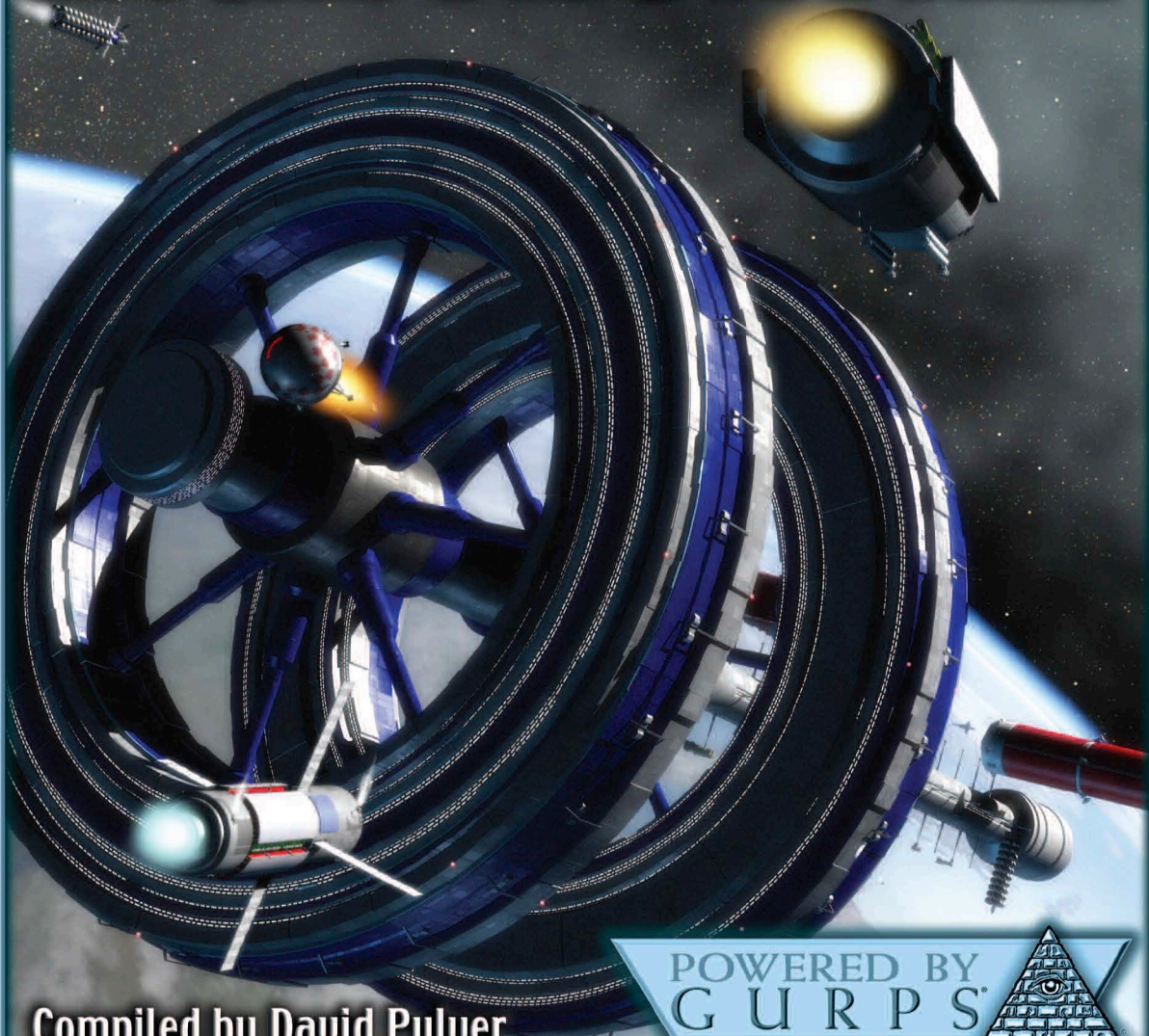


TRANSHUMAN SPACE

HIGH FRONTIER



Compiled by David Pulver

POWERED BY
GURPS



STEVE JACKSON GAMES

"One giant leap for mankind . . ."

