stutterwarp Speed:	Loaded:	0ly/day
	Unloaded:	0ly/day
Tactical Speed:	0	

Stutterwarp Agility:	0	
Power Plant:	0	0
Power Plant Fuel:	N/A	dtons
Cargo:	2 Dton recovery package	
Comm. Range:	N/A	
Other Sensors:	N/A	
Cost:	(Includes Fuel)	1.57MLv

TL: 11

First Example Laid Down: 2255

Last Example Laid Down: In production

Number Produced: Unknown

Producing Nation: All

Price: MLv1.57

AB.400 Passenger Spaceplane: The AB.400 is typical of the mid-sized thruster-powered s used for commercial interface transport all over human space. Though designed primarily to carry passengers, the AB.400 can also carry a considerable amount of cargo in the bay under the passenger section. Like many plasma-dynamic spaceplanes, the AB.400 uses plasma bled from the engines to effect a smooth airflow over the lifting surfaces, resulting in increased lift and better fuel consumption.

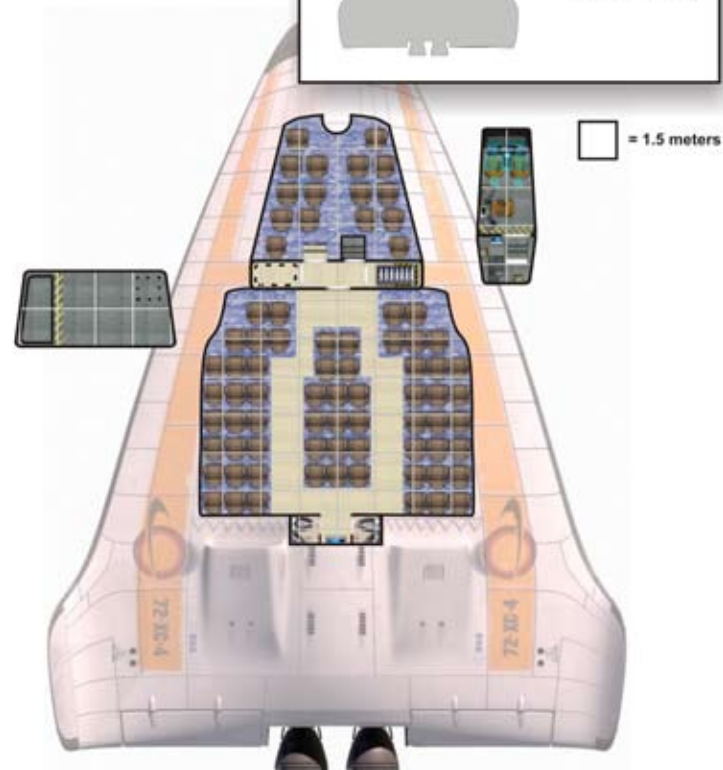
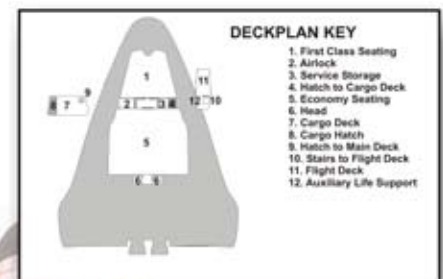
Name:	AB.400	
Class:	Spaceplane	
Tech Level:	11	
Profile:		
	Radial:	-2
	Lateral:	0
Size:	80 dton Wedge Synthetic Hull	
Main Computer:	Model/2	
Sensor Range:		
	Active:	0hexes
	Passive:	0hexes
AC:	10	
AR:	0	
SI:	95	
Signature		
	Radial Reflected:	3
	Lateral Reflected:	4
	Radiated:	1/1
Screens:	Rating:	0
Streamlining:	Hybrid Lifting Body	
Atmospheric Speed:	Maximum	4700 km/h
Atmospheric Agility:		-4
Take-Off Run:	250m	Landing Run:200m (800m on glide)
Atmospheric Cruise:	940 km/h	Duration:175 minutes
Flight Avionics:	Model 1	
Thruster Rating:	2G Air-Breathing MHD Thruster	
Thruster Fuel:	20.032dtons	HRF
	Duration	20Minutes (space)
		7Minutes (atmospheric full burn)
Cargo to Low Orbit:	4.03dtons	
Cargo to High Orbit:	1.01dtons	
Stutterwarp Speed:	Loaded:	0ly/day
	Unloaded:	0ly/day
Tactical Speed:	0	
Stutterwarp Agility:	0	
Power Plant:	2EP MHD Turbine	
Power Plant Fuel:	3.36dtons	2 days
Life Support:	Basic Civilian	64man/days
Crew:	Bridge:	2
	Stewards	2
	Total:	4



Passengers	High:	0
	Middle:	78
Fresher		2
Couch		80
Cargo:		4.03dtons
Comm. Range:	Long Range	
Other Sensors:	Navigational Radar	
Price:	2.91MLv	

TL: 11
First Example Laid Down: 2267
Last Example Laid Down: 2298
Number Produced: 1200
Producing Nation: France
Price: MLv2.91

**AB. 400
Commercial
Spaceplane**



OVL-22 Utility Roton: The roton is one of the more flexible interface vehicles available, and inexpensive to produce, owing to the “conventional” rocket it uses. The design of the roton allows it to take-off and land vertically on its six great rotors, and it will not cause a conflagration upon landing, unlike more conventional designs. It carries a substantial amount of cargo, but lacks the atmospheric loiter time of a lander with air-breathing thrusters.

Name:	OVL-22	
Class:	Utility Roton	
Tech Level:	11	
Profile:		
	Radial:	-2
	Lateral:	0
Size:	35 dton conical Synthetic Hull	
Main Computer:	Model/1	
Sensor Range:		
	Active:	0hexes
	Passive:	0hexes
AC:	10	
AR:	0	
SI:	83.75	
Signature		
	Radial Reflected:	2
	Lateral Reflected:	3
	Radiated:	0/0
Screens:	Rating:	0
Streamlining:	Standard	
Atmospheric Speed:	Maximum	320km/h
Atmospheric Agility:	-2	
Flight Avionics:	Model 1	
Rotor Diameter:	20.4m	Clearance:40.8m
Thruster Rating:	2G Roton	6-bladed rotor
Thruster Fuel:	12.6dtons	HRF
	Duration	20minutes
Cargo to Low Orbit:	10.51dtons	
Cargo to High Orbit:	N/Adtons	
Stutterwarp Speed:	Loaded:	0ly/day
	Unloaded:	0ly/day
Tactical Speed:	0	
Stutterwarp Agility:	0	
Power Plant:	0	0
Power Plant Fuel:	N/A	dtons
Batteries:	EP Output:	1
	Duration:	1day
Life Support:	Basic Civilian	8man/days
Crew:	Bridge:	2
	Total:	2
Passengers	High:	0



Middle:	2
Fresher	1
Autodoc	0
Couch	5
Cargo:	10.51dtons
Radiation Screen:	0rads/hour
Comm. Range:	Long Range
Other Sensors:	Navigational Radar
Price:	0.88MLv

TL: 11

First Example Laid Down: 2301

Last Example Laid Down: In production

Number Produced: 590

Producing Nation: America

Price: MLv0.88

CIT-990 Combat Lander: The American CIT-990 design first saw use in the opening years of the Kafer War, as it was being phased in as a replacement for the older CIT-IIIa, in use with both the Marines and Army units. The CIT-990 is widely criticized for being too small, and is only able to insert a 10-man combat team and their vehicle. As such, it sees a great deal of special forces use, but has been replaced in general service by the new CIT-1002.

Combat landers are officially considered too valuable for use in ground support, and are only armed for self-defense. To meet the demands of the modern battlefield, however, they are often pressed into service as ground support craft. The CIT-990 is a VTOL craft capable of sustained atmospheric flight.

The 20 missiles are carried in two internal bays on rotary launchers, while the 30mm cannon is protected by a retractable jack turret. The jack turret and missile bays must remain closed for reentry maneuvers and for hypersonic flight.

Name:	CIT-990		
Class:	Combat Lander		
Tech Level:	12		
Profile:			
	Radial:	-4	
	Lateral:	-1	
Size:	60	ton	Composite Hull
Main Computer:	Model/	1	
Sensor Range:			
	Active:	0	hexes
	Passive:	0	hexes
AC:	13		
AR:	3		
SI:	90		
Signature			
	Radial Reflected:	2	
	Lateral Reflected:	4	
	Radiated:	1/-1	
Screens:	Rating:	0	
Streamlining:	Lifting Body Airframe		
Atmospheric Speed:	Maximum:	5300km/h	
Atmospheric Agility:	-3		
Take-Off Run:	VTOL	Landing Run:	VTOL
Clearance:	60m		
Atmospheric Cruise:	795 km/h	Duration:	175 minutes
Flight Avionics:	Model 1		
Thruster Rating:	3G Air-Breathing MHD Thruster		
Thruster Fuel:	16.488dtons	HRF	
Duration	14Minutes (space)		
	6Minutes (atmosphere full-burn)		
Cargo to Low Orbit:	3.74	dtons	
Cargo to High Orbit:	0.185	dtons	
Stutterwarp Speed:	Loaded:	0	ly/day
	Unloaded:	0	ly/day
Tactical Speed:	0		
Stutterwarp Agility:	0		
Power Plant:	4EP MHD Turbine	24 hours	
Power Plant Fuel:	3.36dtons		

Weapons 0 UTES?

30mm Gatling Jack Turret 1 N/A

Aero-12 Missiles Missile Bay 20 N/A

Carries 2400 rounds for the 30mm cannon

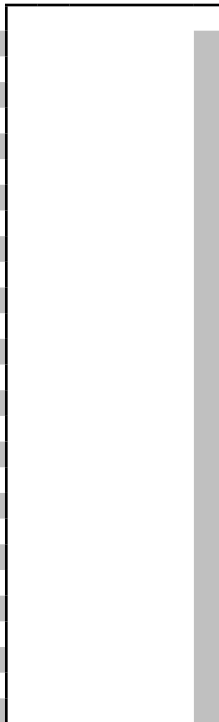
Life Support:	Basic Military	56	man/days
Crew:	Bridge:	2	
	Ship's Troops:	10	
	Total:	12	
Fresher	1		
Autodoc	2		
Couch	14		
Cargo:	3.74	dtons	
Radiation Screen:	0	rads/hour	
Comm. Range:	Medium Range		
Other Sensors:	Navigational Radar Minimal Cartographic		
Other:	20000vol carried vehicle in minimal hanger		
Cost:	6.04	MLv	

TL: 12
First Example Laid Down: 2298
Last Example Laid Down: 2315
Number Produced: 450
Producing Nation: America
Price: MLv6.04

Beanstalk Passenger Capsule: Built on a custom 120-ton hull, the beanstalk capsule is designed to carry up to 36 passengers (double occupancy) in great comfort to or from a world's surface. Thought the most comfortable way to get to orbit, the beanstalk is also the slowest, taking approximately five days to make the journey from the surface to geosynchronous orbit. The beanstalk capsule is self-propelled, though it derives its power from the beanstalk itself. In an emergency, onboard batteries can provide enough power to reach safety, though at less than half the normal speed. While most passenger capsules have a steward to attend to guests, no cooking is actually done on the vessel, though facilities are available. Instead, pre-packaged food is prepared and served automatically.

Cargo capsules are similar in size, and carry 110 dtons of cargo.

Name:	Passenger Car		
Tech Level:	New Commercial		
Profile:			
	Radial:	0	
	Lateral:	-1	
Size:	120	ton	Synthetic Hull
Main Computer:	Model/	1	
Sensor Range:			
	Active:	0	hexes
	Passive:	0	hexes
AC:	10		
AR:	0		
SI:	118		
Signature			
	Radial Reflected:	1	
	Lateral Reflected:	3	
	Radiated:	1	1
Screens:	Rating:	0	
Streamlining:	Airframe		
Atmospheric Speed:	Maximum	300	km/h
Atmospheric Agility:	N/A		
Flight Avionics:	Model 2		
Cargo to Low Orbit:	N/A		dtons
Cargo to High Orbit:	25.82		dtons
Stutterwarp Speed:	Loaded:	0	ly/day
	Unloaded:	0	ly/day
Tactical Speed:	0		
Stutterwarp Agility:	0		
Power Plant:	0	0	
Power Plant Fuel:	N/A		dtons



Solar Cells:	m2 Output:		
Batteries:	EP Output:	1	
	Duration:	72	day
Life Support:	Basic Civilian	350	man/days
	Luxury Civilian	70	man/days
Crew:			
	Stewards	0	
	Total:	4	
Passengers:	High:	2	
	Middle:	30	
Staterooms:	2		
Small Cabin	16		
Fresher	12		
Autodoc	0		
Dining Room	26 dtons		
Recreation Deck	13 dtons		
Cargo:	25.82		dtons
Radiation Screen:	150		rads/hour
Storm Cellar:	No		
Comm. Range:	Medium Range		
Other Sensors:	No Sensors		
Cost:	7.27		MLv

TL: 12

First Example Laid Down: 2275

Last Example Laid Down: In Production

Number Produced: 400+

Producing Nation: France, Japan, Inca Republic, Freihafen, Indonesia

Cost: MLv355.48

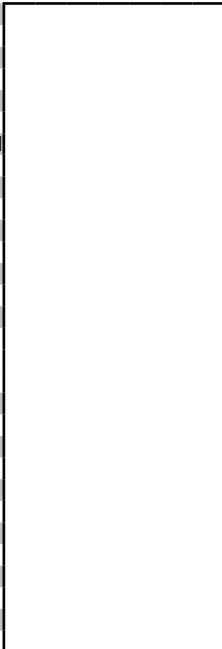
COMMERCIAL STARSHIPS

Thorez-class Courier: The Thorez-class courier was originally designed for short-duration courier missions. The hull has proved to be extremely flexible, however, and variants of this design are spread all over charted space, serving as small tramp cargo vessels, couriers and even privateers. Powered by air-breathing thrusters, the Thorez can manage an unassisted takeoff from most worlds with normal gravity, but often requires the use of boosters for use on high-gravity planets. The thruster and stutterwarp cannot be run at the same time as the Thorez does not produce enough power.

The large cargo bay can be outfitted as a weapon bay, and can often be seen carrying a laser cannon in a jack turret, along with a twin-pack of missiles. Legally, only a governmentally-licensed privateer can carry bomb-pumped laser missiles, but many fell into civilian hands during the Kafer War, and most of those are as yet unaccounted for.

Despite the design's age, it remains in widespread use due to its versatility.

Name:	Thorez	
Class:	Courier	
Tech Level:	10	
Profile:		
	Radial:	-2
	Lateral:	0
Size:	220 dton Wedge Synthetic Hull	
Main Computer:	Model/2	
Sensor Range:		
	Active:	0hexes
	Passive:	0hexes
AC:	10	
AR:	0	
SI:	133	
Signature		
	Radial Reflected:	3
	Lateral Reflected:	4
	Radiated:	4/4
Streamlining:	Hybrid Lifting Body	
Atmospheric Speed:	Maximum	4700 km/h
Atmospheric Agility:	-4	
Take-Off Run:	500m (STOL)	Landing Run: 400m (STOL)
Atmospheric Cruise:	1175 km/h	Duration: 150 minutes
Flight Avionics:	Model 2	
Thruster Rating:	2G Air-Breathing MHD Thruster	
Thruster Fuel:	35.904dtons	HRF
	Duration	12Minutes Space
	6Minutes Atmospheric Full-burn	
Cargo to Low Orbit:	55.14dtons	
Cargo to High Orbit:	13.79dtons	
Stutterwarp Speed:	Loaded:	1.356ly/day
	Unloaded:	1.459ly/day
Tactical Speed:	3	
Stutterwarp Agility:	3	
Power Plant:	5EP MHD Turbine	
Power Plant Fuel:	39.4dtons	
Life Support:	Basic Civilian	
Crew:	Bridge:	6
	Engineering:	8
	Gunnery:	0
	Ship's Troops:	0



Medical:	0	
Stewards:	0	
Maintenance:	0	
Total:	14	
Passengers	High:	0
	Middle:	4
Stateroom	0	
Small Cabin	18	
Berth	0	
Freezer Tube	0	
Fresher	2	
Cargo:	35.4dtons	
Radiation Screen:	150rads/hour	
Storm Shelter:	900rads/hour	
Comm. Range:	Long Range	
Other Sensors:	Navigational Radar	
	Deep System Scanner	
Small Craft:	0	
Other:		
Price:	11.33MLv	

TL: 10
First Example Laid Down: 2224
Last Example Laid Down: 2292
Number Produced: 65+
Producing Nation: France
Price: MLv11.33

Pegase-Class Cargo Hauler: The Pegase is a basic cargo vessel in a simple, straight-forward design. Equipped with a small-diameter gravity wheel for crew comfort, the Pegase also sees some use as a basic passenger liner. This cylindrical design is manufactured all over human space, in licensed-built models and out-and-out pirated copies. The Pegase is essentially an update, with new electronics and spaceframe, of the old Anjou-class, of which an estimated 300 are still operation.

Name:	Pegase	
Class:	Medium Freighter	
Tech Level:	10	
Profile:		
	Radial:	-2
	Lateral:	0
Size:	740 dton Cylindrical Metallic Hull	
Main Computer:	Model/1	
Sensor Range:		
	Active:	0hexes
	Passive:	0hexes
AC:	12	
AR:	0	
SI:	211	
Signature		
	Radial Reflected:	5
	Lateral Reflected:	8
	Radiated:	22
Screens:	Rating:	0
Streamlining:	None	
Atmospheric Speed:	Maximum	N/A
Atmospheric Agility:	N/A	
Flight Avionics:	N/A	
Thruster Rating:	0	0
Thruster Fuel:	0dtons	HRF
	Duration	0minutes
Cargo to Low Orbit:	N/A	dtons
Cargo to High Orbit:	N/A	dtons
Stutterwarp Speed:	Loaded:	0.822ly/day
	Unloaded:	2.966ly/day
Tactical Speed:	2	
Stutterwarp Agility:	2	
Power Plant:	4EP MHD Turbine	
Power Plant Fuel:	23.52dtons	7 days
Solar Cells:	m2	Output:
Batteries:	Output:	
	Duration:	
Life Support:	Basic Military	0man/days

	Basic Civilian	0man/days	
	Extended Military	280man/days	
	Luxury Civilian	56man/days	
Crew:	Bridge:	6	
	Engineering:	4	
	Gunnery:	0	
	Ship's Troops:	0	
	Medical:	0	
	Stewards:	0	
	Maintenance:	0	
	Total:	10	
Passengers	High:	0	
	Middle:	10	
Stateroom	20		
Small Cabin	0		
Berth	0		
Freezer Tube	0		
Fresher	0		
Autodoc	0		
Couch	0		
Sickbay	0		
Vehicle shop	0		
Laboratory	0		
Engineering Shop	0		
Cargo:	598.43dtons		
Spin Habitat:	15 meter radius	Double Hull @	2 RPM
			0.07G
Radiation Screen:	150rads/hour		
Storm Shelter:	900rads/hour		
Comm. Range:	Long Range		
Other Sensors:	Navigational Radar		
	Deep System Scanner		
Small Craft:	0		
Other:			
Price:	9.32MLv		

TL: 10

First Example Laid Down: 2291

Last Example Laid Down: In production

Number Produced: 78+

Producing Nation: All

Price: MLv9.32

City-class Passenger Liner: The City-class liner is justifiably famous throughout human space. Before the Kafer War, there were 12 of these vessels on the more lucrative runs in human space, including Earth-Beta Canum, Earth-Ellis, Earth-Nibelungen, etc. When the war came, most of them were converted into troop carriers, where they could embark up to 4000 troops at a time in cramped quarters. The vessel's extensive recreation area made them popular with troops, and after the war, when the remainders were converted back to liners; they were even more popular due to their association with the war.

In addition to the passenger cabins, these ships have a small swimming pool, bowling alleys and 4 racquet ball courts, along with a fully equipped gymnasium and extensive electronic library. The two landing craft are used for a variety of purposes, including ferrying passengers and moving cargo.

Name:	City of Montevideo		Weapons
Class:	Passenger Liner		
Tech Level:	11		Point Defense:
Profile:			Type 17 DC 2
	Radial:	0	
	Lateral:	2	
Size:	4800 dton Synthetic Hull		
Main Computer:	Model/4		
Sensor Range:			
	Active:	0hexes	
	Passive:	0hexes	
AC:	12		
AR:	0		
SI:	370		
Signature			
	Radial Reflected:	6	
	Lateral Reflected:	8	
	Radiated:	5/5	
Streamlining:	Standard		
Atmospheric Speed: Maximum	N/A		
Atmospheric Agility:	N/A		
Flight Avionics:	None		
Thruster Rating:	0	0	
Thruster Fuel:	0dtons	HRF	
	Duration	0minutes	
Stutterwarp Speed: Loaded:	1.129ly/day		
	Unloaded:	1.145ly/day	
Tactical Speed:	2		
Stutterwarp Agility:	2		
Power Plant:	60EP MHD Turbine		
Power Plant Fuel:	1008dtons	20 days	
Solar Cells:	0 m2	Output:	0

Batteries:	EP Output:	0	
	Duration:		
Life Support:	Basic Civilian	28000man/days	
	Luxury Civilian	10000man/days	
Crew:	Bridge:	27	
	Engineering:	16	
	Gunnery:	6	
	Ship's Troops:	20	
	Medical:	22	
	Stewards:	30	
	Maintenance:	14	
	Total:	135	
Passengers	High:	100	
	Middle:	500	
Stateroom			600
Small Cabin			135
Fresher			8
Autodoc			4
Couch			0
Sickbay			1
Engineering Shop			1
Cargo:			274.02dtons
Spin Habitat:	180 meter radius	Spun Hull @	1 RPM
			0.6G
Radiation Screen:			500rads/hour
Storm Shelter:			3000rads/hour
Comm. Range:			Very Long Range
Other Sensors:	Navigational Radar		
	Gravitational Scanner		
	Deep System Scanner		
Small Craft:	200dtons, in	Standard Hanger	
Other:			
Price:			248.72MLv

TL: 11

First Example Laid Down: 2278

Last Example Laid Down: 2292

Number Produced: 12

Producing Nation: France

Price: MLv248.72

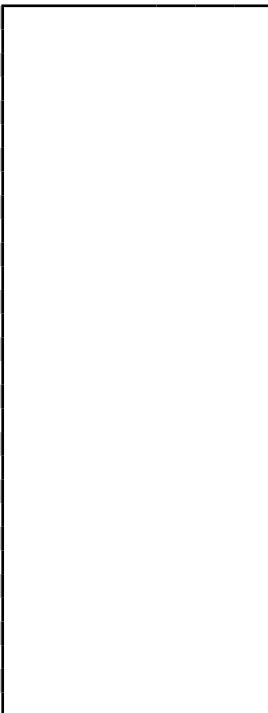
SURVEY VESSELS

Trilon Associates C-System Special Services Vessel, SSV-21: The SSV-21 grew out of a Trilon need for a sophisticated vessel that could handle such tasks as first contact missions and extended surveys of living worlds. Until the recent introduction of the SSV-56, the chief vehicle for these types of missions was the SSV-21. Now that it has been replaced in Trilon inventories, many of them have been sold off to other corporations, with a couple being purchased by national governments, including Wellon, and Freihafen. Even in its obsolescence, the SSV-21 is still a highly-rated vessel for its class.

The SSV-21 relies on a closed-cycle fuel cell power plant. Though fuel cells are normally used in small military vessels for their lower radiated signature, the high cost typically keeps them out of civilian vessels. A closed-cycle plant like the one found on the SSV-21 retains its fuel supply after use, and can simply deploy a solar array to crack the water exhaust back into hydrogen and oxygen. This way, it does not need to rely on bases, and need not spend a great deal of time searching for water or ice to crack into fuel. Using a closed system greatly extends the vessel's operating time, but some loss does happen with each cycle. A separate fuel refining plant is not necessary, as the fuel cell itself can simply be operated in reverse.

The vessel's active sensor array cannot be used while the ship is reprocessing water back into fuel, as the power requirements are too high. It takes a week to crack the full load of fuel using the vessel's solar array.

Name:	SSV-21	
Class:	Trilon and Associates Class C	
Tech Level:	11	
Profile:		
	Radial:	-2
	Lateral:	0
Size:	500 Dton Close Structure Synthetic Hull	
Main Computer:	Model/6	
Sensor Range:		
	Active:	5hexes
	Passive:	12hexes
AC:	10	
AR:	0	
SI:	175	
Signature		
	Radial Reflected:	13/ 6 with solar array folded
	Lateral Reflected:	13/ 6 with solar array folded
	Radiated:	4/4
Streamlining:	None	
Atmospheric Speed:	Maximum	N/A
Atmospheric Agility:	N/A	
Flight Avionics:	Model 2	
Thruster Rating:	0	0
Thruster Fuel:	0dtons	HRF
	Duration	0minutes
Cargo to Low Orbit:	N/A	dtons



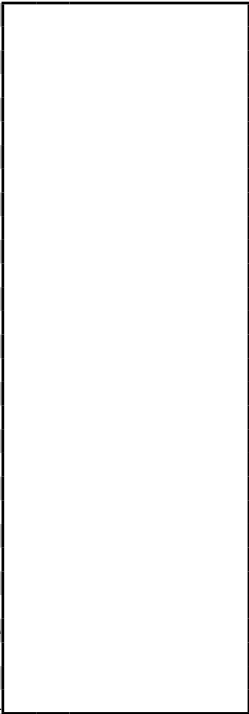
Cargo to High Orbit:	N/A	dtons
Stutterwarp Speed:	Loaded:	1.272ly/day
	Unloaded:	1.295ly/day
Tactical Speed:	3	
Stutterwarp Agility:	3	
Power Plant:	10EP Fuel Cell	
Power Plant Fuel:	42dtons	
Solar Cells:	1800 m2	Output: 10 EP
Batteries:	EP Output:	0
	Duration:	168day
Life Support:	Basic Military	0man/days
	Basic Civilian	0man/days
	Extended Military	0man/days
	Luxury Civilian	6480man/days
Crew:	Bridge:	16
	Engineering:	8
	Gunnery:	0
	Ship's Troops:	0
	Medical:	2
	Stewards	0
	Maintenance:	0
	Total:	26
Scientists	20	
Stateroom	2	
Small Cabin	34	
Fresher	8	
Autodoc	4	
Couch	0	
Sickbay	1	
Vehicle shop	1	
Laboratory	6	
Engineering Shop	1	
Cargo:	25.82dtons	
Spin Habitat:	45 meter radius	Spin Capsule @ 2 RPM
	0.2G	
Radiation Screen:	150rads/hour	
Storm Shelter:	900rads/hours	
Comm. Range:	System-Wide	
Other Sensors:	Navigational Radar	Advanced Cartographic
	Gravitational Scanner	Advanced Life Sensors
	Deep System Scanner	
Small Craft:	100dtons, in Standard Hanger	
Other:		
Cost:	146.89MLv	
TL:	11	
First Example Laid Down:	2285	
Last Example Laid Down:	2305	
Number Produced:	17	
Producing Nation:	America/Trilon	
Cost:	MLv147	

The Landers

The SSV-21 has 100 dtons of space available for small craft, and the 50-dton SLV-50 (Scout Landing Vessel, 50 tons) is the most popular. The SLV-50 carries a heavy ATV (6 dtons) in a vehicle bay, along with an expanding base (2 dtons), a fuel station (1 dton) and a variety of stores for a ground party in its cargo bay. Many use part of the cargo capacity to carry a small multi-environment gyrocopter.

The SLV-50 itself carries a basic array of survey sensors, and can be used to extend the ground party's survey range a hundred-fold.

Name:	SLV-50		
Class:	Scout Lander		
Tech Level:	11		
Profile:			
	Radial:	-3	
	Lateral:	-3	
Size:	50 Ton Wedge Synthetic Hull		
Main Computer:	Model/2		
Sensor Range:			
	Active:	0hexes	
	Passive:	0hexes	
AC:	10		
AR:	0		
SI:	87.5		
Signature			
	Radial Reflected:	2	
	Lateral Reflected:	3	
	Radiated:	1/1	
Screens:	Rating:	0	
Streamlining:	Hybrid Lifting Body Airframe		
Atmospheric Speed:	Maximum	4700km/h	
Atmospheric Agility:	-4		
Take-Off Run:	VTOL	Landing Run:	VTOL
Clearance:	50m		
Atmospheric Cruise:	1175km/h	150 minutes	
Flight Avionics:	Model 1		
Thruster Rating:	2G Air-Breathing MHD Thruster		
Thruster Fuel:	8.16dtons	HRF	
	Duration	12minutes	
		6airborne minutes	
Cargo to Low Orbit:	5.2dtons		
Cargo to High Orbit:	1.3dtons		
Stutterwarp Speed:	Loaded:	0ly/day	
	Unloaded:	0ly/day	
Tactical Speed:	0		
Stutterwarp Agility:	0		
Power Plant:	2EP MHD Turbine		
Power Plant Fuel:	3.36dtons	48 hours	
Solar Cells:	0	m2	Output: 0



Life Support:	Basic Civilian	20man/days
Crew:	Bridge:	2
	Total:	2
Passengers	High:	0
	Middle:	0
Stateroom	0	
Small Cabin	1	
Fresher	1	
Autodoc	0	
Couch	8	
Cargo:	5.2dtons	
Comm. Range:	Long Range	
Other Sensors:	Navigational Radar	Minimal Cartographic
		Minimal Life Sensors
Other:	ATV in minimal hanger	
Cost:	4.55MLv	

TL: 11
First Example Laid Down: 2291
Last Example Laid Down: 2317
Number Produced: 57
Producing Nation: America/Trilon
Cost: MLv4.55



Darwin-class Exploratory Cutter: The Darwin is a new design, a joint British-French venture. It is not, strictly speaking, a starship, but rather a very large landing craft, designed for long-duration missions. It is used in conjunction with vessels like the Goliath-class tug, and provides a means for smaller agencies to get access to a high quality survey vessel.

Despite its lack of stutterwarp, the Darwin is a capable spacecraft. In the large hull are two laboratories and space for a pair of surface vehicles and/or aircraft. The cargo capacity can be used for portable bases, or to bring back samples. It also has a small solar array which can be used to make fuel for both the spacecraft and its carried vehicles.

Name:	Darwin		
Class:	Survey		
Tech Level:	New Military		
Profile:			
	Radial:	-2	
	Lateral:	0	
Size:	240 dton Wedge Synthetic Hull		
Main Computer:	Model/4		
Sensor Range:			
	Active:	0hexes	
	Passive:	10hexes	
AC:	10		
AR:	0		
SI:	136		
Signature			
	Radial Reflected:	7	
	Lateral Reflected:	8	
	Radiated:	4/4	
Streamlining:	Lifting Body Airframe		
Atmospheric Speed:	Maximum	4700 km/h	
Atmospheric Agility:	-3		
Atmospheric Cruise:	615 km/h	Duration:150 minutes	
Take-off Run:	VTOL	Landing Run:VTOL	
Clearance:	240m		
Flight Avionics:	Model 3		
Thruster Rating:	2G Air-Breathing MHD Thruster		
Thruster Fuel:	39.168dtons	HRF	
	Duration	12Minutes space	
		6Minutes Atmosphere Full-burn	
Cargo to Low Orbit:	19.98dtons		
Cargo to High Orbit:	4.995dtons		
Stutterwarp Speed:	Loaded:	0ly/day	
	Unloaded:	0ly/day	
Tactical Speed:	0		
Stutterwarp Agility:	0		
Power Plant:	5EP MHD Turbine		
Power Plant Fuel:	29.4dtons		
Solar Cells:	320 m2	Output:	2



Life Support:	Luxury Civilian	3960man/days
Crew:	Bridge:	6
	Engineering:	6
	Gunnery:	0
	Ship's Troops:	0
	Medical:	0
	Stewards	0
	Maintenance:	0
	Total:	12
Passengers	High:	0
	Middle:	8
Stateroom	0	
Small Cabin	18	
Berth	0	
Freezer Tube	2	
Fresher	8	
Autodoc	4	
Couch	0	
Sickbay	1	
Vehicle shop	1	
Laboratory	2	
Engineering Shop	1	
Cargo:	13.75dtons	
Radiation Screen:	150rads/hour	
Storm Shelter:	900rads/hour	
Comm. Range:	Extreme Range	
Other Sensors:	Navigational Radar	Advanced Cartographic
	Gravitational Scanner	Advanced Life Sensors
	Deep System Scanner	
Small Craft:	0tons, in	
Other:	12000vol of vehicles in minimal hanger	
Cost:	20.24MLv	

TL: 12
First Example Laid Down: 2305
Last Example Laid Down: 2314
Number Produced: 45
Producing Nation: France
Cost: MLv20.24

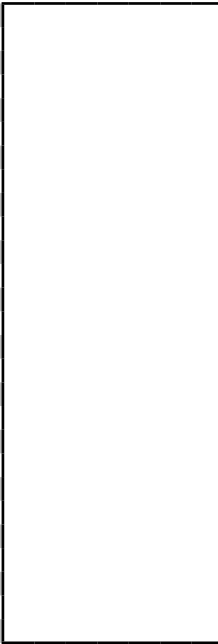
SYSTEM SHIPS

System ships are the vessels that ply the space between worlds within star systems. Typically using very low-powered stutterwarp drives, system-ships are more economical to run for the short in-system routes.

Astral-Class Bulk Carrier: Using a low-powered stutterwarp drive, the Astral can transport over 1600 dtons within the confines of a solar system. The ship itself is a modular freighter, carrying its cargo externally along the cargo spine.

Most system ships are robotic vessels, and many Astrals have been converted to robotic operations, or, if crewed, operate with far fewer than the mandated crew numbers. However, some merchant concerns use these slow, lumbering system ships as training vessels, both for new hires and for experienced crew moving up into command positions. If nothing else, an Astral teaches patience.

Name:	Astral	
Class:	System Ship	
Tech Level:	10	
Profile:		
	Radial:	-1
	Lateral:	1
Size:	2000 Dton Cylindrical Metallic Hull	
Main Computer:	Model/2	
Sensor Range:		
	Active:	0hexes
	Passive:	0hexes
AC:	10	
AR:	0	
SI:	300	
Signature		
	Radial Reflected:	7
	Lateral Reflected:	11
	Radiated:	1/1
Screens:	Rating:	0
Streamlining:	None	
Thruster Rating:	0	0
Thruster Fuel:	0dtons	
	Duration	0minutes
Cargo to Low Orbit:	N/A	
Cargo to High Orbit:	N/A	
Stutterwarp Speed:	Loaded:	0.19ly/day
	Unloaded:	0.375ly/day
Tactical Speed:	0	
Stutterwarp Agility:	0	
Power Plant:	1.5EP MHD Turbine	



Power Plant Fuel:	151.2dtons	120 days
Solar Cells:	0 m2	Output: 0
Batteries:	EP Output:	0
	Duration:	168day
Life Support:	Basic Military	0man/days
	Basic Civilian	0man/days
	Extended Military	0man/days
	Luxury Civilian	3600man/days
Crew:	Bridge:	12
	Engineering:	3
	Gunnery:	0
	Ship's Troops:	0
	Medical:	0
	Stewards	1
	Maintenance:	0
	Total:	16
Passengers	High:	0
	Middle:	0
Stateroom	30	
Small Cabin	0	
Berth	0	
Freezer Tube	0	
Fresher	10	
Autodoc	4	
Couch	0	
Sickbay	1	
Engineering Shop	1	
Cargo:	1626.24dtons	
Spin Habitat:	60 meter radius	Spin Capsule @ 1 RPM
		0.07G
Radiation Screen:	150rads/hour	
Storm Shelter:	900rads/hour	
Comm. Range:	System-Wide	
Other Sensors:	Navigational Radar	
	Deep System Scanner	
Small Craft:	0tons, in	
Other:		
Price:	16.1MLv	

TL: 10

First Example Laid Down: 2207

Last Example Laid Down: In Production

Number Produced: 220+

Producing Nation: France

Price: MLv16.1

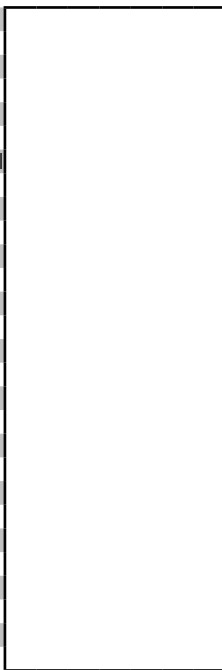
TUGS

There are two general types of tugs in use in Human space. The first is commonly known as a tractor, and is used to haul non-stutterwarp vessels, often across interstellar distances. The second type has received a great deal more public attention, as the stutterwarp tugs allows Humanity to surpass the 7.7 light year limit of conventional stutterwarp vessels.

Goliath-class Tractor The Goliath-class tractor is a perhaps the most common class of tug seen, and one of the few capable of true interstellar travel. The Goliath can carry up to a 240-dton vessel in its sling, or push a great deal more in custom hull mounts.

The 240-dton capable grapple is a unique design for the Goliath, as it is mounted on a spin arm, allowing the carried vessel to be spun to generate internal gravity. A combination water/fuel tank counterbalances the carried vessel, and the liquids can be pumped to and from a holding tank on the tug itself to allow for variable sizes of vessels to be carried. The heavily-reinforced bow of the ship can be used to push cargo as well, and up to 500 dtons can be carried this way, though the tug's performance drops to 1.85 lightyears per day. Several of these vessels can be found in independent hands along the French Arm, conducting salvage operations on vessels and installations wrecked over the course of the Kafer War.

Name:	Goliath	
Class:	Tug	
Tech Level:	New Commercial	
Profile:		
	Radial:	-1
	Lateral:	0
Size:	370 Ton Dispersed Structure Metallic Hull	
Main Computer:	Model/3	
Sensor Range:		
	Active:	0hexes
	Passive:	0hexes
AC:	15	
AR:	0	
SI:	156	
Signature		
	Radial Reflected:	6
	Lateral Reflected:	7
	Radiated:	5/5
Streamlining:	None	
Atmospheric Speed:	Maximum	N/A
Atmospheric Agility:	N/A	
Flight Avionics:	Model 3	
Thruster Rating:	0	0
Thruster Fuel:	0dtons	
	Duration	0minutes
Cargo to Low Orbit:	N/A	dtons



Cargo to High Orbit:	N/A	dtons
Stutterwarp Speed:	Loaded:	2.103ly/day
	Unloaded:	2.477ly/day
Tactical Speed:	5	
Stutterwarp Agility:	5	
Power Plant:	30EP MHD Turbine	
Power Plant Fuel:	201.6dtons	
Solar Cells:	0 m2	Output: 0
Batteries:	EP Output:	0
	Duration:	168day
Life Support:	Basic Military	0man/days
	Basic Civilian	364man/days
	Extended Military	0man/days
	Luxury Civilian	0man/days
Crew:	Bridge:	6
	Engineering:	16
	Gunnery:	0
	Ship's Troops:	0
	Medical:	0
	Stewards:	0
	Maintenance:	0
	Total:	22
Passengers	High:	0
	Middle:	0
Stateroom	14	
Small Cabin	0	
Berth	0	
Freezer Tube	0	
Fresher	4	
Autodoc	4	
Couch	0	
Sickbay	1	
Vehicle shop	0	
Laboratory	0	
Engineering Shop	1	
Cargo:	9.05dtons	
Spin Habitat:	60 meter radius	Spin Capsule @ 2 RPM
	0.04G	
Radiation Screen:	225rads/hour	
Storm Shelter:	1350rads/hour	
Comm. Range:	Very Long Range	
Other Sensors:	Navigational Radar	
Small Craft:	240dtons, in	Magnetic Sling
Other:		
Cost:	41.98MLv	

TL: 11

First Example Laid Down: 2285

Last Example Laid Down: 2298

Number Produced: 16

Producing Nation: Nibelungen

Cost: MLv41.98

Daedalus-class Stutterwarp Tug: The first stutterwarp tug was a modification of an old Anjou-class hull, but the current versions are purpose-built hulls, similar in many ways to vessels like the Goliath. Stutterwarp tugs have four magnetic slings on external amounts, each rated to 1000 dtons, though the tug itself can only carry a total of 2000 dtons of vessel before its performance suffers. The drive tuner is the most critical piece of equipment on the tug, and it is stored near the slings, though in a well-armored environment.

Fully loaded with 2000 dtons of carried vessels, the *Daedalus* can still manage a warp efficiency of 1.26 lightyears per day.

Name:	Daedalus
Class:	Tug
Tech Level:	12
Profile:	
Radial:	0
Lateral:	2
Size:	1300 Ton Dispersed Structure Synthetic Hull
Main Computer:	Model/3
Sensor Range:	
Active:	5hexes
Passive:	10hexes
AC:	13
AR:	0
SI:	282.5
Signature	
Radial Reflected:	5
Lateral Reflected:	7
Radiated:	77
Screens:	Rating: 0
Streamlining:	None
Atmospheric Speed:	Maximum N/A
Atmospheric Agility:	N/A
Flight Avionics:	Model 3
Thruster Rating:	0 0
Thruster Fuel:	0dtons HRF
Duration	0minutes
Cargo to Low Orbit:	N/A dtons
Cargo to High Orbit:	N/A dtons
Stutterwarp Speed:	Loaded: 1.275ly/day
Unloaded:	1.749ly/day
Tactical Speed:	3
Stutterwarp Agility:	3
Power Plant:	80EP Fission Reactor
Power Plant Fuel:	0dtons
Solar Cells:	0 m2 Output: 0
Batteries:	EP Output: 0

Point Defense:	
Type 17 DC	2

Duration:	168day
Life Support:	Basic Military 0man/days
Basic Civilian	364man/days
Extended Military	0man/days
Luxury Civilian	0man/days
Crew:	Bridge: 54
Engineering:	94
Gunnery:	6
Ship's Troops:	0
Medical:	2
Stewards	6
Maintenance:	0
Total:	162
Passengers	High: 0
Middle:	0
Stateroom	0
Small Cabin	110
Berth	0
Freezer Tube	0
Fresher	4
Autodoc	4
Couch	0
Sickbay	1
Vehicle shop	0
Laboratory	0
Engineering Shop	1
Cargo:	17.42dtons
Spin Habitat:	60m radius Double Hull @ 2 RPM
Radiation Screen:	500rads/hour
Storm Shelter:	3000rads/hour
Comm. Range:	System-Wide
Other Sensors:	Navigational Radar Minimal Cartographic
	Deep System Scanner
Small Craft:	2000tons, in Magnetic Slings
Other:	Drive Tuner
Cost:	355.48MLv

TL: 12
First Example Laid Down: 2308
Last Example Laid Down: In Production
Number Produced: 11
Producing Nation: Trilon
Cost: MLv355.48

MILITARY VESSELS

The long years of the Kafer War have seen a continued evolution of human warships. As the war dragged on, the general-purpose cruisers of the past gave way to purpose-built gunships, carriers and battleships. Only to the smallest of warships does the general-purpose label still apply.

Cutter: Used as a general-purpose small craft, the cutter is stutterwarp capable, but is not designed for interface operations. It possesses a thruster for precise orbital operations and boarding actions. It is used in ship-to-ship transfers, orbital operations and customs duties. Though relatively fast for such a small vessel, it lacks endurance, and is not suitable for interstellar journeys.

Name:	ST-56	Lasers:	EA-122	UTES?	2 Y
Class:	Cutter				
Tech Level:	12				
Profile:					
	Radial:		-1		
	Lateral:		2		
Size:			50 Dton Cylindrical Composite Hull		
Main Computer:			Model/3		
Sensor Range:					
	Active:		10hexes		
	Passive:		5hexes		
AC:			19		
AR:			5		
SI:			88		
Signature					
	Radial Reflected:		4		
	Lateral Reflected:		5		
	Radiated:		4/2		
Streamlining:			None		
Atmospheric Speed:	Maximum		N/A		
Atmospheric Agility:			N/A		
Flight Avionics:			None		
Thruster Rating:			0.1G MHD Thruster		
Thruster Fuel:			0.5dtons		HRF
	Duration		20minutes		
Cargo to Low Orbit:			N/A		
Cargo to High Orbit:			N/A		
Stutterwarp Speed:	Loaded:		1.9ly/day		
	Unloaded:		1.922ly/day		
Tactical Speed:			4		
Stutterwarp Agility:			4		
Power Plant:			12EP MHD Turbine		
Power Plant Fuel:			25.2dtons		
Life Support:	Basic Military				100man/days

	Basic Civilian	0man/days
	Extended Military	0man/days
	Luxury Civilian	0man/days
Crew:	Bridge:	3
	Engineering:	1
	Gunnery:	3
	Ship's Troops:	5
	Medical:	0
	Stewards:	0
	Maintenance:	0
	Total:	12
Passengers	High:	0
	Middle:	0
Stateroom		0
Small Cabin		0
Berth		6
Freezer Tube		0
Fresher		2
Autodoc		1
Couch		12
Sickbay		0
Vehicle shop		0
Laboratory		0
Engineering Shop		0
Cargo:		1.66dtons
Radiation Screen:		150rads/hour
Storm Shelter:		900rads/hour
Comm. Range:	Long Range	
Other Sensors:	Navigational Radar	
	Minimal Life Sensors	
	Deep System Scanner	
Small Craft:		0tons, in
Other:		
Price:		18.59MLv

TL: 12

First Example Laid Down: 2275

Last Example Laid Down: In production

Number Produced: 120+

Producing Nation: Various

Price: MLv18.59

FIGHTERS

Fighters are small warships with limited endurance, designed to bring their weapons to close range against the enemy. They are also useful for screening operations, protecting the fleet from other fighters and from missiles. Remote vessels are steadily eroding the need for fighters, and some doubt whether they truly are useful in the face of drones like Goalkeeper and Freihafen's Machine Fighter.