In the year 2100, Earth-Lunar space is the most densely populated area of the solar system, beyond Earth itself.

Come visit:

- Earth orbit, buzzing with busy space factories and bustling spaceports, all under the watchful eye of rival orbital weapons platforms. But the biggest danger is not the threat of war, but 150 years of space junk, moving at 25,000 miles per hour!
- Lagrange 4, where giant cities in space glitter like jewels in the night, presided over by the massive O'Neill colony Islandia.
- Lagrange 5, the ghetto of the solar system, colonized by dreamers, ideologues and undercapitalized entrepreneurs. Sometimes a dream and a prayer aren't enough.
- The Moon. We're back, and this time with bulldozers. Luna is the solar system's industrial park, with Helium-3 mines that feed the fusion reactors on Earth and more cybershell robots than people. But it's not all machines – the north and south poles are home to the pleasure domes of Moonshadow and thriving transhumanist Luna City. And on Luna's farside, a massive telescope array unravels the mysteries of the cosmos . . .

Transhuman Space is required to use this supplement. *GURPS Basic Set, Third Edition Revised*, and *Compendium I* are also recommended. The ideas in *High Frontier* can be used with any roleplaying system.



Written by John Snead, David Pulver, Phil Masters, Dawn Elliot,
Gene Seabolt, Jon F. Zeigler, and James Maliszewski.
Edited by Steve Jackson and Scott Haring Cover by Jesse DeGraff
Transhuman Space designed by David Pulver



STEVE JACKSON GAMES
www.sjgames.com

FIRST EDITION, FIRST PRINTING
PUBLISHED JULY 2003

ISBN 1-55634-709-X

52495



9 781556 347092

SJG02495 **6704**

Printed in
the USA

TRANSHUMAN SPACE

HIGH FRONTIER™

Written by John Snead, David Pulver, Phil Masters, Dawn Elliot, Gene Seabolt,
Jon F. Zeigler, and James Maliszewski

Illustrated by Neil Cook, Jesse DeGraff, Ceredwyn Ealanta, Marcio Fiorito, Matthew Kresge, Lokarian
Additional Material by Kenneth Peters • Cartography by J. Scott Reeves

Edited by Steve Jackson and Scott Haring
Cover by Jesse DeGraff

GURPS System Design ■ Steve Jackson
Managing Editor ■ Andrew Hackard
GURPS Line Editor ■ Sean Punch
Transhuman Space Line Editor ■ David Pulver
Project Administrator ■ Monique Chapman
Art Director ■ Loren Wiseman
Production Manager ■ Monique Chapman
Production Artist ■ Justin De Witt
Print Buyer ■ Monica Stephens
GURPS Errata Coordinator ■ Andy Vetromile
Sales Manager ■ Ross Jepson

Lead Playtester: John L. Freiler
Playtesters: James "Pip" Barrett, C.J. Beiting, Roland Boshnack,
Frederick Brackin, John Buston, Benedict Chapman,
Nelson Cunningham, Peter Erwin, Anthony Jackson,
Nana Yaw Ofori, Jeff Raglin, Thomas Schoene, Allen Smith,
Michael Suileabhain-Wilson, Geff Underwood, and Jeff Wilson.



GURPS, Warehouse 23, and the all-seeing pyramid are registered trademarks of Steve Jackson Games Incorporated.
Transhuman Space, *Pyramid*, *High Frontier*, and the names of all products published by Steve Jackson Games Incorporated
are registered trademarks or trademarks of Steve Jackson Games Incorporated, or used under license.

Transhuman Space: High Frontier is copyright © 2003 by Steve Jackson Games Incorporated. All rights reserved. Printed in the USA.

The scanning, uploading, and distribution of this book via the Internet or via any other means without the permission of the publisher is illegal, and punishable by law.
Please purchase only authorized electronic editions, and do not participate in or encourage the electronic piracy of copyrighted materials.

Your support of the author's rights is appreciated.