Martel: The sturdy Martel is widely regarded as one of the best fighters in human hands. It is aggressively marketed as well, and examples and variants can be found in the hands of France, Britain and Canada (as the Harrier), Texas (as the Longhorn), and Freihafen (as the Jaeger). Most of the variants revolve around the fighter's primary armament, the two submunition dispensers. The heavily armed and armored Martel is often employed as a ship-killer, and racked up impressive kill ratios vs. Kafer capital ships. Against fighters it does not fare quite as well, as it lacks the raw speed of many other designs. Its high armor does stand it in good stead, however.

Name:	Martel		Lasers:		UTES?
Class:	Heavy Fighter		EA-122	Fixed	2 Y
Tech Level:	12		Submunitions:		
Profile:	Radial:	0	Grape-Shot		2
	Lateral:	-1			
Size:	40 Dton Close Structure Composite Hull				
Main Computer:	Model/3				
Sensor Range:	Active:	10hexes			
	Passive:	10hexes			
AC:	22				
AR:	12				
SI:	85				
Signature	Radial Reflected:	3			
	Lateral Reflected:	4			
	Radiated:	4/1			
Screens:	Rating:	0			
Streamlining:	None				
Atmospheric Speed:	Maximum	N/A			
Atmospheric Agility:	N/A				
Flight Avionics:	None				
Thruster Rating:	0	0			
Thruster Fuel:	0dtons				
	Duration	0minutes			
Cargo to Low Orbit:	N/A	dtons			
Cargo to High Orbit:	N/A	dtons			
Stutterwarp Speed:	Loaded:	3.257ly/day			
	Unloaded:	3.325ly/day			
Tactical Speed:	7				

Stutterwarp Agility:	7	
Power Plant:	15EP MHD Turbine	
Power Plant Fuel:	12.6dtons	
Solar Cells:	m2	Output:
Batteries:	EP Output:	0
	Duration:	0day
Life Support:	Basic Military	4man/days
	Basic Civilian	0man/days
	Extended Military	0man/days
	Luxury Civilian	0man/days
Crew:	Bridge:	1
	Engineering:	0
	Gunnery:	1
	Ship s Troops:	0
	Medical:	0
	Stewards:	0
	Maintenance:	0
	Total:	2
Passengers	High:	0
	Middle:	0
Stateroom	0	
Small Cabin	0	
Berth	1	
Freezer Tube	0	
Fresher	1	
Autodoc	0	
Couch	2	
Sickbay	0	
Vehicle shop	0	
Laboratory	0	
Engineering Shop	0	
Cargo:	2.41dtons	
Spin Habitat:	N/A	None
		0G
Radiation Screen:	0rads/hour	
Comm. Range:	Long Range	
	Navigationa	Ra-
Other Sensors:	dar	
Small Craft:	0	
Other:		
Price:	32.13MLv	

TL: 12

First Example Laid Down: 2285

Last Example Laid Down: In production

Number Produced: 300+

Producing Nation: France and others under license

Price: MLv32.13

WARSHIPS

Myrmidon-class Intruder Corvette: The Myrmidon is a small warship designed to be produced relatively cheaply. It can be produced by both military and civilian yards. Sternmetal Yards of Freihafen first produced the vessel in 2302, in response to Freihafen's need for an indigenous small warship. As the Kafer War started to heat up again, Sternmetal made the unusual move of releasing the design specs to any nation that wanted them. These small yet effective warships became the backbone of many small national navies and even found service with some wealthy colonies. These small vessels are staffed at civilian rather than military levels, in an effort to save costs.

With the end of the war large numbers of these vessels were decommissioned; their weapons removed, and sold off to private concerns. Most were converted to cargo vessels, but a few became the basis for a small privateer fleet operating among the devastated worlds of the French Arm.

Name:	Myrmidon		UTES?
Class:	Corvette		
Tech Level:	11		
Profile:			
	Radial:	-2	
	Lateral:	-1	
Size:	240 Dton Cylindrical Synthetic Hull		
Main Computer:	Model/2		
Sensor Range:			
	Active:	7hexes	
	Passive:	6hexes	
AC:	18		
AR:	8		
SI:	136		
Signature			
	Radial Reflected:	5	
	Lateral Reflected:	5	
	Radiated:	42	
	Habitat Stowed:	4	
Streamlining:	None		
Atmospheric Speed:	Maximum	N/A	
Atmospheric Agility:	N/A		
Flight Avionics:	None		
Thruster Rating:	0	0	
Thruster Fuel:	0dtons	HRF	
	Duration	0minutes	
Cargo to Low Orbit:	N/A	dtons	
Cargo to High Orbit:	N/A	dtons	
Stutterwarp Speed:	Loaded:	1.66ly/day	

Missile Controllers	1		
Lasers:	0		
LL-98 Laser	Fixed	2	Y
Submunitions:			
Big Clip		2	
Missiles:			
Ritage-2		4	

	Unloaded:	1.697ly/day
Tactical Speed:		3
Stutterwarp Agility:		3
Power Plant:	16EP MHD Turbine	
Power Plant Fuel:	94.08dtons	
Solar Cells:	:	
Batteries:	EP Output:	0
	Duration:	1 day
Life Support:	Basic Military	1800man/days
	Basic Civilian	0man/days
	Extended Military	0man/days
	Luxury Civilian	0man/days
Crew:	Bridge:	6
	Engineering:	6
	Gunnery:	6
	Ship's Troops:	6
	Medical:	0
	Stewards	0
	Maintenance:	0
	Total:	24
Passengers	High:	0
	Middle:	0
Stateroom		11
Small Cabin		2
Berth		0
Fresher		2
Autodoc		1
Cargo:		30.31dtons
Radiation Screen:		150rads/hour
Storm Shelter:		900rads/hour
Comm. Range:	Long Range	
Other Sensors:	Navigational Radar	
	Deep System Scanner	
Small Craft:		
Other:		
Price:		29.68MLv

TL: 11
First Example Laid Down: 2302
Last Example Laid Down: 2312
Number Produced: 80+
Producing Nation: Freihafen, various others
Price: MLv29.68

John F. Kennedy-class Fast Missile Cruiser, bloc II: The American philosophy in war-ship design is "Get in fast, strike hard, get out fast" which has led to the development of the Kennedy-class fast missile cruiser and her big sister, the Columbia-class battleship. Both vessels are heavy on their missile complement, but to achieve the high speed the vessel is known for, the Kennedy-class has to accept some trade-offs, most notably in her lack of armor, screens and substantial gun armament. This latest refit adds a dedicated point defense system to the vessel's weapons mix, at the expense of two of her conventional laser turrets. Kennedys run at a power deficit, meaning that the guns and the point defense systems cannot all fire at the same time, unless power is routed from the stutterwarp drive to the weapons.

Name:	Kennedy	TTAs	0	UTES?
Class:	Fast Missile Cruiser	Missile Controllers	4	
Tech Level:	12	Point Defense:		
Profile:		Type 29 DC	2	
	Radial: -1	Lasers:	0	
	Lateral: 1	EAS-1000 Laser 6 Dbl turrets	12	Y
Size:	900 Dton Conical Synthetic Hull	Missiles:	16	
Main Computer:	Model/5			
Sensor Range:				
	Active: 15hexes			
	Passive: 10hexes			
AC:	10			
AR:	0			
SI:	235			
Signature				
	Radial Reflected: 6			
	Lateral Reflected: 7			
	Radiated: 74			
	Habitat Stowed: 6			
Screens:	Rating: 0			
Streamlining:	None			
Atmospheric Speed: Maximum	N/A			
Atmospheric Agility:	N/A			
Flight Avionics:	None			
Thruster Rating:	0 0			
Thruster Fuel:	0dtons HRF			
	Duration 0minutes			
Cargo to Low Orbit:	N/A dtons			
Cargo to High Orbit:	N/A dtons			
Stutterwarp Speed: Loaded:	5.991ly/day			
	Unloaded: 6.146ly/day			
Tactical Speed:	12			
Stutterwarp Agility:	12			
Power Plant:	EP Fusion Reactor			
	300			

Power Plant Fuel:	N/A	dtons
Solar Cells:		m2 Output:
Batteries:	EP Output: 0	
	Duration: 1day	
Life Support:	Basic Military	0man/days
	Basic Civilian	0man/days
	Extended Military	103680man/days
	Luxury Civilian	0man/days
Crew:	Bridge:	27
	Engineering:	89
	Gunnery:	25
	Ship's Troops:	0
	Medical:	2
	Stewards:	8
	Maintenance:	0
	Total:	178
Passengers	High:	0
	Middle:	0
Stateroom		43
Small Cabin		2
Berth		0
Freezer Tube		0
Fresher		30
Autodoc		10
Couch		0
Sickbay		2
Vehicle shop		1
Laboratory		0
Engineering Shop		1
Cargo:		74.58dtons
Spin Habitat:	30 meter radius	Extendable Spin Capsule @ 3 RPM
		0.3G
Radiation Screen:		400rads/hour
Storm Shelter:		2400rads/hour
Comm. Range:		Extreme Range
Other Sensors:	Navigational Radar	
	Gravitational Scanner	
	Deep System Scanner	
Small Craft:		40dtons, in Minimal Internal Hanger
Other:		
Price:		148.93MLv

TL: 12

First Example Laid Down: 2285

Last Example Laid Down: 2316

Number Produced: 18 (

Producing Nation: America

Price: MLv148.93

NAMES OF Kennedy-class Cruisers:

USS John F. Kennedy, USS Thomas Jefferson, USS Ronald Reagan (lost 2307), USS Jane Kostek, USS Abraham Lincoln, USS Colin Powell, USS Gordon Miller, USS George Washington, USS Jennifer Marlowe, USS Ernest White, USS Foxx Travis, USS Julia Pemberton (lost 2305), USS Calvin Morrison (lost 2309), USS John Bighthorn, USS Franklin D. Roosevelt (lost 2305), USS Chakra Bindi, USS Alison Chandra

MISSILES AND DRONES

All missiles and drones require the Pilot Remote Objects Feat, along with the Pilot Skill.

MISSILES

American SIM-14 IIC: The SIM-14 IIC is a bloc upgrade of the older SIM-14, the famous "Definite Kill" missile. The IIC upgrade is even faster, with a slighter more powerful warhead, built on the same missile bus as the older model. This allowed upgrades to happen in place, without rebuilding the missile bays. By 2318, almost all American forces had received the upgrade, and the upgrade package was made available to American allies.

Speed:	8	Profile:	Lateral:	-4	Radial:	-4	
Signature:	Reflected:	Lateral:	1	Radial:	1	Radiated:	1
Sensors:	Active:	-Passive:	10	Other:			
AC:	18	AR:	0	Agility:	8	SI:	13
Warhead Type:	Detonation Laser	Size:	1.3	Duration:	6 hours	Price:	0.6 MLV
Damage:	2d10 x 1d12	Range:	0	#Shots:	1	USP:	6

British Space Sparrow SSM-9-B: The current missile in service with British, Australian and Canadian forces, the Space Sparrow is a modification of the French Ritage-2, largely in the weapon's electronics. The active sensor suite makes the missile more accurate and even allows it to be used as a makeshift sensor drone if need be. It is somewhat larger than the Ritage-2 however, and so cannot use the same bays as the older weapon.

Speed:	6	Profile:	Lateral:	-4	Radial:	-4	
Signature:	Reflected:	Lateral:	1	Radial:	1	Radiated:	1
Sensors:	Active:	0	Passive:	10	Other:		
AC:	16	AR:	0	Agility:	6	SI:	13
Warhead Type:	Detonation Laser	Size:	1.2	Duration:	6 Hours	Price:	0.5 MLV
Damage:	2d10 x 1d10	Range:	0	#Shots:	1	USP:	5

French Ritage-3 Missile Recognizing the possibilities of a remote fighter as opposed to a disposable missile, the French military was nonetheless dissatisfied with the performance of the old Ritage-1 remote fighter, and ordered a new model. The Ritage-3 mounts a particle gun instead of the laser of the older model, and it is somewhat larger. It remains to be seen if the concept has any value, however.

Speed:	6	Profile:	Lateral:	-4	Radial:	-4	
Signature:	Reflected:	Lateral:	1	Radial:	1	Radiated:	1
Sensors:	Active:	-Passive:	0	Other:			
AC:	16	AR:	0	Agility:	6	SI:	13
Warhead Type:	Particle Beam	Size:	1.35	Duration:	6 hours	Price:	0.7 MLV
Damage:	1d12	Range:	2	#Shots:	5	USP:	1

French Ritage-4 Missile Though the Ritage-4 is not as powerful as some missiles, it is more accurate, and that makes it a dangerous weapon in modern space combat. The Ritage-4 is a replacement for the older Ritage-2, and fits into the same bays, which was one of the weapon's design goals.

Speed:	7	Profile:	Lateral:	-4	Radial:	-4	
Signature:	Reflected:	Lateral:	1	Radial:	1	Radiated:	1
Sensors:	Active:	0	Passive:	13	Other:		
AC:	17	AR:	0	Agility:	7	SI:	13
Warhead Type:	Detonation Laser	Size:	1.2	Duration:	6	Price:	0.5 MLV
Damage:	1d10 x 1d12	Range:	0	#Shots:	1	USP:	6

SENSOR DRONES

American HD-11 "Super-Scout" Sensor Drone The HD-11 is the current American sensor drone, and is designed to be as cheap and disposable as possible.

Speed:	8	Profile:	Lateral:	-3	Radial:	-4	
Signature:	Reflected:	Lateral:	2	Radial:	2	Radiated:	2
Sensors:	Active:	13	Passive:	13	Other:		
AC:	18	AR:	0	Agility:	8	SI:	19
Warhead Type:	0	Size:	11	Duration:	24	Price:	2.155 MLV

French Voir Sensor Drone The Voir Sensor drone is one of the fastest vessels ever created by man. The Voir is designed to pass through a military formation too fast for any weapons to get a bead on it, as it is quite fragile.

Speed:	11	Profile:	Lateral:	-3	Radial:	-4	
Signature:	Reflected:	Lateral:	1	Radial:	1	Radiated:	4
Sensors:	Active:	7	Passive:	13	Other:		
AC:	21	AR:	0	Agility:	11	SI:	20
Warhead Type:	N/A	Size:	13	Duration:	12	Price:	4.22 MLV

OTHER DRONES

D-23 Decoy Drone: The D-23 is a commercially-available decoy drone designed to simulate

ships up to 1000 tons in displacement, or down to 100 tons. These are quite popular with merchant vessels moving through hostile territory.

Speed:	8	Profile:	Lateral:	-3	Radial:	-4	
Signature:	Reflected:	Lateral:	1	Radial:	1	Radiated:	2
Sensors:	Active:	0	Passive:	3	Other:		
AC:	18	AR:	0	Agility:	8	SI:	0
Warhead Type:	0	Size:	10	Duration:	12	Price:	2.39

The listed values for Profile and Signature are for the drone when it is in standard mode. In decoy mode, the Profile and Signature become the same as the vessel it is supposed to emulating.

Goalkeeper Point Defense Drone: The Goalkeeper is a new design, only out in quantity since 2315. Developed by British Exospace in response to a tender from the Royal Navy, the Goalkeeper drone is designed to intercept missiles at a safe distance from the controlling vessel and destroy them with its point-defense cluster.

Speed:	7	Profile:	Lateral:	-3	Radial:	-4	
Signature:	Reflected:	Lateral:	1	Radial:	1	Radiated:	3
Sensors:	Active:	3	Passive:	13	Other:		
AC:	23	AR:	6	Agility:	7	SI:	16
Warhead Type:	PD Cluster	Size:	5.5 tons	Duration:	6 hours	Price:	2.17 MLv
Damage:	1d6	Range:	0	#Shots:	Unliited	USP:	6

Sentinel Mine: The Sentinel Mine was first used during the Kafer War, as a static mine armed with a detonation laser and a long-duration power supply, along with good sensors and a powerful controlling computer. Its task was to sit still and observe traffic moving in the volume of the system it was in. If a hostile vessel came close enough, the Sentinel would detonate. Current versions are mobile, but otherwise the same as the war-era systems.

Speed:	3	Profile:	Lateral:	-3	Radial:	-4	
Signature:	Reflected:	Lateral:	1	Radial:	1	Radiated:	-2
Sensors:	Active:	7	Passive:	64	Other:		
AC:	13	AR:	0	Agility:	3	SI:	0
Warhead Type:	Detonation Laser	Size:	10	Duration:	40 days	Price:	1.4 MLv
Damage:	3d10 x 1d12	Range:	0	#Shots:	1	USP:	6



SPACE STATIONS

There are almost as many types of space stations as there are worlds that they orbit. They fall into two general types, however. The first is the modular station, quite common as the orbital terminal for new colonies or serving as small workshacks or research stations. These stations are made up of a number of small 30-dton modules connected together with integral connectors.

The other type of station is usually custom-built, and consists of the classic wheel-type stations and larger facilities all the way up to the massive O'Neill-style habitats.

MODULAR SPACE STATION

Modular Space Stations are common over all Human space. New colonies use them as orbital terminals, while more established worlds use them as laboratories, quarantine facilities, or micro-factories.

The three modules presented here are the most common types, with others largely being variations on them. For example, a lab module is identical to the operations module, save that it replaces the workshop with another laboratory; while a quarantine module is identical to a living module, save that the doors cannot be opened from the inside.

Modular stations typically use a modified habitation module as a storm shelter. Each module does not have a storm shelter built-in.

Operations Module: The operations module has a 3EP power deficit which must be met by an external power source.

Name:	Operations Module	
Class:	Station Module	
Tech Level:	11	
Profile:		
	Radial:	-2
	Lateral:	-1
Size:	30 Ton cylindrical Synthetic Hull	
Main Computer:	Model/3	
Sensor Range:		
	Active:	0hexes
	Passive:	0hexes
AC:	10	
AR:	0	
SI:	82.5	
Signature		
	Radial Reflected:	3
	Lateral Reflected:	4
	Radiated:	2/2
Screens:	Rating:	0
Streamlining:	None	
Atmospheric Speed:	Maximum	N/A
Atmospheric Agility:	N/A	
Flight Avionics:	None	

Thruster Rating:	0	0
Thruster Fuel:	0dtons	HRF
Duration	0minutes	
Cargo to Low Orbit:	N/A	dtons
Cargo to High Orbit:	N/A	dtons
Stutterwarp Speed:	Loaded:	0ly/day
	Unloaded:	0ly/day
Tactical Speed:	0	
Stutterwarp Agility:	0	
Power Plant:	0	0
Power Plant Fuel:	N/A	dtons
Solar Cells:	0 m2	Output: 0
Batteries:	EP Output:	0
	Duration:	168day
Life Support:	Basic Military	0man/days
	Basic Civilian	90man/days
	Extended Military	0man/days
	Luxury Civilian	0man/days
Crew:	Bridge:	2
	Engineering:	0
	Gunnery:	0
	Ship's Troops:	0
	Medical:	0
	Stewards	0
	Maintenance:	0
	Total:	2
Passengers	High:	0
	Middle:	0
Stateroom	0	
Small Cabin	0	
Berth	0	
Freezer Tube	0	
Fresher	2	
Autodoc	0	
Couch	6	
Sickbay	0	
Vehicle shop	0	
Laboratory	1	
Engineering Shop	1	
Cargo:	2.71dtons	
Spin Habitat:	N/A	None
		<1 RPM
		0G
Radiation Screen:	225rads/hour	
Comm. Range:	Medium Range	
Other Sensors:	Navigational Radar	
Small Craft:	0	
Other:		
Price:	5.18MLv	

Habitation Module: The habitation module has a 2EP power deficit which must be met by an outside source.

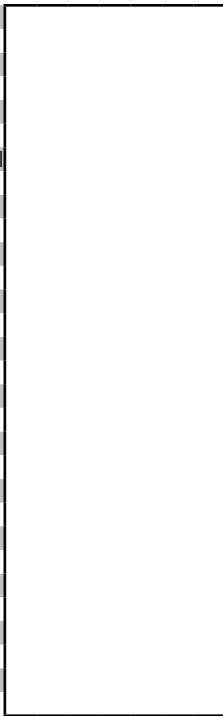
Name:	Habitation Module	
Class:	Station Module	
Tech Level:	New Commercial	
Profile:		
	Radial:	-2
	Lateral:	-1
Size:	30 dton Cylindrical Synthetic Hull	
Main Computer:	0	
Sensor Range:		
	Active:	0hexes
	Passive:	0hexes
AC:	10	
AR:	0	
SI:	82.5	
Signature		
	Radial Reflected:	0
	Lateral Reflected:	3
	Radiated:	11
Screens:	Rating:	0
Streamlining:	None	
Atmospheric Speed:	Maximum	N/A
Atmospheric Agility:	N/A	
Flight Avionics:	None	
Thruster Rating:	0	0
Thruster Fuel:	0dtons	HRF
	Duration	0minutes
Cargo to Low Orbit:	N/A	dtons
Cargo to High Orbit:	N/A	dtons
Stutterwarp Speed:	Loaded:	0ly/day
	Unloaded:	0ly/day
Tactical Speed:	0	
Stutterwarp Agility:	0	
Power Plant:	0	0
Power Plant Fuel:	N/A	dtons
Solar Cells:	0m2	Output: 0
Batteries:	EP Output:	0
	Duration:	168day
Life Support:	Basic Military	0man/days
	Basic Civilian	90man/days
	Extended Military	0man/days
	Luxury Civilian	0man/days
Crew:	Bridge:	2
	Engineering:	0



Gunnery:	0	
Ship's Troops:	0	
Medical:	0	
Stewards:	0	
Maintenance:	0	
Total:	2	
Passengers	High:	0
	Middle:	0
Stateroom	0	
Small Cabin	6	
Berth	0	
Freezer Tube	0	
Fresher	2	
Autodoc	0	
Couch	0	
Sickbay	0	
Vehicle shop	0	
Laboratory	1	
Engineering Shop	0	
Cargo:	0.95dtons	
Spin Habitat:	N/A	None
		0G
Radiation Screen:	225rads/hour	
Storm Shelter:	(If used as a storm shelter) 1350	rads/hour
Comm. Range:	0	
Price:	(Standard Hab Module)	2.82MLv
Price:	(Storm Shelter Module)	3.82MLv

Power Module: Power modules, naturally, do not have energy deficits.

Name:	Power Module	
Class:	Station Module	
Tech Level:	11	
Profile:		
	Radial:	-2
	Lateral:	-1
Size:	30 Dton Cylindrical Synthetic Hull	
Main Computer:	Model/0	
Sensor Range:		
	Active:	0hexes
	Passive:	0hexes
AC:	10	
AR:	0	
SI:	82.5	
Signature		
	Radial Reflected:	13
	Lateral Reflected:	14
	Radiated:	11
Screens:	Rating:	0
Streamlining:	None	
Atmospheric Speed:	Maximum	N/A
Atmospheric Agility:	N/A	
Flight Avionics:	None	
Thruster Rating:	0	0
Thruster Fuel:	0dtons	HRF
	Duration	0minutes
Cargo to Low Orbit:	N/A	dtons
Cargo to High Orbit:	N/A	dtons
Stutterwarp Speed:	Loaded:	0ly/day
	Unloaded:	0ly/day
Tactical Speed:	0	
Stutterwarp Agility:	0	
Power Plant:	0	0
Power Plant Fuel:	N/A	dtons
Solar Cells:	2700 m2	Output: 15
Batteries:	EP Output:	0
	Duration:	168day
Life Support:	Basic Military	0man/days
	Basic Civilian	90man/days
	Extended Military	0man/days
	Luxury Civilian	0man/days
Crew:	Bridge:	0
	Engineering:	0
	Gunnery:	0



Ship's Troops:	0		
Medical:	0		
Stewards:	0		
Maintenance:	0		
Total:	0		
Passengers	High:	0	
	Middle:	0	
Stateroom	0		
Small Cabin	0		
Berth	0		
Freezer Tube	0		
Fresher	1		
Autodoc	0		
Couch	0		
Sickbay	0		
Vehicle shop	0		
Laboratory	0		
Engineering Shop	1		
Cargo:	0.45dtons		
Spin Habitat:	N/A	None	<1 RPM
	0G		
Radiation Screen:	225rads/hour		
Comm. Range:	N/A		
Other Sensors:			
Small Craft:	0		
Other:			
Price:	7.65MLv		

STATION EXAMPLES

Fort Gibraltar: Originally built to protect British interests in the Alpha Centauri system, Fort Gibraltar was rebuilt in the 2270s, shortly before the referendum that saw Wellon declare independence.

The station was sold to Wellon in 2296, shortly after the first encounter with Kafers, but before they actually attacked, and the Wellonese upgraded the fort to its present level.

A squadron of 20 Harrier fighters operates out of the station, which is the primary Wellonese naval installation.

Name:	Fort Gibraltar		Weapon	Mount	UTES?
Class:	Orbital Defense Installation				20
Tech Level:	11		Point Defense:		
Profile:			Type 17 DC		4
	Radial:	2	Lasers:		
	Lateral:	2	EAS-1000 Laser	Surface	20
Size:	5000dton	Composite Hull	Particle Beam Weapons		
			ALS-22	Surface	10
Main Computer:	Model/5		Heavy Lasers		
			Darlan LH220	Heavy Tower	4
Sensor Range:			Missiles:		
	Active:	16hexes	Space Sparrow		50
	Passive:	12hexes			
AC:	22				
AR:	12				
SI:	375				
Signature					
	Radial Reflected:	13			
	Lateral Reflected:	13			
	Radiated:	77			
Screens:	Rating:	0			
Streamlining:	None				
Atmospheric Speed: Maximum	N/A				
Atmospheric Agility:	N/A				
Flight Avionics:	None				
Thruster Rating:	0	0			
Thruster Fuel:	0dtons	HRF			
	Duration	10minutes			
Cargo to Low Orbit:	N/A	dtons			
Cargo to High Orbit:	N/A	dtons			
Stutterwarp Speed: Loaded:	0ly/day				
	Unloaded:	0ly/day			
Tactical Speed:	0				
Stutterwarp Agility:	0				
Power Plant:	400EP Fusion Reactor				
Power Plant Fuel:	0dtons				
Solar Cells:	m2 Output:				

Batteries:	EP Output:	0
	Duration:	1 day
Life Support:	Basic Military	0man/days
	Basic Civilian	0man/days
	Extended Military	108000man/days
	Luxury Civilian	0man/days
Crew:	Bridge:	85
	Engineering:	43
	Gunnery:	83
	Ship's Troops:	20
	Medical:	4
	Stewards	9
	Maintenance:	15
	Total:	259
Passengers	High:	0
	Middle:	0
Stateroom		25
Small Cabin		510
Berth		0
Freezer Tube		0
Fresher		20
Autodoc		10
Couch		0
Sickbay		2
Vehicle shop		4
Laboratory		1
Engineering Shop		2
Cargo:	243.95dtons	
Spin Habitat:	60 meter radius	Spun Hull @ 3 RPM
		0.6G
Radiation Screen:	400rads/hour	
Storm Shelter:	2400rads/hour	
Comm. Range:	System-Wide	
Other Sensors:	Navigational Radar	
	Gravitational Scanner	
	Deep System Scanner	
Small Craft:	20 x 50 dton fighterIn Standard Hanger	
Other:		
Price:	907.4MLv	

TL: 11

Laid Down: 2212

Producing Nation: Great Britain

Cost: MLv907.4

STARSHIP ENCOUNTERS

Encountering another starship, or any facility, in the depths of space can be an opportunity for adventure. Whether it is a market tip exchanged with an old Libertine friend, or a chance boarding by bored customs officials, starship encounters are a good occasion for the GM to move things along, or introduce something new.

Encounters also help to define a star-system. The Core worlds of Earth and Tirane are teeming with starships, system ships and space stations, while the Frontier worlds see considerably less traffic in comparison. The encounter charts reflect this, along with reflecting the differences between the three Arms of exploration. The encounter charts are organized into several sections, one for the Core worlds and another for each of the Arms of space, along with separate charts for the human-occupied portion of the Kafer sphere, and Pentapod space.

346

CORE ENCOUNTERS

Core Encounters are used for the both the Sol system and the Alpha Centauri system. Encounters are rolled once for every 4 hours in the outer system, once every two hours in the inner system, and every hour in the vicinity of the main world. Unlike Frontier worlds, which roll a chance of an encounter, in the Core system transiting ships will have a noteworthy encounter on a regular basis.

OUTER SYSTEM ENCOUNTERS

The outer system denotes everything from the FTL shelf inward to 0.5 AU out from the main world

Outer System Encounters

1-3	Naval patrol
4-5	Asteroidal debris
6	Artificial debris
7-10	inbound freighter
11-14	outbound freighter
15-16	system ship
17-18	mining vessel
19	telescope array
20	pirate

INNER SYSTEM ENCOUNTERS

The Inner System covers all traffic within 0.5 AU of Earth or Tirane.

Inner System Encounters

1-8	Naval patrol
9	asteroidal debris
10	artificial debris
11-15	inbound freighter
16-19	outbound freighter
20	system ship

Main world Encounters: Main world is considered to be all orbital space of a main world, out to the orbit of its farthest moon, including any orbital habitats.

Main world Encounters

01-04	OQC
04-06	workshack
07-08	station
09	habitat
10-12	inbound freighter
13-15	outbound freighter
16-17	patrol
18	OTV
19	Power satellite
20	system ship

EXPLANATION OF ENCOUNTERS

Artificial Debris: This could be anything from jettisoned garbage to the remains of a 20th century space probe. Likely worthless, but a probe would be priceless.

Asteroidal Debris: This is typical space junk, and should not present a hazard to a stutterwarping vessel. A vessel travelling in realspace, however, would have to be careful.

Freighter: This indicates a brief encounter with a freighter, either transiting into or out of the system.

Freighter

1-8	Light
9-14	Medium
15-20	Heavy

A light freighter is a small courier, like a *Thorez* or other small, quick mercantile vessels. Medium size is an *Anjou* or its ilk, while Heavy is a super-freighter, like the *Mammoth*.

Freighter Ownership: Freighter ownership helps determine what sort of reaction they will have to incoming vessels, and also gives the encounter some flavor. Corporate and

governmental vessels are not likely going to want to talk, but Foundation vessels and independents may. Note that Libertine traders do not do business at the Core worlds.

d20	Ownership
1-9	Corporate Vessel
10-15	Government Cargo Vessel
16-19	Foundation Vessel
20	Independent (Non-Libertine)

Habitat: This is an extremely large space station, ranging from torii of about 1 km in diameter all the way up to massive 6 km diameter by 40 kilometer long O'Neill Island 3 habitats. Even in Earth orbit, habitats of this size are very rare, with most relegated to the L1, L4 and L5 points. Only Matalap and Gateway at Earth, and Freihafen Orbital at Tirane, approach this sort of titanic size outside of the LaGrange points.

Mining Vessel: These long-haul mining vessels work the asteroid belt and planetary ring systems. They are often good sources of trade, in particular for luxury items. Most mining vessels are modified cargo vessels, though there are a few purpose-built vessels, like the ungainly *Dalton*, the spindly *OMS Andrew Carnegie* class, and other more specialized vessels.

Naval Patrol: A Naval Patrol consists of a number of vessels. Most of the time, they will leave civilian traffic alone, or just do a flyby and scan as they check for pirates. If boarding is required a boarding team will consist of 6-12 Marines in vacuum combat dress, armed with lasers, along with a couple of naval officers.

Naval Patrol	#
1-7	Fighters 2d6
8-10	Frigate 1d4
11-13	Destroyer 1d4
14-16	Cruiser 1d4/2
17-20	Battle group (Roll three times on this table)

The reactions of a naval task force to ships they encounter depends on many factors, but nationality is one of the most important ones. Determine the nationality of the naval vessels, and compare them with the list of national rivals in the Background Chapter.

d20	Naval Patrol Reaction
-9-2	Hostile; Fires warning shot and requires ship to heave to and prepare to be boarded
3-5	Requires inspection before ship may proceed
6-9	Requires transponder codes and manifests
10-16	None
17-21	Offers formal greeting and advisory
22+	Offers friendly greeting

Situation	Modifier
Ship is from rival nation	-10
Ship is from same nation	+10
Ship is from allied nation	+5
Ship from other nation	0

OQC Encounters: An OQC encounter indicates a meeting with Orbital Quarantine Command. Fighters will do a quick scan, along with typical radio chatter and interrogation: Where are you going? What is your cargo? How many passengers, names, destinations, and other questions of that sort. An encounter with a cutter or a frigate indicates that the vessel will be boarded by an OQC search team, who will be very thorough in their scans and checks of the ship and its cargo. OQC search teams consist of 6 OQC Marines, along with 1-2 Inspection Officers.

OQC encounter	#
1-12	Fighters 2d4
13-17	Cutter 1d4
18-20	Frigate 1d4/2

Pirates: Pirates are extremely rare in the Core systems. Naval forces are particularly ruthless about eliminating armed threats in the Core. Any pirates encountered will have to be determined or desperate, or both.

Pirate/Raider	#
1-9	Fighters w/freighter
10-17	Armed Freighter
18-20	Frigate

Pirates will attempt to disable attacked vessels, and force a surrender. Boarding parties will consist of at least half the pirate's crew, all in p-suits and heavily armed. If they get what they want, they will generally leave a crew unmolested, but any resistance, or a lack of booty, will lead them to take out their frustrations on the captured vessel's crew.

Space Station: A space station is a larger facility than a workshack, and are usually large-diameter toroidal stations, spinning to produce internal gravity. These stations act as housing for orbital workers, warehouses and orbital terminals. These can be destinations for arriving traffic, or departure points for outgoing traffic.

System Ship: A system ship is a low-power stutterwarp vessel, usually some sort of large bulk hauler. Tankers carrying fuel and chemicals from the outer planets are the most common type of these vessels.

Telescope Array: Far away from polluting electromagnetic sources, these vast optical and radio telescopes scan the stars. These long-baseline array telescopes are extremely sensitive, and it is against the law to approach them without express permission.

Workshack: A workshack is a small, modular space station, usually housing a small laboratory or zero-gee factory.

Nationality of Space Traffic or Space Station

Terran System	
1d20 Roll	Nationality
1-4	French
5-7	British
8-9	American
10-11	German
12-14	Manchurian
15-16	Russian
17-20	Other

Tirane System	
1d20 Roll	Nationality
1-4	French
5-7	British
8-9	American
10-11	Freihafener
12-14	Manchurian
15-16	Wellon
17-20	Other

FRONTIER ENCOUNTERS

The chance of an encounter in a system on the Frontier is based on the UPP Population digit for the main world. This number or higher must be rolled on a d10 for an encounter to occur, modified by the table below.

Encounter Situation	Modifiers
Naval Base in System	+2
Class A Starport	+2
Class B Starport	+1
Class D Starport	-1
Chinese Arm	-1
American Arm	-1

SYSTEM ENCOUNTERS

Check every 6 hours for a system encounter. System encounters in the Frontier are all locations outside the immediate volume of space around a system's main world.

French Arm		Chinese Arm	
d20	System Encounters	d20	System Encounters
1-5	Inbound Freighter	1-6	Inbound Freighter
6-10	Outbound Freighter	7-12	Outbound Freighter
11-12	System Ship	13	System Ship
13-15	Naval Patrol	14-16	Naval Patrol
16-17	Pirate/Raider	17-18	Pirate/Raider
18	Pentapod Merchant	19	Sung Explorer/Trader
19	Kafer Raider	20	Asteroidal Debris
20	Asteroidal Debris		

American Arm	
d20	System Encounters
1-6	Inbound Freighter
7-12	Outbound Freighter
13-15	System Ship
16-18	Naval Patrol
19	Pirate/Raider
20	Asteroidal Debris

Main World Encounters: Check for an encounter every two hours in main world orbit. Main world orbit is defined as within the orbit of the planet's furthest moon, or else the planet's stationary orbit should it lack moons.

French Arm		Chinese Arm	
d20	Main world Encounters	d20	Main world Encounters
1-3	Workshack	1-7	Inbound Freighter
4-6	Orbital Terminal	8-14	Outbound Freighter
5-7	Inbound Freighter	15-16	System Ship
8-11	Outbound Freighter	17-18	Naval Patrol
12-13	System Ship	19	Pirate/Raider
14-15	Naval Patrol	20	Sung Explorer/Trader
16	Pirate/Raider		
17-19	Pentapod Merchant		
20	Kafer Raider		

American Arm	
d20	Main world Encounters
1-7	Inbound Freighter
8-14	Outbound Freighter
15-17	System Ship
18-19	Naval Patrol
20	Pirate/Raider

EXPLANATION OF ENCOUNTERS

Asteroidal Debris: See above (p. 345).

Freighter: As above (p. 345), but use the table below.

French Arm		Chinese Arm		American Arm	
d20	Freighter	d20	Freighter	d20	Freighter
1-6	Light	1-4	Light	1-8	Light
7-15	Medium	5-14	Medium	9-14	Medium
16-20	Heavy	15-20	Heavy	15-20	Heavy

Freighter Ownership: Freighter ownership helps determine what sort of reaction they will have to incoming vessels, and also gives the encounter some flavor. Corporate and governmental vessels are not likely going to want to talk, but Foundation vessels and independents may. Libertines will only talk on a quid pro quo basis, nothing for nothing. However, they can be good sources of information.

Ship Ownership: Roll on this table to determine the ownership of any encountered commercial vessel.

French Arm		Chinese Arm	
d20	Ownership	d20	Ownership
1-6	Corporate Vessel	1-5	Corporate Vessel
7-11	Government Vessel	6-12	Government Vessel
12-14	Foundation Vessel	13-15	Foundation Vessel
15-18	Libertine Trader	16-19	Libertine Trader
19-20	Independent	20	Independent

American Arm	
d20	Ownership
1-8	Corporate Vessel
9-12	Government Vessel
13-14	Foundation Vessel
15-18	Libertine Trader
19-20	Independent

Naval Patrol: Naval Patrols are usually involved in their own duties, and are not likely to bother small vessels. There is a possibility, however. On a 1d10 roll of 8+, they will make a roll on the reaction table to determine their response. If boarding is required a boarding team will consist of 6-12 Marines in vacuum combat dress, armed with lasers, along with a couple of naval officers.

French Arm			Chinese Arm		
d20	Naval Patrol	#	d20	Naval Patrol	#
1-5	Fighters	2d4	1-8	Fighters	2d4
6-9	Frigate	1d6	9-14	Frigate	1d4
10-14	Destroyer	1d4	15-17	Destroyer	1d4
15-17	Cruiser	1d4/2	18-19	Cruiser	1d4/2
18-20	Battle group	20		Battle group	

American Arm		
d20	Naval Patrol	#
1-10	Fighters	2d6
11-13	Frigate	1d6
14-17	Destroyer	1d4
18-19	Cruiser	1d4/2
20	Battle group	

If a battle group is rolled, consult the following table, and roll the appropriate die. That is the number of time you roll on the naval patrol table, above, to determine the size of the task force. The largest vessel in the task force is also the flagship, carrying an admiral aboard.

Battle groups	Number of times to roll on table
French Arm	1d8
Chinese Arm	1d4
American Arm	1d6

The reactions of a naval task force to ships they encounter depends on many factors, but nationality is one of the most important. Determine the nationality of the naval vessels, and compare them with the list of national rivals in Chapter 2.

d20	Naval Patrol Reaction
-9-2	Hostile; Fires warning shot and requires ship to heave to and prepare to be boarded
3-5	Requires Inspection before ship may proceed
6-9	Requires transponder codes and manifests
10-16	None
17-21	Offers formal greeting and advisory
22+	Offers friendly greeting

Situation	Modifier
Ship is from rival nation	-10
Ship is from same nation	+10
Ship is from allied nation	+5
Ship from other nation	0
French Arm	-2
American Arm	+2

Kafer Raiders: Kafer raiders cruise up and down the French Arm with the primary goal of disrupting traffic and sowing chaos. They will attack civilian shipping, and will even occasionally conduct a surprise attack on an isolated settlement using one of their landing-capable raiders. Kafers conduct boarding operations to secure supplies, and will usually kill the crew of any merchant vessel they encounter. Kafer Raiders only occur on the French Arm.

Kafer Raiders		
		#
1-11	Raider	1d4
12-15	Fighters	1d6
16-18	Cruiser	1d4/2
19-20	Raid Group	(Roll 1d4 times on this table)

Pentapod Trader: A Pentapod trade vessel is a *Star-whale*-class vessel, accompanied by several landing craft. They will often have a guard unit with them (1-4 on a d10) of 1-3 (1d6/2) Voidsharks. They are willing to stop and trade with just about anyone. Pentapod Vessels are only encountered on the French Arm.

Pirates and Raiders: Pirates and raiders are forces to be feared for most merchant vessels, but are no match for any military force. Warships possessed by these groups are likely to be decades-old Manchurian or Indonesian surplus, with a leavening of French vessels for variety.

French Arm		Chinese Arm	
d20	Pirate/Raider	d20	Pirate/Raider
1-8	Armed Freighter	1-12	Armed Freighter
9-15	Fighters w/freighter	13-18	Fighters w/freighter
16-20	Frigate	19-20	Frigate

American Arm	
d20	Pirate/Raider
1-15	Armed Freighter
16-18	Fighters w/freighter
19-20	Frigate

Pirates and raiders will almost always try to force vessels to surrender, and see no profit in wholesale destruction. Though a starship is likely more valuable than its cargo, it is also harder to hide, and there is also the problem of captives. Most pirates would rather avoid killing prisoners, not out of humanitarianism, but to avoid the inevitable naval crackdown that such activities engender.

Pirates are more concerned with attacking spacecraft, while raiders use their capabilities to raid planets and out-

posts for their booty.

Both types will eventually end up using troops, one to board and confiscate any valuables, and the other to land on a planet and do much the same thing. Boarding and landing troops use either the corsair or mercenary troops from the NPC section of this book.

Sung Trader/Explorer: The alien Sung have only recently been permitted to construct their own starships, using drives leased from the Manchurians or the Canadians. Sung vessels are eager to stop and conduct trade, or even to just talk. They will offer information freely, and will often press for tours of human vessels, and by extension, are very proud of their own designs, and enjoy showing them off, especially to Humans. Only one vessel will be encountered, the *Brilliant Starshine* type. This encounter only occurs in the Chinese Arm

System Ship: A system ship is a low-power stutter-warp vessel, usually some sort of mining or prospecting vessel.

Workshack: A workshack is a small, modular space station, often serving as an orbital terminal for smaller worlds, or a laboratory involved in the colonization effort.

Nationality of Space Traffic or Station: Roll on this table to determine the nationality of any encountered vessel in Frontier space.

French Arm	
d20	Nationality
1-5	French
6-8	German
9-11	British
12-13	Japanese
14	Freihafen
15	Nibelungen
16	Elysian
17	Ukrainian
18-19	American
20	Other

Chinese Arm	
d20	Nationality
1-5	Manchurian
6	Life Foundation
7-8	Mexican
9	Brazilian
10-11	Argentinean
11-13	Canadian
14	Scandinavian Union
15-16	Texan
17	Cantonese
18	UAR
19	Arabian
20	Heidelsheimat

American Arm	
d20	Nationality
1-9	American
10-14	Australian
15-17	Trilon
18	Nigerian
19-20	British

NPCS AND ANIMALS

NON-PLAYER CHARACTERS

Non-Player Characters (NPCs) are the rest of the inhabitants of the game universe, from the people just strolling down to the street to the augmented assassin hunting his target. They are there to provide opportunities for interaction, whether that is to provide information, or combat, or just background color.

SECTION 1: CIVILIANS

Bandits/Guerrillas: Bandits represent the average foot soldiers in gangs of rural robbers or the troops serving revolutionary causes throughout the various colonies. They are not well-trained or highly disciplined, and do not engage in stand-up fights with regular troops.

Regular Bandit	Colonist 3/Rogue 2			TL	9+	ST	30	LB	11						
Grav	N	Core/Frontier				Frontier		Body	Normal						
Str	10	Dex	11	Con	10	Int	10	Wis	10	Cha	10	Edu	10	Soc	5
Init	+0	AC	14	AR	4	Spd	9	Fort	3	Ref	4	Will	2	SZ	M
Attacks	Fist +3 (1d4/20). Machete +2 (1d6/19). SG-77 +2 (1d12/x2), range 45m, ROF 1/3/10.														
Feats	Armor Proficiency (Light, Medium), Weapon Proficiency (Combat Rifleman, Marksman, Swordsman), Vessel (Wheeled), Barter, Brawling, Far Shot, First Aid, Point Blank Shot, Stealthy, Tracker, Toughness.														
Skills	Appraise 3, Bluff 6, Driving 3, Handle Animal 3, Hide 6, Knowledge (Homeworld) 6, Move Silently 6, Ride (Horse) 3, Spot 6, Survival 6, T/Mechanical 6, T/Computer 0														
Equipment	Machete, SG-77 assault rifle, non-rigid vest, rations, radio														

351

Bureaucrat: All across Human space, there are bureaucrats and functionaries who interact with player characters, often in adversarial roles.

Bureaucrat	Professional 5			TL	9+	ST	20	LB	10						
Grav	N	Core/Frontier				Core		Body	Normal						
Str	10	Dex	10	Con	10	Int	10	Wis	10	Cha	10	Edu	11	Soc	10
Init	0	AC	10	AR	0	Spd	9	Fort	1	Ref	1	Will	4	SZ	M
Attacks	Fist +1 (1d3/20). Hancock "Nine-Twenty-Three" pistol -3 (1d8/20), range 30m, ROF 1.														
Feats	Armor Proficiency (Light), Vessel (Wheeled), Carousing, Connections (Homeworld Bureaucracy), Hobby (Gather Information, Innuendo), Legal Eagle, Professional Specialty (P/Admin), Skill Focus (Liaison, P/Admin), Trustworthy.														
Skills	Driving 4, Gather Information 10 (12 dealing with Homeworld Bureaucracy), Innuendo 8, K/Homeworld 4, K/Interstellar Law 8 (10 when Legal Eagle applies), Liaison 12, P/Admin 10 (12 when Legal Eagle applies), P/Knowledge Related (choose) 8, T/Computer 4, Trader 4														
Equipment	Suit, Briefcase, portacomp, link phone, (Hancock "Nine-Twenty-Three" pistol - non-proficient)														

Colonist: This represents a typical second- or third-generation colonist from the American Arm. Well-supplied and equipped, he is also a rugged individualist determined to make it far away from the prying government eyes of Earth.

Colonist	Colonist 5			TL	(9)	ST	26	LB	10						
Grav	N	Core/Frontier				Frontier		Body	Normal						
Str	10	Dex	10	Con	11	Int	10	Wis	10	Cha	10	Edu	10	Soc	10
Init	+0	AC	10	AR	0	Spd	9m	Fort	4	Ref	1	Will	3	SZ	M
Attacks	Fist +3 (1d4/x2). Guiscard FC-70 rifle +2 (1d12/x2), range 72m, ROF 1.														
Feats	Armor Proficiency (Light), Weapon Proficiency (Marksman, Swordsman), Vessel (Wheeled), Barter, Brawling, First Aid, Iron Will, Jury Rig, Natural Compass, Point Blank Shot, Self-Reliance, Tracker, Trapping														
Skills	Appraise 2, Driving 4, K/Homeworld 4, K/Farming 8, Navigation 4, Ride 4, Spot 4, Survival 8, Swim 2 (cross class), T/Computer 2, T/Mechanical 8, Trader 4														
Equipment	Vehicle (Mule Corp Farm Master Tractor/ATV) , Biomonitor, Goggles, Water Purifier, Backpack, Binoculars, Vehicle Maintenance Tools, Power Hand Tools, Basic Tool Kit, Excavation Tools, Construction Tools, Portable Fabricator, Link Phone, Backpack Communicator, Fuel Station, Machete, Guiscard FC-70 rifle, and/or Traylor Model 10 shotgun														

Scientist: The field scientist (geologist shown) is often encountered on frontier worlds, and may even serve as a patron for a group of player characters. Of course, a scientist may be on the opposite side, working to thwart the players using her resources and those of her hired hands.

Competent Scientist (Geologist)	Academic 6	TL	11	ST	16	LB	10							
Grav	N		Core/Frontier		Core		Body		Normal					
Str	10	Dex 10	Con 10	Int	14	Wis 10	Cha 10	Ref 3	Edu 16	Soc 10				
Init	+0	AC 10	AR 0	Spd 9m	Fort 2				Will 3	SZ M				
Attacks	Fist +1 (1d3/x2).													
Feats	Vessel (Hovercraft, Tracked, Wheeled), Hobby (P/Admin), Advanced Knowledge (K/Geology), Advanced Research, Geological Survey, Mental Discipline, Research (K/Geology), Skill Focus (K/Geology, P/Prospecting, P/Survey)													
Skills	Speak (Native Tongue, French, German, Mandarin, Russian), Read/Write (Native Tongue, French, German, Mandarin, Russian), Driving 4, Gather Information 9 (Advanced Research may add +4 synergy), Innuendo 0, Intuit Direction 1 (cross class), K/Homeworld 3, K/Geology 17, K/Mining 7, Leader 2 (cross class), Liaison 2 (cross class), Navigation 7, P/Admin 9, P/Prospecting 11, P/Survey 11, Spot 2 (cross class), Survival 2 (cross class), T/Communications 5, T/Computer 12, T/Mechanical 5, T/Medical 5, T/Sensors/5.													
Equipment	Portacomp, Med Kit, Sampling Kit, Hand Communicator, Uplink Communicator, and all the assorted camping gear and surveying tools needed for a geological survey on a frontier world. Vehicle: Explorer ATV.													

Guard: This guard is typical of the better-trained corporate guards, and not just a thug off the street.

Guard	Mercenary 4	TL	9+	ST	26	LB	10							
Grav	N		Core/Frontier		Frontier		Body		Normal					
Str	12	Dex 11	Con 10	Int	10	Wis 10	Cha 10	Ref 1	Edu 10	Soc 10				
Init	+0	AC 15	AR 5	Spd 6m	Fort 4				Will 2	SZ M				
Attacks	Fist +4 (1d3/x2). Shock glove +4 (1d8/x2 electrical to stamina) (special damage see Ch 12). AS-3 sonic stunner +4 or +2/+2 (special damage see Ch 12), range 10m, ROF 1, +1 to hit within 10m. M-97 PDW +5 or +3/+3 (1d10+2/x2), range 45m, ROF 1/4, +1 to hit within 10m.													
Feats	Armor Proficiency (Light, Medium, Vac Suit), Weapon Proficiency (Marksman, Combat Rifleman), Vessel (Wheeled), First Aid, Point Blank Shot, Precise Shot, Quick Draw, Rapid Shot, Weapon Focus (SMG), Weapon Specialization (SMG).													
Skills	Driving 7, Intimidate 7, K/Homeworld 0, Spot 7, T/Computer 0, T/Mechanical 0													
Equipment	AS-3 sonic stunner or M-97 PDW, uniform, inertial armor vest (armor check -1), handcuffs, shock gloves													

Street Thugs: These are the basic goons who serve and protect the crime lords and form the bulk of urban gangs. They can also be used for corporate enforcers and bodyguards, but lack the discipline of trained troops or guards.

Regular Thug	Rogue 4	TL	11	ST	25	LB	12							
Grav	N		Core/Frontier		Core		Body		Mesomorph					
Str	14	Dex 9	Con 12	Int	10	Wis 10	Cha 10	Ref 3	Edu 10	Soc 7				
Init	+3	AC 13	AR 4	Spd 9	Fort 2				Will 1	SZ M				
Attacks	Fist +3 (1d4+2/x2). Knife +2 (1d4+2/x2). Traylor Model 57 pistol +2 (1d10/x2), range 45m, ROF 1.													
Feats	Armor Proficiency (Light, Medium), Weapon Proficiency (Marksman, Swordsman), Vessel (Wheeled), Brawling, Fast Talk, Fence Stolen Goods, Improved Initiative, Improved Unarmed Combat, Spot Trouble													
Skills	Bluff 7, Driving 4, Innuendo 2, Intimidate 5, K/Homeworld 0, Search 5, Spot 5, T/Computer 0, Trader 5													
Equipment	Motorbike, Portacomp, Knife, Traylor Model 57 pistol, Armored Long Coat (check -1), Link Phone													

Spaceport Worker: Throughout the many small and large spaceports of Human space, these workers will always be there, usually in the background, going about their jobs and duties.

Average Starport Worker	Professional 5	TL	11	ST	20	LB	10							
Grav	N		Core/Frontier		Frontier		Body		Normal					
Str	10	Dex 10	Con 10	Int	10	Wis 10	Chr 10	Ref 1	Edu 11	Soc 10				
Init	+0	AC 10	AR 0	Spd 9m	Fort 1				Will 4	SZ M				
Attacks	Fist +1(1d3/x2)													
Feats	Armor Proficiency (Light, Vac Suit), Weapon Proficiency (Marksman), Vessel (Wheeled, Tracked), Professional Specialty (T/Engineering or choose from T/P), First Aid, Gearhead, Jury Rig, Miracle Worker, Skill Focus (T/Engineering or choose), Zero-G/Low-G Adaptation + Improved Zero-G/Low-G Adaptation.													
Skills	Driving 4, K/Homeworld 0, K/Shipping Operations 8, Liaison 4, P/Admin 4, Speak Language (choose two foreign languages), T/Communications 4, T/Computer 8, T/Electronics 8, T/Engineering 8, T/Mechanical 8, T/Medical 2, T/Sensors 4.													
Equipment	Overalls, toolkit, passkey													

Terrorists: Throughout Human space there are terrorists, groups who are trying to effect political change through violence and the threat of violence. ProVolution and the Coyfederacy are the two most prominent groups, but there are dozens more.

Regular Terrorist	Academic 1/Rogue 4	TL	10+	ST	22	LB	10							
Grav	N		Core/Frontier			Body	Normal							
Str	10	Dex 10	Con 10	Int 12	Wis 10	Chr 10	Edu 15	Soc 10						
Init	+0	AC 12	AR 2	Spd 9m	Fort 1	Ref 5	Will 2	SZ M						
Attacks	Fist +3 (1d3/x2). Traylor Model 57 +3 (1d10/x2), range 45m, ROF 1.													
Feats	Armor Proficiency (Light, Medium), Weapon Proficiency (Combat Rifleman, Marksman, Swordsman), Vessel (Wheeled), Alertness, Assassin, Fast Talk, Hacker, Hobby (Liaison), Mental Discipline, Research (K/Political Science), Skill Focus (K/Political Science), Trustworthy													
Skills	Bluff 6, Disguise 4, Driving 4, Forgery 5, Gather Information 10, Innuendo 6, K/Homeworld 2, K/Political Science 8, K/History 6, K/Memetics 6, Liaison 6, Listen 2, P/Admin 2 (cross-class), P/Journalist 4, Spot 6, T/Computer 4 (6 if Hacker applies), Speak & Read/Write Language (choose 2 non-native)													
Equipment	Protective Vest, Traylor Model 57 pistol, Long Coat, 4 grenades, ceramic knife, portacomp, link phone, list of demands													

The Augmented Terrorist:

Provolution often makes use of cybernetically-augmented operatives. Add the following bionics/implants to the standard terrorist NPC:

- Cybernetic right arm with concealed 9mm pistol
- Supercharger (+Endurance Feat)
- Neural Sheathing (+Lightning Reflexes)
- Cybernetic eye with lowlight option
- Neural Jack
- Implanted bio-laser in left arm

353

SECTION 2: STARSHIP CREWS

This sections details the typical sorts of NPCs that are likely to be encountered aboard space craft, including military and pirates.

Belters: Though not common, there are Belter communities throughout human space, though the largest is still in the Sol system. Most Belters will be armed, though the weapons will not be immediately obvious. They tend to be clannish and stick together.

Regular Belter	Belter 5	TL	10+	ST	20	LB	10							
Grav	Z		Core/Frontier			Body	Ectomorph							
Str	7	Dex 12	Con 9	Int 10	Wis 10	Chr 10	Edu 10	Soc 10						
Init	+1	AC 13	AR 2	Spd 6m	Fort 0	Ref 2	Will 4	SZ M						
Attacks	Fist +3 (1d3-2/x2). Luce-7B laser rifle + 3 (2d12/x2), range 72m, ROF 1.													
Feats	Armor Proficiency (Light, Vac Suit), Weapon Proficiency (Lasers, Marksman), Vessel (Ship's Boat), First Aid, Junkyard Dog, Midas Touch, Self Reliance, Skill Focus (P/Prospecting), Zero-G/Low-G Adaptation & Improved Zero-G/Low-G Adaptation													
Skills	Demolitions 5, K/Homeworld 0, K/Geology 4, K/Mining 4, Pilot 5, P/Prospecting 10, P/Survey 4, T/Astrogation 4, T/Communications 4, T/Computer 4, T/Electronics 4, T/Mechanical 4, T/Medical 4, T/Sensors 4													
Equipment	P-suit, sampling kit, Luce-7B laser rifle, rock drill, plastic explosives													

Pirates: Though rare at the moment, these brigands of the space ways are becoming more common, especially in the relatively lawless far reaches of the French Arm. Corsairs will try to capture vessels without bloodshed, but are not above extreme violence if necessary.

Regular Pirate		Rogue 5		TL	10+		ST	26	LB	10					
Grav	N			Core/Frontier		Frontier		Body		Normal					
Str	10	Dex	11	Con	10	Int	10	Wis	10	Chr	10	Edu	10	Soc	6
Init	+0	AC	12	AR	2	Spd	9m	Fort	1	Ref	4	Will	1	SZ	M
Attacks	Fist +3 (1d4/x2). Wire Knife +3 (1d10/x2 AP+1). Lk-1 Laser Rifle (2d12/x2), range 72m, ROF1, also launches 30mm grenades.														
Feats	Armor Proficiency (Light, Medium, Vac Suit), Weapon Proficiency (Lasers, Marksman, Swordsman), Vessel (Wheeled), Fence Stolen Goods, First Aid, Smuggling, Spot Trouble. Zero-G/Low-G Adaptation & Improved Zero-G/Low-G Adaptation														
Skills	Bluff 5, Bribery 5, Gather Information 5, Hide 4 (6 if Smuggling applies), Intimidate 5, Search 5, Sense Motive 5, Spot 5														
Equipment	Pressure Suit, Lk-1 Laser Rifle, Wire Knife														

Merchant Crew: This represents a merchant crew on the ground, wary, but not equipped to repel an attack. Merchants set to repel boarders will have light pressure suits and shotguns. Libertine crews in particular will stick together and be wary of strangers.

Regular Merchant		Merchant 5		TL	9+		ST	20	LB	10					
Grav	N			Core/Frontier		Frontier		Body		Normal					
Str	10	Dex	10	Con	10	Int	10	Wis	10	Chr	10	Edu	11	Soc	10
Init	+0	AC	12	AR	2	Spd	9m	Fort	3	Ref	1	Will	3	SZ	M
Attacks	Fist +1 (1d3/x2). Traylor Model 57 pistol +1 (1d10/x2), range 45m, ROF1.														
Feats	Armor Proficiency (Light, Vac Suit), Weapon Proficiency (Combat Rifleman, Marksman), Vessel (Wheeled), Barter, Calculating Eye, Connections (Merchants), Legal Eagle, Trustworthy, Zero-G/Low-G Adaptation														
Skills	Appraise 8, Broker 10, Gather Information 10 (12 if Connections (Merchants) applies), K/Homeworld +0, K/Interstellar Law 8 (10 if Legal Eagle applies), Liaison 10, P/Admin 8 (10 if Legal Eagle applies), T/Computer 8, Trader 10														
Equipment	Protective Vest, Traylor Model 57 pistol, portacomp, link phone														

OQC Crew: This represents most of the crew of an OQC boarding and inspection team. Such teams consist of 4-6 individuals plus an officer, and often a couple of civilian technicians. They will be wary, but not poised to attack.

OQC trooper		Marine 8		TL	9+		ST	48	LB	10					
Grav	N			Core/Frontier		Frontier		Body		Normal					
Str	10	Dex	12	Con	10	Int	10	Wis	10	Chr	10	Edu	10	Soc	10
Init	+1	AC	19	AR	*	Spd	6m	Fort	6	Ref	3	Will	4	SZ	M
Attacks	Fist +9/+4 (1d3/x2). Rorttmann Lk-1a4 Laser Rifle used with HUD: attacks +12/+7 or rapid shot +10/+5/+10, +1 within 10m; damage 2d12/x2, +2 within 10m; range 72m; ROF 1; also launches programmable 30mm grenades.														
* Armor	AR: Head 7 (Rigid), Torso 8 (Rigid), Limbs 5 (Inertial)														
Feats	Armor Proficiency (Light, Medium, Heavy, Vac Suit), Weapon Proficiency (Combat Rifleman, Lasers, Marksman, Swordsman), Vessel (Wheeled), First Aid, Point Blank Shot, Rapid Shot, Weapon Focus (Gauss Rifle, Laser Rifle), Weapon Specialization (Laser Rifle), Zero-G/Low-G Adaptation & Improved Zero-G/Low-G Adaptation, Zero-G Combat														
Skills	Gambling 11, K/Homeworld 0, Sense Motive 11, Spot 11, T/Computer 0, T/Mechanical 0														
Equipment	Rorttmann Lk-1a4 Laser Rifle, Combat Vacuum Suit with HUD system (+2 to hit)														

Naval Crew: This represents a naval crew ready to deal with hostiles, whether as a boarding party or defending their own ship. This can also be used to represent some of the small number of space-based mercenaries. There is no "typical" navy crewman, they're teams of cooperating specialists, so pick and choose from the skills.

Naval Crew		Navy 6		TL	9+		ST	23	LB	10					
Grav	N			Core/Frontier		Frontier		Body		Normal					
Str	10	Dex	12	Con	10	Int	12	Wis	10	Chr	10	Edu	11	Soc	10
Init	+1	AC	19	AR	*	Spd	6m	Fort	2	Ref	3	Will	5	SZ	M
Attacks	Fist +5 (1d4/x2). Laser rifle with HUD +6 (2d12/x2), range 72m, ROF 1 (or adjust to match selected model).														
* Armor Rating	Head: AR 7 (Rigid), Torso AR 8 (Rigid), Limbs: AR 5 (Inertial). Check -2.														
Feats	Armor Proficiency (Light, Medium, Vac Suit), Weapon Proficiency (Lasers, Marksman, Ship's Weapons, Swordsman), Vessel (Wheeled), Brawling, Damage Control, First Aid, Zero-G/Low-G Adaptation & Improved Zero-G/Low-G Adaptation + Skill Focus (any skill with 5+ ranks) + Primary MOS (same skill)														
Skills	Driving 5, Gambling 5, K/Homeworld 0, Liaison 4, P/Admin 4, T/Computer 0, T/Mechanical 0 + Any six from: Forward Observer 9, Gunnery 8, Leader 9, Navigation 8, Pilot 9, Survival 8, T/Astrogration 8, T/Communications 8, T/Computer 8, T/Electronics 8, T/Engineering 8, T/Mechanical 8, T/Medical 8, T/Sensors 8														
Equipment	Combat Vac Suit with HUD system (+2 to hit), Laser Rifle e.g. Rorttmann LK-1a4 (or choose to suit nationality)														

Marine Boarding Party: Marines, primed for an assault into a hostile space vessel. In addition to the team described here, they will often be accompanied by 1-2 troopers in combat walkers to provide heavy support.

Green Marine	Marine 3			TL	11	ST	20	LB	10						
Grav	N	Core/Frontier			Core			Body	Normal						
Str	10	Dex	10	Con	10	Int	10	Wis	10	Chr	10	Edu	10	Soc	10
Init	+0	AC	18	AR	*	Spd	6m	Fort	3	Ref	1	Will	2	SZ	M
Attacks	Fist +3 (1d3/x2). Laser rifle with HUD +6 (2d12/x2 or 2d12+2/x2 within 10m), range 72m, ROF1 (or adjust to match selected model).														
* Armor	AR: Head 7 (rigid), Torso 8 (Rigid), Limbs 5 (Inertial)														
Feats	Armor Proficiency (Light, Medium, Vac Suit), Weapon Proficiency (Combat Rifleman, Lasers, Marksman, Swordsman), Vessel (Wheeled), First Aid, Weapon Focus (Gauss Rifle, Laser Rifle), Weapon Specialization (Laser Rifle), Zero-G/Low-G Adaptation & Improved Zero-G/Low-G Adaptation, Zero-G Combat														
Skills	Gambling 6, K/Homeworld 0, Sense Motive 6, Spot 6, T/Computer 0, T/Mechanical 0														
Equipment	Combat Vac Suit with HUD system (+2 to hit), Laser Rifle e.g. Rorttmann LK-1a4 (or choose to suit nationality)														

SECTION 3: MILITARY

This section deals with the members of organized ground combat forces, including aerospace and wet navy forces.

Infantry: This represents the pure infantryman, the nearest thing to a "standard soldier", on patrol on foot. The army will also have specialists trained to operate vehicles, heavy weapons, electronic warfare systems, and the like; those will need modified character designs with the appropriate feats and skills swapped in.

Regular Army	Army Level 5			TL	9+	ST	32	LB	10						
Grav	N	Core/Frontier			Frontier			Body	Normal						
Str	10	Dex	11	Con	10	Int	10	Wis	10	Chr	10	Edu	10	Soc	10
Init	+4	AC		AR	*	Spd		Fort	1	Ref	4	Will	1	SZ	M
Attacks	Fist +4 (1d4/x2). Traylor Arms M4A3 with HUD system: +6 (2d12/x2), +2 damage within 10m, range 96m, ROF 1/4/10, also launches programmable 30mm grenades.														
* Armor Rating	Head: High Threat Combat Helmet AR 8 (Rigid). Chest: Inertial Armor Vest AR 5 (Inertial) plus Vedette Half Armor AR 7 (Rigid), AR 9 total (armor check -1, max Dex bonus +8). Remainder: Full Body Inertial Armor AR 3 (Inertial). Overall armor check: -1.														
Feats	Armor Proficiency (Light, Medium, Vac Suit), Weapon Proficiency (Combat Rifleman, Marksman, High Energy Weapons), Vessel (Wheeled), Alertness, Brawling, First Aid, Improved Initiative, Stealthy, Weapon Focus (Automatic Rifle), Weapon Specialization (Automatic Rifle)														
Skills	Driving 4, Forward Observer 4, Hide 3 ¹²³ , K/Homeworld 0, Listen 4 ¹³ , Move Silently 3 ¹²³ , Search 2 ¹ , Spot 10 ³ , Survival 4, T/Computer 0, T/Mechanical 0, T/Medical 4. [1: cross class skill. 2: armor check penalty applied. 3: feats applied.]														
Equipment	Inertial armor vest with Vedette Half Plate, Full Body Inertial Armor, Traylor Arms M4A3 assault rifle, 4 frag grenades, High Threat Combat Helmet with HUD system														

355

Combat Walker Pilot: Ectomorphs make excellent walker crews – their dexterity helps operate the vehicles precisely, and their lack of muscle and durability do not matter so much when the walker can do the job with its mighty powered arms.

The term "pilot" is traditional. This NPC is actually a driver in 2320AD game terms – the Combat Walker is a vehicle with a "legs" drive train, not a suit of armor, and you'll find it in the Vehicles chapter rather than with the Equipment.

Pilot (Dismounted)	Army 8			TL	12	ST	39	LB	10						
Grav	N	Core/Frontier			Frontier			Body	Ectomorph						
Str	7	Dex	12	Con	8	Int	10	Wis	12	Chr	10	Edu	10	Soc	10
Init	+5	AC	16	AR	5	Spd	9m	Fort	2	Ref	6	Will	2	SZ	M
Attacks	Fist +7/+2 (1d3-2/x2). Stracher MP-67 PDW +7/+2 (1d10/x2), range 45m, ROF 1/4.														
* Armor Rating	Head: AR 8 (Rigid). Chest: AR 5 (Inertial). Other: AR 3 (Inertial).														
Feats	Armor Proficiency (Light, Medium, Vac Suit), Weapon Proficiency (Combat Rifleman, High Energy Weapons, Marksman, Vehicular Weapons), Vessel (Combat Walker, Wheeled), First Aid, Improved Initiative, PMOS (Gunnery), Skill Focus (Drive, Gunnery), Tactics I, Vessel Specialization (BH-24 Combat Walker)														
Skills	Driving 14 (16 in BH-24), Gunnery 14, K/Homeworld 0, Spot 12, T/Communications 6, T/Computer 0, T/Mechanical 5, T/Sensors 11														
Equipment	Stracher MP-67 PDW, High Threat Combat Helmet, Full Body Inertial Armor														

The lanky pilot takes on a whole new aspect in the BH-24:

Pilot in BH-24	Combat Walker	TL	12	SI	27		
Grav	N						
Str	24	Dex	10				
Init	+5	AC	18	AR	8	Spd	15kph
Attacks	Gunnery 14 applied to mounted weapons, e.g.:						
	PGCW-Mk3A4: damage 3d12 vehicle scale, AoE 0, ROF1, range 450m						
	DunArmCo M-600 Rotary Gun: damage 2d12/x2 personal scale, ROF 0/20/100, range 400m, AP +1						
Feats	(as above)						
Skills	(as above)						
Equipment	(as above)						

Air Crew: The pilots and crew of atmospheric fighter, bomber, and support craft. They also represent the pilots and crew of close-support aircraft, even if they are under the control of the Army. This particular example is the solo "fighter jock" archetype, larger crews will be formed of cooperating specialists with a variety of skills.

Fighter Jock	Flyer Level 7	TL	12	ST	28	LB	10		
Grav	N	Core/Frontier	Frontier	Body	Ectomorph				
Str	10	Dex	10	Con	10	Int	13	Wis	10
Init	+4	AC	15	AR	*	Spd	9m	Fort	2
Attacks	Fist +3 (1d3/x2). Rapier wit unquantifiable.								
*	Chest: AR 5 (Inertial). Other: AR 3 (Inertial).								
Feats	Armor Proficiency (Light, Vac Suit), Weapon Proficiency (Combat Rifleman, Marksman, Vehicular Weapons), Vessel (Aircraft, Hovercraft), Defensive Maneuver, Dogfight, First Aid, Improved Initiative, Lightning Reflexes, PMOS (Pilot), Skill Focus (Pilot), Vessel Specialization (choose a particular aircraft), Zero-G/Low-G Adaptation								
Skills	Driving 5, Gambling 6, Gunnery 10, Innuendo 5 (cross class), K/Homeworld 0, Liaison 0, Pilot 13 (15 in specialized aircraft), Sense Motive 10, Spot 10, Survival 5, T/Communications 10, T/Mechanical/0, T/Medical/0, T/Sensors 10								
Equipment	Pack of cards, new motorcycle, service issue gear and aircraft. Flight suit (full-body inertial armor and vest).								

Tank Crew: This represents an experienced member of a tank crew, likely a veteran of the Kafer War. Like many tankers, this character has an Endomorph Body Type, and his stats reflect this. This particular example is a driver; a crew would also probably include a gunner, a sensors/EW tech, and a commander who also handles communications. Each would have appropriate skills and feats.

Tanker	Army Level 7	TL	(9)	ST	45	LB	13		
Grav	N	Core/Frontier	Core	Body	Endomorph				
Str	11	Dex	10	Con	12	Int	10	Wis	10
Init	+0	AC	15	AR	*	Spd	9m	Fort	3
Attacks	Fist +6 (1d4/x2). Stracher MP-67 PDW +5 (1d10/x2), range 45m, ROF 1/4.								
*	Head: AR 8 (Rigid). Chest: AR 5 (Inertial). Other: AR 3 (Inertial).								
Feats	Armor Proficiency (Light, Medium, Vac Suit), Weapon Proficiency (Combat Rifleman, Marksman), Vessel (Hovercraft, Tracked, Wheeled), Hobby (Entertain (Harmonica), Navigation), Brawling, Endurance, Jury Rig, PMOS (Driving), Skill Focus (Driving), Toughness								
Skills	Driving 12, Entertain (Harmonica) 10, Innuendo 0, K/Homeworld 0, Navigation 10, Spot 10, T/Computer 0, T/Mechanical 10								
Equipment	Biomonitor, Goggles (photo-sensitive), Backpack, Respirator, Mul-T-Tool, 5 green Stik-kits, FarSeer, Subdermatalk, Subdermawatch, Subdermacomp w Low-Res Virtual Display and Keyboard, Military Artillery Computer/Communicator, Knife, Stracher MP-67 PDW, High Threat Combat Helmet, Full Body Inertial Armor								

Ship's Crew: These are the crew of wet navy vessels, either surface ships or submarines. They are equipped for boarding actions or ship defence. This represents an average able seaman, though it should be noted that most crew are specialists in one area or another. Remote Pilots, weapons operators, EW and sonar crew are all other types of crew that may be seen on a modern wet naval warship.

Regular Sailors	Sailor 5	TL	9+	ST	20	LB	10		
Grav	N	Core/Frontier	Frontier	Body	Normal				
Str	10	Dex	10	Con	10	Int	10	Wis	10
Init	+0	AC	15	AR	*	Spd	9m	Fort	3
Attacks	Fist +3 (1d4/x2). Stracher MP-67 +2 (1d10/x2), range 45m, ROF 1/4. DunArmCo Close Assault Gun +2 (3d6/x2), range 6m, ROF 1/3.								
*Armor Rating	Head: AR 8 (Rigid). Chest: AR 5 (Inertial). Other: AR 3 (Inertial).								
Feats	Armor Proficiency (Light, Medium, Vac), Weapon Proficiency (Combat Rifleman, Marksman), Vessel (Hovercraft, Small Boat, Wheeled), Brawling, Endurance, Jury Rig, PMOS (choose one), Sea Dog, Skill Focus (choose one)								
Skills	Driving 8, Gambling 4, K/Homeworld 0, Liaison 4, Navigation 8, P/Admin 4, Survival 4, Swim 8, T/Communications 4, T/Computer 4, T/Mechanical 8								
Equipment	Full-body inertial armor, Stracher MP-67 or DunArmCo Close Assault Gun, Radio, stunstick								

Mercenaries: Most professional mercenaries are veterans of a national military, though a few started their career with a mercenary force. They represent typical mercenary forces found on many colony worlds, either in the employ of a government unable to raise and train its own army, or occasionally in the employ of revolutionary groups who require professional support.

At the low end of the mercenary spectrum is the peasant farmer, recruited to serve in a colonial mercenary company. Their careers are often tragically short.

Peasant Merc				Mercenary 4		TL	10		ST	26	LB	10			
Grav	N			Core/Frontier		Frontier			Body		Normal				
Str	10	Dex	11	Con	10	Int	10	Wis	10	Chr	10	Edu	10	Soc	10
Init	+4	AC	15	AR	*	Spd	9m	Fort	4	Ref	1	Will	2	SZ	M
Attacks	Fist +5 (1d4/x2). Stracher MP-67 PDW +5 (1d10/x2), range 45m, ROF 1/4.														
* Armor Rating	Head: AR 0. Chest: AR 5 (Inertial). Remainder: AR 2 (Non-Rigid). Armor Check -1.														
Feats	Armor Proficiency (Light, Medium, Vac Suit), Weapon Proficiency (Combat Rifleman, Marksman), Vessel (Wheeled), Brawling, Defensive Roll, Evasion, First Aid, Improved Initiative, Stealthy, Weapon Focus (SMG)														
Skills	Hide 8, Move Silently 8, Spot 7														
Equipment	Inertial Armor Vest, Full Body Non-Rigid Armor, MP-67, rest of equipment as provided by mercenary unit														

At the top end of the spectrum is the elite mercenary, often in the long-term employ of a colonial government that is unwilling or unable to raise its own troops locally. Though often despised by regular citizens and colonial militias, the elite mercenary tends to live a fairly comfortable life.

Elite Merc				Mercenary 8		TL	10		ST	37	LB	10			
Grav	N			Core/Frontier		Frontier			Body		Normal				
Str	10	Dex	12	Con	10	Int	10	Wis	10	Chr	10	Edu	10	Soc	10
Init	+5	AC	20	AR	*	Spd	9m	Fort	6	Ref	2	Will	4	SZ	M
Attacks	Fist +10/+5 (1d4/x2). FAM-90bis: attack +10/+5 or +8/+3/+8, extra +1 on 4 round bursts; damage 2d12/x2, +2 within 10m, AP bonus +1; range 112m, ROF 1/4/10, also launches 30mm grenades.														
* Armor Rating	Head: AR 6 (Rigid). Chest: AR 5 layered with AR 7 giving AR 9. Elsewhere: AR 5. Overall armor check -2.														
Feats	Armor Proficiency (Light, Medium, Vac Suit), Weapon Proficiency (Combat Rifleman, Marksman), Vessel (Wheeled), Brawling, Defensive Roll, Evasion, First Aid, Improved Initiative, Point Blank Shot, Rapid Shot, Stealthy, Weapon Focus (Gauss Rifle), Weapon Specialization (Gauss Rifle)														
Skills	Hide 12, Move Silently 12, Spot 11														
Equipment	Inertial armor vest with vedette half plate, full-body inertial armor, FAM-90bis gauss rifle, P-11 pistol, 4 frag grenades, rigid helmet														

357

ANIMALS

In addition to the intelligent creatures of the 2320AD universe, there are a wide variety of animals to be found on the various worlds. What follows is only a small selection of the enormous biodiversity to be found throughout the colonies and outposts of Humanity.

Horse: The horse is ubiquitous on new colonies, as a (more or less) self-repairing, self-replicating mode of transportation. Though they are often superseded by mechanized transport after a generation or so, rural areas still make use of them.

Horse															
Size	L (800 kg)	Type	Herbivore	ST	21	LB	17	Init	+2						
Attack		Flee		Speed	20m	AC	10	AR	1						
Attacks	2 Hooves +4	Melee	Bite -1	Melee	Damage	Hoof	1d4+3;	bite	1d3-1						
Saves	Fort	+6	Ref	+4	Will	+2									
Str	16	Dex	13	Con	17	Int	2	Wis	13						
Skills	Spot +7														
Feats	N/A														
Special Abilities	None														
Climate/Terrain	Any Land														
Organization	Domesticated														

NeoDog: The neo is a genetically-altered dog, usually a German Shepard or similar breed. The alterations are subtle, mostly enhancing the animal's intelligence and sense of smell. A neo-dog can understand about 400 words, and can be trained far quicker than an unaugmented animal. They are a little unstable, however, and require a careful, empathetic trainer and handler.

NeoDog									
Size	M (50kg)	Type	Carnivore	ST	14	LB	11	Init	+2
Attack	+4	Flee	+4	Speed	15m	AC	12	AR	0
Attacks	10			Damage	1d6 bite, 1d2-1 claws				
Saves	Fort	+2	Ref	+6	Will	0			
Str	8	Dex	13	Con	11	Int	3	Wis	2
Skills	Spot +10, Intuit Direction +2, Move Silently +4, Tumble +3								
Feats	Alertness, Improved Initiative, Run, Spring Attack								
Special Abilities	Scent								
Climate/Terrain	Any Land								
Organization	Domesticated								

Burrowvarg: This small, dog-like animal originally hails from Beta Canum, but can be found on several worlds. The main issue with owning these animals is their different (levo-amino acid) biochemistry, which means they require special food. They are generally not seen on worlds that can't natively support them.

Burrowvarg									
Size	S (12kg)	Type	Carnivore	ST	8	LB	9	Init	+3
Attack	A2	Flee	F12	Speed	12m	AC	14	AR	0
Attacks	Bite +8 Melee			Damage	Bite 1d4				
Saves	Fort	+3	Ref	+6	Will	+3			
Str	4	Dex	13	Con	8	Int	4	Wis	3
Skills	Spot +6								
Feats	Tracker								
Special Abilities	Scent								
Climate/Terrain	All								
Organization	Domestic								

White Wing: This large, winged predator from Hermes is feared and respected by the inhabitants of Hermes, its native world. Large and powerful, it is often the subject of hunts, both photographic and trophy. Sometimes the hunters do not return. The white wing will hunt day or night, and can use its sonar to broadcast a tremendous, terrifying scream.

White Wing									
Size	M (50kg)	Type	Carnivore	ST	21	LB	11	Init	+3
Attack	AP	Flee	F16	Speed	24m Flyer	AC	14	AR	1
Attacks	Bite +8 Melee, Claws +14 Melee			Damage	Bite 1d8; Claws 1d4				
Saves	Fort	+2	Ref	+4	Will	+2			
Str	11	Dex	17	Con	11	Int	3	Wis	4
Skills	Spot +12								
Feats									
Special Abilities	Improved Grab (Claws), Blindsight (sonar), Fear (Scream)								
Climate/Terrain	Open Plains								
Organization	Solitary								

Dragonbat: The Dragonbat is a large and deservedly feared predator of the mountainous regions of Beowulf. This fearless flyer is capable of taking off with prey of up to 20 kilograms in its sharp claws, and can kill or injure animals several times larger.

Dragonbat									
Size	L (120kg)	Type	Carnivore	ST	16	LB	16	Init	+4
Attack	A12	Flee	FS	Speed	30m Fly	AC	14	AR	0
Attacks	Bite +5 Melee Claws +1 Melee			Damage	Bite 1d6+2; Claws 1d3+1				
Saves	Fort	+7	Ref	+10	Will	+6			
Str	14	Dex	18	Con	16	Int	2	Wis	14
Skills	Stealth +12, Spot +11								
Feats									
Special Abilities	Improved Grab (Claws)								
Climate/Terrain	Temperate/Mountainous								
Organization	Solitary								

Ameisenhund (ant-dog): The floor of the canyon on Freisland is home to many colonies of this large social animal. The structure of these communities is very similar to Terran social insect, in particular the ants and termites. The *Ameisenhund* is much larger than any terrestrial counterpart, however, being the size of a large dog. These eight-limbed creatures feed on the fecund vegetation of the canyon floor, and are very territorial. Their exact social structure is unknown, as not even remotes have been able to penetrate to the heart of their massive nests. Within 500 meters of its nest, an *Ameisenhund* will always attack an intruder.

Ameisenhund									
Size	S (24kg)	Type	Omnivore	ST	12	LB	8	Init	+1
Attack	A12	Flee	F8	Speed	6m	AC	16	AR	3
Attacks	Bite +10 Melee, Sting +12 Melee Damage Bite 1d6, Sting 1d3 + Weak Poison								
Saves	Fort	+1	Ref	+4	Will	+2			
Str	8	Dex	12	Con	8	Int	2	Wis	6
Skills	Spot +8, Listen +12,								
Feats	Alertness								
Special Abilities	Tremorsense, blindsight, Poison (weak)								
Climate/Terrain	Desert/Plains								
Organization	Group 2-12								

Hummers (*Pterodeimos var.*): A vicious plains-hunter native to Vogelheim (Adlerhorst). This flightless bird-analog can reach speeds of up to 80 km/h in the open. It prefers to strike from concealment and quickly runs its prey down. Heavy rifles or handguns are required to take this creature down.

Hummer									
Size	L (500kg)	Type	Carnivore	ST	52	LB	15	Init	+7
Attack	Flee		Speed		20m	AC	15	AR	3
Attacks	Bite	Melee +8		Damage	1d8+6				
Saves	Fort	+7	Ref	+8	Will	+4			
Str	19	Dex	17	Con	15	Int	2	Wis	14
Skills	Hide +8, Listen +4, Move Silently +7, Spot +4								
Feats	Alertness, Improved Initiative, Skill Focus (Hide)								
Special Abilities	Low-light vision, Improved Grab								
Climate/Terrain	Forest, hill, or plains								
Organization	Solitary or pack (3-6 (1d4+2))								

Gatinnhos de Seva: A cunning and capable hunter, native to Brazilian world of Paulo, the *gatinnhos* runs in packs, taking shifts as they chase down their prey, eventually falling upon the exhausted animal. They are also known to use some devious tactics, including ambush and surprise.

Gatinnhos de Seva									
Size	L(200kg)	Type	Carnivore	ST	60	LB	21	Init	0
Attack	A+	Flee	F18	Speed	12m	AC	12	AR	3
Attacks	Bite +12 Melee		Damage		1d8+12 Bite				
Saves	Fort	+8	Ref	+5	Will	+6			
Str	27	Dex	10	Con	17	Int	2	Wis	13
Skills	Spot +10, Hide +8, Listen +8								
Feats	Stealthy, Tough (x2)								
Special Abilities									
Climate/Terrain	Forest								
Organization	Solitary or Pack (2-12)								

Zururyu ("Clever Dragon"): This lizard-like animal, native to Joi, may very well be on the verge of sentience. It is judged to be smarter than a terrestrial gorilla, and some expert state that they have developed a language. Any Japanese colonist of Joi would attest to their intelligence, especially after a well-protected and fenced garden had been raided by a troop of these creatures. Oddly enough, they tend to leave the carefully tended Zen gardens alone. The Japanese often also refer to them as *Chibigoji* ("little Godzilla"), especially after one of their garden raids.

Zururyu									
Size	M (40kg)	Type	Omnivore	ST	14	LB	11	Init	+1
Attack	A20	Flee	F4	Speed	9m	AC	11	AR	0
Attacks	Fists Melee +4			Damage	1d3				
Saves	Fort	+2	Ref	+3	Will	+5			
Str	9	Dex	13	Con	9	Int	8	Wis	12
Skills	Spot +12, Listen +12, Hide +14, Climb +12. Move Silently +8								
Feats	Stealthy, Lightning Reflexes								
Special Abilities									
Climate/Terrain	Forest								
Organization	Solitary or Pack (3d6)								

Hellshark: This creature is the greatest fear of the deep-oceanic workers and harvesters on Haifeng. A full-grown Hellshark is in excess of 100 meters long, with a gaping maw studded with 2-meter-long teeth. The maw has 2 clusters of tentacles, 1 on either side, 8-12 per cluster depending on species, which grab prey and shove them into the maw to be torn apart by the teeth. Though there are larger creatures on Haifeng, none are as aggressive as the hellshark.

Hellshark									
Size	G (300 tons)	Type	Carnivore	ST	180	LB	192	Init	+2
Attack	AP	Flee	F20	Speed	20m Swim	AC	16	AR	12
Attacks	Bite +12 Melee, Tentacle Rake +10 Melee			Damage	Bite (3d20), Rake (4d6) x8				
Saves	Fort	+18	Ref	+12	Will	+8			
Str	31	Dex	15	Con	24	Int	2	Wis	12
Skills	Spot +6, Hide -10, Listen +6, Swim +18								
Feats									
Special Abilities	Frightening Presence, Improved Grab (tentacles), Swallow whole								
Climate/Terrain	Ocean (Haifeng)								
Organization	Pack (1d4+1)								

Nightmare: Nightmares are the descendants of ancient Eber-designed macro-biological weapons. They inhabit remote areas of Kormoran, with a life-cycle more like Earth's communal insects than anything else. There are several different varieties of Nightmare, but all seem to be very tough, fierce, and truly horrific in appearance. Once they attack, Nightmares do not flee unless they have taken more than 50% losses.

Nightmare (swarm)									
Size	T (1kg)	Type	Carnivore	ST	4	LB	4	Init	+3
Attack	AP	Flee	0	Speed	12m	AC	20	AR	2
Attacks	Claw +8, Sting +4			Damage	Claw 1d3, Sting 1d2-1				
Saves	Fort	0	Ref	+3	Will	0			
Str	1	Dex	18	Con	4	Int	2	Wis	2
Skills	Spot +7								
Feats									
Special Abilities	Frightening Presence, Weak Poison								
Climate/Terrain	Desert (Kormoran)								
Organization	Swarm								

Cold Mountain: The ferocity of the native life on Han Shan (Cold Mountain) is legendary. The words for demon and animal have become interchangeable on that colony world. The Flying Blind is the best known of them.

Flying Blinds: Flat, airborne creatures which resemble a Chinese kite or the slats from a Venetian blind; each "blind" edge is razor sharp, and they attack by swooping into prey edge-on. The "blinds" are held together by a tether of edge material which snaps when the creature reproduces by splitting.

The following statistics are for an average-size creature. Smaller and much larger specimens have been noted.

Flying Blind									
Size	M (40kg)	Type	Flyer	ST	14	LB	8	Init	5
Attack	AP	Flee	-	Speed	15m	AC	20	AR	1
Attacks	+4 blades			Damage	1d10/19				
Saves	Fort	+1	Ref	+5	Will	-3			
Str	9	Dex	19	Con	12	Int	1	Wis	1
Skills	Spot +2								
Feats	Tough								
Special Abilities	Evasion, Blindsight, Improved grab, Fast Healing, Flyby Attack								
Climate/Terrain	All								
Organization	Solitary								

GM GUIDE

This chapter provides some additional guidelines and ideas for 2320AD, including sections on possible campaign types, goals and motivations, and sources of conflict in the 2320 AD universe.

This section also provides guidelines for using D20 Modern and D20 Future for 2320AD games, either as a replacement for the Traveller D20 rules, or (recommended) as an addition to the T20 rules. There are also guidelines for using existing 2300AD products and converting them to 2320AD and the D20 rules, including conversion for characters and creatures.

2320AD is a game of hard-science fiction in the not-too-distant future. This should be kept in mind as new adventures are being planned. There are no energy swords, giant robots, or psionic madmen in the 2320AD universe. A good source for inspiration for 2320AD games is the day's news, which can provide plot hooks, atmosphere, and ideas for many types of campaigns.

CAMPAIGN TYPES

The universe of 2320AD, though not as wide-open as the Imperium of T20, is still a vast amount of space and a large number of worlds to explore. In addition to the worlds already settled by humanity, there are alien home worlds, unexplored star systems, and new worlds waiting to be explored.

Any theme can be explored as part of 2320AD, but there are several that define the game universe.

EXPLORATION AND ALIEN CONTACT

The universe of 2320AD is a big place, and there is a great deal to discover. Whether it's investigating Aquilan traps or scouting out a new home for refugees, the Exploration campaign is a central premise of 2320AD.

Exploration campaigns take a great deal of preparation. New systems have to be described and planned out, worlds mapped, alien societies and cultures created. With this sort of campaign, though, there is a feeling of accomplishment at the end of a session. New things were found, new puzzles solved. These campaigns are less focused on action and more on adventure, so they require greater work to establish atmosphere and provide challenges.

There are several areas of 2320 space ideal for an explora-

tion-style campaign: The Frontiers of the French Arm, the Beta Aquilae Cluster, and the Bayern Corridor. Of the three, the Frontiers are the most accessible for exploration. The Bayern Corridor is distant, but is truly wide open, as the Bayern did little more than scratch the surface of the star systems along its route. The Beta Aquila cluster represents a different kind of exploratory campaign, more gothic in feel, with its dark ruins full of traps, and the lure of alien artifacts.

Examples of Exploration Adventures would include:

The characters are hired by an offshoot branch of the Academia del Lincei to travel to an uninhabited system on the Chinese Arm, where they suspect are some ancient Eber ruins on an airless world. The characters will have to search the system for possible sites, but at one of the moons of a gas giant their ground-search radar picks up the regular outlines of an artificial structure. It could be the ancient Eber base, or it could just be a mining camp, or even a hidden pirate base.

The Pioneer Society has managed to get their hands on an ISV-5, an extremely fast survey vessel, and want to send a crew through the Delta Aquilae system. It is hoped that the ISV-5's speed will keep it safe from the system's automated defenses.

Freiland is a rare find, an inhabitable world just off the regular travel lanes in the Frontier of the French Arm. The habitable area of the Grossartige Senke is so small, however, that the government of Wellon wants a survey done of a large depression on the other side of the world. Though the air pressure at the bottom of the depression is less than half that of the Grossartige Senke, it could still be usable.

Campaign Type: Exploration

Appropriate Characters: Scouts, Academics, Mercenaries (guards), Professionals, Journalists

Prestige Classes: Troubleshooter, Alien Cultural and Technology Expert

Vehicles/Equipment: Access to a ship, ground vehicle for exploration

NPCs required: Ship Crew, others as required to round out expedition staff

Goals/Rewards: Explore, find new life and new riches; mineral claims, money, adventure.

GROUND COMBAT

Ground Combat in 2320AD can involve low-intensity warfare against colonial rebels, high-intensity conflict against Kafers, or high-intensity combat versus other human nations. The first is the most common, and has a great deal of opportunity for small-unit (mercenary) operations.

The Kafers are a convenient enemy for this kind of game, but care must be taken not to overuse them, or they lose their uniqueness and just become "orcs" to be slaughtered out of hand.

This kind of game is popular, as it has a great deal of action, but it can become repetitive. It is wise to intersperse the combat with some other sort of action, like an investigation in barracks, or other types of missions. Changing the enemy and the mission fairly often also helps to keep things fresh.

The T20 character generation system assumes that all generated characters have mustered out of whatever service they were in and are now in the private sector. However, to have a military-based campaign, simply do not run the characters through the mustering-out process, and keep them in service. They would be supplied with weapons and equipment as appropriate for their service branch and nationality. In-service campaigns are quite easy to run, as they characters can simply be ordered to go somewhere and do something, but the long lines of communication in 2320AD mean that they will generally be given a great deal of leeway in how they accomplish their task.

Examples of Ground Military Adventures would include:

On the world of Heidelshemat, the Texan colony and the new nation of Heidelshemat are involved in a territorial dispute over the series of islands between the two, which up until the discovery of oil had been unclaimed by any group on the planet. Texas sees the oil as the solution for their over-extended economy, and a way to make the Heidelshemat colony pay for itself. In a similar vein, Heidelshemat sees the oil resources as key to their own survival as an independent nation. Both nations are advancing their claims, and Texas has begun active recruiting to beef up the limited number of Department of Public Safety troops currently available on the world. Heidelshemat has recently hired Manchurian mercenaries, along with their combat walkers and support equipment. Players could be hired on either side, and war could be imminent.

Brazil and Argentina have gone to war again, and both sides need troops experienced in protected environments, which is to say, outposts and space stations. Brazil in particular is looking to move the conflict offworld where her greater weight of warships could give them a decisive victory, or at least make Argentina divide her forces. All Argentinean stations, ships, and outposts are

considered fair game.

On the Human-occupied world of Gamma Serpentis, the Human forces are not just occupied with protecting their own bases, but also have to provide succor for the Kafers. This typically consists of large convoys heading out to an area distant from a fort and dropping off supplies. Most of the soldiers at these bases ignore the behavior of the Kafers outside their walls, or attribute it to the complete breakdown of their society. A few have noticed that something is wrong, and are starting to raise concerns back on Earth. The secret of the Pentapod Revenge is about to break loose. Players can be soldiers who have noticed the problem, or just members of their unit. The cabal that released the weapon can't yet afford to have it become public knowledge, so they start assigning the player's unit more and more difficult tasks, taking them further and further away from the forts, until one day they are effectively abandoned in the Kafer outback, and must make their way back.

Campaign Type: Ground Military

Appropriate Characters: Mercenaries, Professionals, Martial Artists, Engineers, Merchants, Medics, Travellers (Army or Marines if in service)

Prestige Classes: Special Forces

Vehicles/Equipment: Personal Weapons and armor; ground or air vehicle for transport

NPCs required: Support types, mercenaries to fill out unit

Goals/Rewards: Accomplish the mission and get paid. Often the action is another sort of reward. Payment is usually money, weapons, or equipment, or all three.

Complications: Betrayed by employer, crisis of conscience (working for wrong side), facing overwhelming odds, poor equipment, clashing with "allied" units

SPACE COMBAT

Space combat enters a campaign in two different ways. In most campaigns, it will just be another sort of encounter, played through as the players journey to the real goal of the campaign. This type of space combat is best done with the basic space combat rules. In the Space Military campaign, however, space combat is the focus of the game. Players will be crew aboard a vessel, or each player could take on the role of a ship's captain, commanding a vessel in an ongoing campaign.

This second type of campaign is more of a running wargame, and would require the GM to come up with rules for resupply and repair. Note should be taken of traditional allies and rivals when deciding what nations will reprovision a ship. Typically, a colony has to be at least Tech Level 11 (B) and possess Heavy Industry to be able to manufacture and supply

parts for a warship. Major repairs (over 50% of SI in damage taken) require the use of a military shipyard.

Note that just like under Ground Military, above, characters can still be in service at the start of play, even though the T20 character generation system assumes otherwise.

Some examples of space combat adventures:

A small group of pirates is preying on commercial shipping in the volume of space between the colony of Cold Mountain and the colony on Chengdu, and Manchurian authorities have offered a bounty on the pirates.

Kafer vessels have been spotted in the lightly-defended volume of space on the French Arm called the Frontiers, and several allied vessels have been ordered in to find them.

The American Space Force has decided to move in and clean up the Sentinels in one of the systems of the Aquilae cluster. The remote weapons get more and more sophisticated as the squadron approaches the mainworld, and losses mount.

Campaign Type: Space combat

Appropriate Characters: Navy, Mercenary, Professional, Engineer, Medic, Traveller

Prestige Classes: None

Vehicles/Equipment: Armed starship, frigate-class or better

NPCs required: Fill-out crew positions, crew of other vessels, enemy crews and boarding parties

Goals/Rewards: Follow orders, protect civilian lives; money, career advancement, action,

Complications: Betrayal, running out of ordnance, crew casualties, capture, hostile actions from other Human militaries

TROUBLESHOOTING CAMPAIGN

Troubleshooting campaigns often revolve around a combination of mystery and violence. Troubleshooters are hired to solve problems, often corporate in nature, but troubleshooting adventures can encompass just about any sort of job. These problems can be professional in nature, and involve underworld skills, or just about anything. Usually set on a Frontier world, a troubleshooting game requires a strong mix of skills and abilities. Though troubleshooters can often draw on the resources of the nation, corporation, or foundation that hired them, they still have to exercise discretion and be able to operate on their own resources if necessary.

Examples of troubleshooting jobs would include:

Parts are going missing at an orbital shipyard, and outside consultants are brought in by the head office to investigate.

A corporation is having union troubles on a distant min-

ing outpost, and the investigators are brought in to get the dirt on the union leaders.

A Foundation is concerned by unusual reports coming in from a distant science outpost located on a sparsely-populated colony. The troubleshooters are hired to travel to the outpost and find out what, if anything, is going on.

Campaign Type: Troubleshooting

Appropriate Characters: Professionals, Rogues, Academics, Law Enforcement, Martial Artist, Mercenary, Medic, Journalist, Colonist, Scout

Prestige Classes: Troubleshooter, Alien Cultural and Technologies Expert

Vehicles/Equipment: Surveillance and investigative equipment, personal weapons

NPCs required: Contacts, informants, opponents (including goons, guards, underlings and the mastermind)

Goals/Rewards: Solve the mystery, survive the mission, get paid the big bucks

Complications: Betrayal, lack of information, false information, lack of cooperation from locals

TRADE AND COMMERCE

Though it is a staple of Traveller, the Trade and Commerce campaign is more difficult to implement for 2320AD, as it is more marginal. Most of the larger shipping concerns are actually subsidized by the national governments, allowing them to turn a profit. Interface costs in particular are often partly or even wholly underwritten by governments.

Most Libertine traders do the larger portion of their business with orbital stations and asteroid bases, where interface costs are negligible to none.

Examples of Merchant Adventures would include:

The ship is hired to transport emergency supplies to Kimanjano, and will be paid well for the task. The cargo consists of food and medical supplies, which would otherwise be unprofitable to ship. Because of the refugee situation on Kimanjano, the French Imperial government is chartering vessels to run the supplies in.

The ship is one of several in a British-sponsored convoy from Aurore to the Kafer homeworld of Gamma Serpentis III. In addition to supplies and ammunition for the occupation forces, the ships also carry replacement troops and several containers of coffins. On the return trip the ship will carry nothing but 78 refrigerated coffins, casualties from the last 120 days of low-level fighting on Gamma Serpentis III.

The characters are crew aboard the Libertine transport Star of Gabriel, enroute up the Chinese Arm to Paulo. Along the way it takes on passengers who are part of the

Interstellar Circus, who got abandoned by the circus fleet when they ended up in jail after a particularly raucous, and alcoholic, binge. The 7 performers are a mixture of clowns and carnies, and are liable to be quite the handful.

Campaign Type: Trade and Commerce

Appropriate Characters: Professionals, Rogues, Merchants, Scouts, Academics,

Prestige Classes: Troubleshooter

Vehicles/Equipment: Personal equipment, weapons, and likely a small ship (Thorez or Pegase would be appropriate)

NPCs required: Contacts, customers, NPCs as required to fill out crew positions

Goals/Rewards: Make the big deal, make the lots of little deals, fuel the ship, keep flying

Complications: Markets downturns, false information, ship troubles, mutiny, hijacking

COUNTERTERRORIST

The counterterrorist game is a hard, dark game to play, as it delves into the ultra-violent world of 2320AD terrorism, with its unwilling cyborgs and casual disregard for human life. The terrorists of 2320AD are advocates of a variety of causes, from ultra-environmentalists to nihilistic religious cults, ProVolution and its augmented agents to the Daughters of Mao and their knives. All share the common characteristic of being utterly devoted to their cause, and the belief that it is the best thing for Humanity.

Counterterrorist operations are not just concerned with killing terrorists. The individual terrorists are not as dangerous as the support networks that these organizations create, and the primary goal of counter-terrorist operations is the discovery and neutralization of these networks.

Examples of Counter-terrorist adventures include:

ProVolution has announced that they have let loose a walking nuclear bomb in Tokyo. Authorities have 12 hours to find the bomb, and neutralize it, or else a 100-kiloton device will go off somewhere in Tokyo. Thing is, the carrier of the bomb doesn't even know it. ProVolution kidnapped him off the street, drugged him, implanted the device, and turned him loose.

Terrorists have taken hostages at the offices of the Trilon corporation, and are demanding the usual (freedom of prisoners, withdrawal of troops), but no one knows who exactly they are. This adventure could go two ways: Investigate the group, or go in and try to take them down. Investigation will reveal that the group in question does not exist, and are simply being used as a blind to confuse the authorities while the "terrorists" (actually spies for a rival firm) go through Trilon's files and vaults and steal

whatever they can.

ProVolution has seized a spaceplane, grabbing it just before takeoff. They managed to get implanted weapons through the spaceport's security grid, and are now threatening to kill a hostage an hour until their demands are met. They want the American and Canadian governments to release all records on the King DNA modification project, which are still sealed even after more than 100 years.

Campaign Type: Counterterrorist

Appropriate Characters: Professionals, Rogues, Martial Artists, Mercenaries, Scouts, Law Enforcement, (Army, Marines, Sailor, Flyer if in active service)

Prestige Classes: Troubleshooter, Special Forces

Vehicles/Equipment: Surveillance and investigative equipment, personal weapons

NPCs required: Contacts, informants, opponents

Goals/Rewards: Find the terrorists, rescue the hostages, get information on terrorist group, survive an ambush

Complications: Betrayal, lack of information, false information, lack of cooperation from locals, hostages, booby-traps, unwitting cyborgs with implanted bombs and other weapons.

CHARACTER GOALS AND MOTIVATIONS

SOURCES OF CONFLICT IN 2320AD

There are several general themes of conflict in the 2320AD universe, all of which can be used as underlying basis for many adventures:

CORE vs. FRONTIER

The Frontier challenges the Core, with the oft-repeated charge that the Core is out of touch with the rapidly changing events on the Frontier. Often the goals of the Core-based governments, Foundations and corporations are at odds with the reality on the Frontier. At the same time, the Frontier doesn't realize what a balancing act maintaining the extra-solar colonies is, as the Core worlds have to allocate a limited tax base not only to the population at home, where the majority of the votes come from, but also a disproportionate amount which goes to maintaining the colonies. Recent opinion polls in many of the colonizing nations reflect a growing disillusionment with colonies, and a desire to see the colonies pay more of their own way.

ORGANIZATIONS vs. INDEPENDENTS

There are many organizations in 2320AD that strive to exert control over individuals, colonies and nations. Foremost of these are the various nations themselves. Though their in-

fluence is waning in the face of the other organizations, nations still maintain the lion's share of power in 2320AD, and their citizens are subject to the exercise of that power, whether for good or ill. Foundations are another level of organization, usually devoted to fulfilling a national agenda, but becoming increasingly independent, and increasingly focused on their own goals. Finally, as a counter-balance to national control, we have the multi-national corporations, which are becoming as powerful as nations, and in the case of Trilon and a few others, have actually become independent nations in their own right.

All of these groups seeks the attention and loyalty of others, and seek to exert control over people for the purpose of fulfilling their goals. For many people, this is exactly what they want, a place to belong. For others, however, the reality is different. They don't fit in, and largely don't want to. These independents resist the encroachment of the establishment onto their turf, often forcibly.

HUMAN vs. ALIENS

This is not necessarily active conflict, but the interests of Humans and the various alien races often clash. Individual aliens may or may not share their race's overarching goals, but it is rare (though possible) to find one that will advance humanity's goals ahead of their own race's. Examples of the issues facing Human-Alien interaction include:

Pentapod Factionalism: There are as many Pentapod factions as there are Pentapod gods, as the gods never really learned to work together. There are, however, several axes in Pentapod society that the various factions tend to align themselves with. Pro-human, which are in favor of continued good relations with humanity. Anti-human, which favor, at the least, breaking off contact with Humanity, and include gods who favor using Pentapod biotechnology to "remake" Humans in a more useful form. The large percentage of Pentapod factions are neutral, with little interest in humanity at all.

Sung Demands under Sos-Soon-Atkacharr: Though the Slaver War ended over 60 years ago, the Sung still have not been brought up to as advanced a level as they feel they are entitled to under the provisions of the treaties signed with Human forces, and by the rules governing conduct under Sos-Soon-Atkacharr. They have started to agitate for an increased rate of technology transfers, while at the same time protesting over how little Humanity has made them work for their new benefits.

Kafer War: Despite the premature announcements by Core politicians, the Kafer War is not over. Kafer raider vessels slip past the blockade at Gamma Serpentis on a weekly basis, and there is little Human forces can do to stop them. Of course, Human scout vessels often make forays into Kafer space in an attempt to discover what the remaining Kafer

worlds are up to.

TRANSHUMANISTS vs. "NORMALS"

ProVolution is simply the violent end of the spectrum which encompasses the so-called TransHumanists. They believe that humanity now has the tools to overcome its limitations, and they want to make use of these tools. Cybernetics, genetics, DNA modification and artificial intelligence are all seen as enabling technologies, and the TransHumanists want to see restrictions on these technologies lifted, and new research initiated as well.

The majority of people are afraid of the TransHumanist ideals, and the idea that Humanity can (or should) be transformed by these technologies into something more. Most people simply don't want to be made obsolete, and oppose the lifting of restrictions.

Most of the TransHumanists protest peaceably, and make their plans and grandiose predictions, while some few plot to bring down the old order and remake it in their favor. TransHumanists have a tendency to embrace new technologies, and many have cybernetics or implants of some kind, even illegal implants, though usually not weapons. Of any major extra-governmental organization, the Life Foundation in particular seems to attract many TransHumanists.

NATIONAL RIVALRIES

Despite the chaos and destruction of the Kafer War, national rivalries and conflicts continue to dominate Human affairs. The current war between Argentina and Brazil is a good (and long-running) example of this. The many nations of Earth still struggle for dominance, and the practice of dividing up the nations into Tiers further exacerbates the conflicts, as Tier 3 and Tier 4 nations struggle to prove that they are better than their ranking. The national rivalries listed in Chapter 2: Background form a good starting point, but any world shared by two or more nations can often spark a struggle. Witness the escalating tensions on Heidelbergat between the Bavarian and Texan colonists over mineral resources, or on Beowulf between the French and the British over fishing rights, or even between the Australians and Japanese on Tirane over disputed borders. National conflict appears to be inevitable.

GOALS AND MOTIVATIONS

It is important to keep goals and motivations in mind when designing adventures. Both the goals of the characters and the goals of the players are important. Why are they playing the game? What do they want to get out of it? As for characters, why are they doing what they are doing? What do they want to accomplish?

The goals of the players are up to each gaming group to decide, but some rewards have to be built into the system.

Leveling-up is a big part of the reward structure in any D20 Game, and 2320AD is no exception. XP should be awarded not just for combat, but also for problem-solving, staying in character, or for any action that contributed to the enjoyment of the game for all involved. These XP awards need not be large, but players should be able to see progress from game-to-game.

Similarly, the goals of the characters are up to each player. Goals should be clearly defined before the game begins, if possible, and can be something as complex as: "Find the ship that killed my family when I was a child, find the captain, and bring him to justice", or as simple as: "Fuel the ship, protect the crew, and keep flying." Character goals and motivations should have an effect on the campaign, and even if they don't direct the overall story, they should direct the day-to-day actions of the crew. A GM can use these goals to motivate the characters (and players) by crafting adventures that play to these goals, even if the end result is different.

2320AD ALTERNATIVES

TECHNOLOGY

2320AD is a hard-science setting, with fairly realistic technological assumptions. Some of those assumptions may be a little too generous, in particular interface travel. Increasing fuel consumption/decreasing payload to orbit will alter those effects. On the other hand, the technological assumptions may be a little too conservative for some. 2320AD definitely errs on the conservative side when it comes to such technologies as artificial intelligence, nanotechnology, and genetic engineering. Another area where 2320AD is very conservative is in the application of gravitic technologies, like the anti-gravity lift and generated gravity so favored by most science fiction movies and television programs, not to mention Traveller itself.

It is quite possible to use the setting and background of 2320AD with these advanced technologies, and not cause a serious break with the continuity.

NANOTECHNOLOGY

2320AD has nanotechnology, but it is used solely in materials manufacturing. The nanotech found in D20 Future could easily be assimilated into the 2320AD setting.

STARSHIPS

While the starship technology of 2320AD is quite realistic (once you allow for stutterwarp drives) it could still go further.

One of the issues that 2320AD (and 2300 before it) fails to address in its starships is the issue of waste heat. All components of a vessel, from the drives to the electronics to the crew, produce waste heat, which can only be disposed of

through hull-mounted radiators. 2320AD assumes some hull area devoted to radiators, while the rest of a vessel's waste heat is taken care of by the stutterwarp drive acting as an energy sink. If you wish to model a more realistic heat dispersal model, you have to provide for much larger radiators. Large enough that most starships wouldn't have sufficient hull area for them, unless they are radiator fins extending away from the hull. MHD turbine-powered vessels do not need extra hull-mounted radiators, as much of their waste heat is disposed of in the vessel's exhaust, and what's left can be handled by conventional hull-mounted panels.

To model fins, add 1 to a ship's profile and reflected signature (both aspects) for every 100 EP of power generated by the power plant. This simulates the large size of the radiator panels. For warships, you would want to retract those panels in combat, both to protect them and to lower the ship's reflected signature. A vessel can operate without the additional panels for a number of rounds equal to the vessel's size in dttons divided by the power plant output, in EP, multiplied by 10. After that the vessel will begin taking damage at the rate of 1 SI point per 20-minute round. So a 980 ton vessel with a 300EP fusion plant could go for 32 combat rounds before starting to suffer damage.

On the other hand, 2320AD's drives could be said to be too realistic, what with the fuel requirements for thrusters and rockets, and the lack of artificial gravity (save in spin habitats). Changing these assumptions would have a strong effect on the setting, as interface costs would be reduced markedly. The availability of such technology would have changed the patterns of colonization, and would make interstellar commerce much more viable, and thus colonies less-likely to be self-sufficient. If you want this technology, however, you would have to gloss over these effects, or else postulate that gravitic technology is a very recent, but widely-adopted, innovation.

OTHER RULES

Though 2320AD is designed to be used with the Traveller D20 rules, it is possible to use it with such alternative rules sets as D20 Modern / D20 Future. These rules integrate fairly easily into 2320AD. In regards to character generation, use the 2320AD Quick Character Generation system to determine the amount of XP a character has, and use that to generate a character. During character generation, you can multi-class freely between any of the core D20M classes (Strong, Quick, Tough, Smart, Dedicated, Charismatic), and with the GM's permission you can select any advanced character class from the following list:

D20 MODERN ADVANCED CHARACTER CLASSES

Soldier, Martial Artist, Gunslinger, Infiltrator, Daredevil, Bodyguard, Field Scientist, Techie, Field Medic, Investigator,

Negotiator

D20 FUTURE ADVANCED CHARACTER CLASSES

Engineer, Explorer, Field Officer, Space Monkey, Swindler, Technosavant, Tracer, and Xenophile

(If the campaign features advanced genetic engineering, then the Dreadnought and the Helix Warrior are available as well).

At each turning point, a character can select a new background career, to reflect the change in their circumstances.

MODIFICATIONS TO D20M/D20F SKILLS AND FEATS

WEALTH

2320AD uses actual pricing for all the weapons and equipment, including vehicles and starships. Use the following rules to simulate the use of the D20 Wealth Check in 2320AD:

Personal Equipment: Use cost in Livre divided by 20 to get the Wealth Check DC. So Vehicle Maintenance Tools, cost Lv150, would have a Wealth Check DC of 7.5, rounded to 8.

Personal Weapons: All rifles and pistols would use the cost in Livre divided by 20 to get the wealth check DC, adding 2 to the final total for all military-style weapons (assault rifles, storm guns, lasers).

Heavy Weapons: All heavy weapons, including plasma guns, use the cost in Livre divided by 30 to get the Wealth Check DC.

Armor: All Armors use cost in Livre divided by 10 to get the Wealth Check DC.

Vehicles: All vehicles, including robots, drones, and combat walkers, use cost in Livre divided by 100 to get the Wealth Check DC.

Cybernetics and DNA Modifications: Use cost in Livre divided by 50 to get the Wealth Check DC.

Starships and Spacecraft: Use the cost in Livre divided by 500,000 to get the Wealth Check DC.

D20 FUTURE SPACE COMBAT

The stutterwarp drive of 2320AD is far faster than any of the drives mentioned in D20 Future, and as a result the scale of combat must be changed. Each square in space combat, rather than being 500 feet, is 600,000 kilometers.

The items in the changes below are described in chapters 16 and 17 of this book.

Modifications

Attack Roll: 1d20 + gunner's ranged attack bonus + range penalty + weapon USP number + targeting system's equipment bonus + size modifier

Defense: 10 + screen USP + agility + size modifier

Starship Armor: A ship's Hardness is equal to its 2320AD Armor Rating (AR)

Hit Points and Structural Integrity (SI): A ship's Hot Points are equal to its 2320AD SI.

Weapon Damage: Use the weapon damages and ranges from 2320AD, rather than D20 Future. The different technology assumptions, largely due to the stutterwarp drive, render D20F weapons largely useless in any case, with their sharply limited ranges.

2300AD TO 2320AD CONVERSIONS

This section deals primarily with how to convert characters and creatures from 2300AD to 2320AD. It will not deal with weapons, vehicles, or ships. This section will allow a player to bring forward a favored character or effective alien creature from their 2300AD game to the new 2320AD version.

CHARACTER CONVERSIONS

CHARACTERISTICS (STATISTICS)

The mapping of characteristics is relatively straight-forward.

2300AD Characteristic	2320AD Characteristic
Strength	STR
Dexterity	DEX
Endurance	CON
Intelligence	INT
Determination	WIS
Eloquence	CHA
Education	EDU
2d6 + 2300AD's Renown	SOC

Generate Soc for all characters, or else assign one based on how the character has been played.

2300AD used a range of 0-20 for all characteristics, plus modifiers for body type and homeworld gravity. To convert 2300AD character to 2320AD, subtract out the body type and gravity modifiers, and compare the result to the table below.

2320 Characteristic	2320AD Characteristic
0	3
1	3
2	3
3	4
4	4
5	5
6	6
7	7
8	8
9	9
10	10
11	11
12	12

13	13
14	14
15	15
16	16
17	17
18	17
19	18
20	18

Now add the 2320AD modifiers for body type and home-world gravity.

Skill levels

To convert 2300AD skill levels to 2320AD, multiply all skills by two.

CAREERS AND Class

2300 Career	2320AD Class	2320AD Alternate Class
Ground Military	Army	Mercenary
Sea Military	Sailor	Army
Interface Military	Flyer	Navy
Space Military	Navy	Marines
Scout	Scout	Professional
Contact	Scout	Professional
Academic	Academic	Professional
Colonist	Colonist	
Troubleshooter	Professional	Troubleshooter PrC
Core	Professional	Academic
Administrator	Professional	Academic
Field Agent	Rogue	Mercenary
Law Enforcement	Law Enforcement	Mercenary
Journalist	Journalist	
Trader	Merchant	Professional
Ship Crew	Professional	Traveller
Thief	Rogue	
Smuggler/Pirate	Rogue	Corsair

Levels and XP

This is a difficult area to assess, as the two systems are completely different here. A quick guide would be to take the highest skill level (after conversion to 2320AD) and subtract 3. That would equal the Character Level. Use the amount of XP this level would possess to determine any multi-class levels. These levels would be used to calculate the character's Stamina.

Lifeblood

As normal for 2320AD, and T20, Lifeblood is equal to the CON characteristic for all Humans.

CREATURE CONVERSION

There are a great many creatures detailed in many of the old 2300/2300AD adventures. The section provides a guideline for converting those creatures into 2320AD.

2300 Armor	2320 Armor Rating (AR)
0	0
0.1	0
0.2	1
0.3	1
0.4	2
0.5	2
0.6	3
0.7	3
0.8	4
0.9	4
1.0	5

2300AD Hit Category	2320AD BAB
Easy	8
Routine	6
Difficult	4
Formidable	2
Impossible	0

Other 2320AD characteristics:

Use the table on p. 395 of the THB to derive Str, Dex, and Con from animal size, along with any special abilities the animal may have.

2300AD Animal Characteristic	Corresponding 2320AD Characteristic	Conversion notes
Size	Size	2300AD Size is rated in kilograms. Use the table p.395 of the THB to get size from mass
Speed	Speed	Divide 2300AD speed by 4 to get 2320AD speed
Armor	AR, AC	See chart below for AR. AC = 10+ A R + Size mod + Dex mod
Wound	-	-
Consciousness	Stamina	
Life Level	Lifeblood	Lifeblood = Con
DPV	Damage	Use the armor table below to match 2300AD DPV to Armor Rating, which can be used as the number of d8s of damage done.
Signature	N/A	
Hit	BAB	See below for chart on Hit vs. BAB
Initiative	Initiative	
Number Appearing		

Skills AND FEATS

2300AD Skill	2320AD Skill	2320AD Feat	Alternate 2320AD Feat
Aircraft Pilot		Vessel/Air	
Anthropology	K/ Anthropology		
Appraisal	Appraise		
Astronomy	K/ Astronomy		
Bargain	Broker		
Bureaucracy	K/Administration		
Chemistry	Chemistry		
Combat Rifleman		Weapon Proficiency (Combat Rifle- Weapon Proficiency (Marksman man)	
Combat Walker		Armor Proficiency (Combat Walker)	
Communications	T/Communications		
Computer	T/Computer		
Demolitions	Demolitions		
Disguise	Disguise		
Electronic	T/Electronics		
Engineering	T/Engineering		
First Aid		First Aid	
Forgery	Forgery		
Forward Observer	Forward Observer		
Geology	K/Geology		
Ground Vehicle	Drive	Vessel/Ground	
Gunner	Gunnery		
Heavy Equipment	Drive (Heavy Equipment)		
Heavy Weapons		Weapon Proficiency (Heavy Weapons)	
History	K/History		
Hunting	P/Hunting		
Imaging	Entertain (Photography)		
Information Gathering	Information Gathering		
Interviewing	Liaison		
Leader	Leader		
Linguistics	K/Linguistics		
LTA Vehicle		Vessel/Air	
Mechanical	T/Mechanical		
Medical	T/Medical	Surgery	
Melee		Brawling	Weapon Proficiency (Swordsman)
Physics	K/Physics		
Pilot	Pilot	Vessel/(Appropriate Type)	
Prospecting	P/Prospecting		
P-suit		Armor Proficiency (Vac Suit)	
Psychology	K/Psychology		
Reconnaissance			
Remote Pilot		Vessel/Remote Object	
Riding	Ride		
Sea Vehicle		Vessel/Water	
Security Systems	T/Electronics		
Sensors	T/Sensors		
Ship Drive Engineering	Engineering		
Sidearm		Weapon Proficiency (Marksman)	
Stealth		Stealthy	
Streetwise	Survival (Urban)		
Survival	Survival		
Swim	Swim		
Tactics		Tactics	Fleet Tactics
Theoretical Sciences	K/Theoretical Sciences		
Thrown Weapons		Weapon Proficiency (Armsman)	
Tracking	P/Hunting		
Trader	Trader		

Some skills from 2300AD translate into 2320AD Feats, most notably all the weapon skills. The alternate Feats column is provided in case the first column of Feats doesn't match the character.

Bibliography

2300AD Bibliography

Main Rules

Traveller:2300 Boxed set
2300AD boxed set

Sourcebooks

Kafer Sourcebook
Aurore Sourcebook
Nyotekundu Sourcebook
Ground Vehicle Guide
Ships of the French Arm
Colonial Atlas
Earth/Cybertech Sourcebook

Adventures

Ranger
Beanstalk
Energy Curve
Kafer Dawn
Rotten to the Core
Deathwatch Program
Bayern
Operation Overlord (produced under license by 3W Games)

Campaigns

Invasion

Games

Star Cruiser

Other Sources:

The following books, movies, TV shows, anime, manga, and comics all have elements or ideas that fit the 2320AD universe. They are not all equal in quality, and some serve solely to provide a visual reference for in-game atmosphere and descriptions. The presence of anything on this list should not be taken as an endorsement of the quality of the media in question, simply that it contains potentially useful ideas or visual depictions for 2320AD. This applies in particular to the various movies and TV shows referenced.

Fiction

Clarke County, Space, Alan Steele
Lunar Descent, Alan Steele
Orbital Decay, Alan Steele

Downbelow Station, CJ Cherryh

Rimrunners, CJ Cherryh
Heavy Time, CJ Cherryh
Hellburner, CJ Cherryh

Revelation Space, Alistair Reynolds
Absolution Gap, Alistair Reynolds
Redemption Ark, Alistair Reynolds
Chasm City, Alistair Reynolds

Snow Crash, Neal Stephenson
Diamond Age, Neal Stephenson (for a nanotech future)

Cold As Ice, Charles Sheffield
Summertide, Charles Sheffield

When Gravity Fails, Alex George Effinger
A Fire in the Sun, Alex George Effinger

Hammer's Slammers series, David Drake

Aristoi, Walter John Williams (for a very nano-tech, virtual reality world)
Hardwired, Walter John Williams
Voice of the Whirlwind, Walter John Williams
Angel Station, Walter John Williams

Rendezvous with Rama, Arthur C. Clarke
Fountains of Paradise, Arthur C. Clarke
Imperial Earth, Arthur C. Clarke
Songs of Distant Earth, Arthur C. Clarke

The Moon is a Harsh Mistress, Robert A. Heinlein
Starship Troopers, Robert A. Heinlein

The Real Story: The Gap into Conflict, Stephen R. Donaldson
Forbidden Knowledge: The Gap into Vision, Stephen R. Donaldson
Dark and Hungry God Arises: The Gap into Power, Stephen R. Donaldson
Chaos and Order: The Gap into Madness, Stephen R. Donaldson
This Day All Gods Die: The Gap into Ruin, Stephen R. Donaldson

Space Doctor, Lee Corey

The Legacy of Heorot, Jerry Pournelle, Larry Niven, and Stephen Barnes
The Dragons of Heorot, Jerry Pournelle, Larry Niven, and Stephen Barnes
Beowulf's Children, Jerry Pournelle, Larry Niven, and Stephen Barnes

A Mote in God's Eye, Jerry Pournelle and Larry Niven
The Gripping Hand, Jerry Pournelle and Larry Niven

West of Honor, Jerry Pournelle
The Mercenary, Jerry Pournelle
Prince of Mercenaries, Jerry Pournelle
Falkenberg's Legion, Jerry Pournelle
Go Tell the Spartans, Jerry Pournelle and S.M. Stirling
Prince of Sparta, Jerry Pournelle and S.M. Stirling

The Wild World of the Future, Claire Pye

REFERENCE

Oxford Concise Science Dictionary
Collins French-English/English-French Dictionary
CIA World Fact Book

FILMOGRAPHY

Movies
Outland
2001
2010
Alien
Aliens
Alien³
Enemy Mine
Gunhed (if you ignore the giant robot toys)
Supernova (Really just the ship...)
Moon 44
Pitch Black
Bladerunner
Soldier
Predator
Silent Running
Starship Troopers
Wing Commander
Gattaca
eXistenZ
Solaris (original Russian version)
Mission to Mars (Ignore the end, and the rest was OK)
Red Planet (The look, the pressure suits. Not the story)
Total Recall
Serenity

TELEVISION

Firefly (If you ignore the artificial gravity bits, this is very 2320AD)
Babylon 5
Earth 2
Space: Above and Beyond (Chigs = Kafers)
Battlestar Galactica (New Series)

ANIME

Ghost in the Shell (1 and 2)
Ghost in the Shell: Standalone Complex
Wings of Honneimaise
Cowboy Bebop
Gundam (more for the life-in-habitats ideas than the giant robot toys)
Appleseed (the new one)

COMICS AND MANGA

2001 Nights
Planetes
Ghost in the Shell
Appleseed
Aliens vs. Predator (the comic, not the movie)
Erma Felna, EDF (from Albedo Anthropomorphics) (Hard SF war story, with fuzzy animals...)

Calendar 2320AD

January							February							March						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
				1	2	3	1	2	3	4	5	6	7		1	2	3	4	5	6
4	5	6	7	8	9	10	8	9	10	11	12	13	14	7	8	9	10	11	12	13
11	12	13	14	15	16	17	15	16	17	18	19	20	21	14	15	16	17	18	19	20
18	19	20	21	22	23	24	22	23	24	25	26	27	28	21	22	23	24	25	26	27
25	26	27	28	29	30	31	29							28	29	30	31			

April							May							June						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
				1	2	3						1			1	2	3	4	5	
4	5	6	7	8	9	10	2	3	4	5	6	7	8	6	7	8	9	10	11	12
11	12	13	14	15	16	17	9	10	11	12	13	14	15	13	14	15	16	17	18	19
18	19	20	21	22	23	24	16	17	18	19	20	21	22	20	21	22	23	24	25	26
25	26	27	28	29	30		23	24	25	26	27	28	29	27	28	29	30			
							30	31												

July							August							September						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
				1	2	3	1	2	3	4	5	6	7			1	2	3	4	5
4	5	6	7	8	9	10	8	9	10	11	12	13	14	6	7	8	9	10	11	12
11	12	13	14	15	16	17	15	16	17	18	19	20	21	13	14	15	16	17	18	19
18	19	20	21	22	23	24	22	23	24	25	26	27	28	20	21	22	23	24	25	26
25	26	27	28	29	30	31	29	30	31					27	28	29	30			

October							November							December							
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	
					1	2			1	2	3	4	5	6				1	2	3	4
3	4	5	6	7	8	9	7	8	9	10	11	12	13	5	6	7	8	9	10	11	
10	11	12	13	14	15	16	14	15	16	17	18	19	20	12	13	14	15	16	17	18	
17	18	19	20	21	22	23	21	22	23	24	25	26	27	19	20	21	22	23	24	25	
24	25	26	27	28	29	30	28	29	30					26	27	28	29	30	31		
31																					

372

Holidays of Note

Throne Day (France)
 Bastille Day (France)
 Ascension Day (Manchuria)
 Colony Days (Europe)
 Colony Days (America)
 Guy Fawkes Day (UK)
 Australia Day
 Reunification Day (Germany)
 Independence Day (Germany)
 Independence Day (America)
 President's Birthday (America)
 Independence Day (Nibelungen)
 Independence Day (Freihafen)
 Dominion Day (Wellon)
 Founding (Heidelsheimet)
 Canada Day
 Louis Riel Day (Canada)
 Independence Day (Argentina)
 General San Martin Day (Argentina)

Aug 12
 July 14
 Sept 21
 July 8
 June 27
 Nov 5
 Jan 26
 Oct 3
 Dec 7
 July 4
 Feb 16
 Aug 6
 May 23
 June 14
 Oct 21
 July 1
 Nov 16
 July 9
 Aug 20

Holidays of Note

Independence Day (Mexico)
 Revolution Day (Mexico)
 Freedom Day (Azania)
 Heritage Day (Azania)
 Carnival Monday (Brazil)
 Independence Day (Brazil)
 Alamo Day (Texas)
 Independence Day (Texas)
 Unity Day (Ukraine)
 Independence Day (Ukraine)
 New Year's Day
 Chinese New Year
 Easter Sunday
 Labor Day
 Twilight Remembrance Day
 Hochbaden Remembered
 Nous Voila Remembered
 V-K Day (Victory Over Kafers)

Sept 16
 Nov 20
 Apr 27
 Sept 24
 Feb 9
 Sept 7
 Mar 6
 July 4
 Jan 22
 Aug 24
 Jan 1
 Feb 10
 Mar 20
 Sept 3
 Nov 11
 June 5
 Dec 15
 May 5

Character _____ Player _____
 Class _____ Level _____
 Homeworld _____ Homeworld Gravity _____
 Species _____ Body Type _____
 Sex _____ Age _____ Height _____ Mass _____ Hair _____ Eyes _____



CHARACTER RECORD SHEET

ABILITIES	BODY TYPE	SCORE		MOD		TEMPORARY SCORE		MOD		ZERO-G SCORE		MOD		LOW-G SCORE		MOD		HIGH-G SCORE		MOD		
		SCORE	MOD	SCORE	MOD	SCORE	MOD	SCORE	MOD	SCORE	MOD	SCORE	MOD	SCORE	MOD	SCORE	MOD	SCORE	MOD			
STR STRENGTH																						
DEX DEXTERITY																						
CON CONSTITUTION																						
INT INTELLIGENCE																						
EDU EDUCATION																						
WIS WISDOM																						
CHA CHARISMA																						
SOC SOCIAL STANDING																						

STAMINA

TOTAL:

WOUND EFFECTS:
 STRAINED: WUNDED: EXHAUSTED:
 (-1) -1 -2

CURRENT STAMINA:

LIFEBLOOD

TOTAL:

WOUND EFFECTS:
 FLESH: SERIOUS: MAJOR:
 -1 -2 -3

CURRENT LIFEBLOOD:

SKILLS

CROSS CLASS	MAX RANKS = LVL+3(2)	MODIFIERS				KEY
		TOTAL	RANKS	MISC	ABILITY	
<input type="checkbox"/> Animal Empathy					Cha	
<input type="checkbox"/> Appraise ■					Int	
<input type="checkbox"/> Balance ■					Dex*	
<input type="checkbox"/> Bluff ■					Cha	
<input type="checkbox"/> Bribery ■					Cha	
<input type="checkbox"/> Climb ■					Str*	
<input type="checkbox"/> Combat Engineering					Int	
<input type="checkbox"/> Craft ■					Int	
<input type="checkbox"/> Decipher Script					Int	
<input type="checkbox"/> Demolitions					Dex	
<input type="checkbox"/> Disguise ■					Cha	
<input type="checkbox"/> Driving ■					Dex	
<input type="checkbox"/> Entertain ■					Cha	
<input type="checkbox"/> Forgery ■					Int/Dex	
<input type="checkbox"/> Forward Observer					Int	
<input type="checkbox"/> Gambling ■					Int	
<input type="checkbox"/> Gather Information ■					Cha	
<input type="checkbox"/> Gunnery ■					Wis	
<input type="checkbox"/> Handle Animal					Cha	
<input type="checkbox"/> Hide ■					Dex*	
<input type="checkbox"/> Innuendo					Wis	
<input type="checkbox"/> Intimidate ■					Cha	
<input type="checkbox"/> Intuit Direction					Wis	
<input type="checkbox"/> Jump ■					Str*	
<input type="checkbox"/> Knowledge					Edu	
<input type="checkbox"/> Leader ■					Int/Cha	
<input type="checkbox"/> Liaison					Cha	
<input type="checkbox"/> Listen ■					Wis	
<input type="checkbox"/> Move Silently ■					Dex*	
<input type="checkbox"/> Navigation					Edu	
<input type="checkbox"/> Pilot					Int/Dex	
<input type="checkbox"/> Profession					Wis	
<input type="checkbox"/>						
<input type="checkbox"/> Recruiting ■					Edu	
<input type="checkbox"/> Ride ■					Dex	
<input type="checkbox"/> Search ■					Int	
<input type="checkbox"/> Sense Motive ■					Wis	
<input type="checkbox"/> Spot ■					Wis	
<input type="checkbox"/> Survival ■					Wis	
<input type="checkbox"/> Swim ■					Str	
<input type="checkbox"/> Technical					Edu	
<input type="checkbox"/>						
<input type="checkbox"/>						
<input type="checkbox"/>						
<input type="checkbox"/> Technosavvy					Int	
<input type="checkbox"/> Trader ■					Int	
<input type="checkbox"/> Tumble					Dex*	
<input type="checkbox"/> Use Alien Devices					Wis	
<input type="checkbox"/>						
<input type="checkbox"/>						
<input type="checkbox"/>						

ARMOR CLASS

= 10 + (ARMOR (AR))

SHIELD	SPECIES	DEX	SIZE	MISC	TEMP	PENALTY
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

AR by Location:

HEAD	ARMS	CHEST	TORSO	GROIN	LEGS	FEET
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

SAVING THROWS

FORTITUDE CONSTITUTION	TOTAL		BASE		ABILITY		MODIFIERS		TEMP	
	SCORE	MOD	SCORE	MOD	SCORE	MOD	SCORE	MOD	SCORE	MOD
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

INITIATIVE

REFLEX DEXTERITY	TOTAL		BASE		ABILITY		MODIFIERS		TEMP	
	SCORE	MOD	SCORE	MOD	SCORE	MOD	SCORE	MOD	SCORE	MOD
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

SPEED

METERS	HEX/SQ
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ATTACK ROLLS

MELEE	TOTAL		BASE		DEX		MODIFIERS		TEMP	
	SCORE	MOD	SCORE	MOD	SCORE	MOD	SCORE	MOD	SCORE	MOD
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

RANGED	TOTAL		BASE		DEX		MODIFIERS		TEMP	
	SCORE	MOD	SCORE	MOD	SCORE	MOD	SCORE	MOD	SCORE	MOD
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WEAPONS

Weapon	Att Bonus	Damage	Critical	Range	Type	Size	ROF
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Notes							
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Notes							
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Notes							
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Notes							
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Notes							

■ CAN BE USED WITH 0 RANKS — * ARMOR CHECK PENALTY APPLIES

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