ISBN 1-55634-709-X

1 2 3 4 5 6 7 8 9 10

STEVE JACKSON GAMES

CONTENTS

INTRODUCTION 4

- ABOUT *TRANSHUMAN SPACE* 5
- About GURPS* 5
- Page References* 5

1. EARTH ORBIT 6

by James Maliszewski
and David Pulver

- ORBITS 7
- EARTH TO ORBIT 7
 - Orbital Velocity Table* 7
- SATELLITES 8
 - Orbital Telepresence* 8
 - Satellite Classification* 9
 - Orbital Paths* 9
 - Service Nanosat* 11
- ORBITAL STATIONS 12
 - Station Types 12
 - The Orbital Population* 12
 - Orbital Construction Projects 13
 - FLAGS OF CONVENIENCE 13
 - The Pacific War* 14
 - LOW EARTH ORBIT (LEO) 15
 - Van Allen Belts* 15
 - Stations and Satellites in LEO 16
 - Living In Microgravity* 19
- HIGH EARTH ORBIT (HEO) 20
 - Stations and Satellites in HEO 20
 - Space Weather* 20
 - Murder in HEO* 21
- GEOSYNCHRONOUS EARTH ORBIT (GEO) 22
 - Satellites and Stations in GEO 22
 - Leaving Earth Orbit* 22
 - The Olympus Project 23
 - Traffic Control* 23
- VERY HIGH EARTH ORBIT (VEO) 25
- ORGANIZATIONS IN EARTH ORBIT 25
 - Orbital Commercial Carriers 25
 - The Genetic Regulatory Agency in Orbit* 25
 - Space Development Corporations 26
- FIGHTING IN EARTH ORBIT 27
 - The Horizon in Orbit* 27
 - Space Forces in Earth Orbit 28
- LAWS AND CUSTOMS IN ORBIT 29
 - 6-16 29
 - Orbital Department of the People's Armed Police (ODPAP)* 30
 - Security Forces and Weapons Laws* 30

2. THE VACUUM CLEANERS . 31

by Phil Masters

- HISTORY 32
 - The Dangers of Debris 32
 - Cleanup 32
 - COTS and SDR Inc. 33
 - War and Pieces 33
 - Collision Damage* 33
- VACUUM CLEANERS TODAY 34
 - SDR Inc. 34
 - Collision Avoidance* 35
 - Smaller Salvage Companies 36
- VACUUM CLEANING: OPERATIONS 37
 - Debris Elimination Technology 37
 - Salvage, Debris, and Space Law* 38
 - The Olympus Cleanup 40
 - The Six Most Interesting Salvage Finds of 2099* 41
 - Beyond LEO 42
 - Geostationary Concerns 42
 - Graveyard Burns* 42
 - Vacuum Cleaners in the Junk Jungle 43
- VACUUM CLEANER CULTURE 43
 - Job Table Entry* 43
 - Vacuum Cleaner Characters 44
 - Some Noted Cleaners* 44
 - Personal Interests 45
 - Relations With Other Groups 46

3. LUNA 47

by David Pulver, John Snead,
and Dawn Elliot

- Luna Statistics* 48
- SELENOLOGY 49
- THE LUNAR ENVIRONMENT 49
 - Light and Shadow at the Lunar Poles* 49
- MAP OF LUNA 50
- THE LUNAR LANDSCAPE 51
 - Maria and Highlands 51
 - Regolith 51
 - Craters 52
 - Mountains 52
 - Sinuous Rilles 52
 - Lava Tubes 52
- LIFE ON LUNA 52
 - Traveling to Luna* 52
 - Lunar Settlement Types 53
 - Traveling on Luna 54
 - Safety and the Lunar Rescue Force 55
- THE LUNAR ECONOMY 56
 - Science 56
 - Mining the Moon 56
 - Helium-3 Mining 57
 - Byproducts of He-3 Mining* 57

- Lunar Heavy Industry 58
- Old Mining Zones* 58
- Lunar Tourism 59
- Isolate Communities 60
- LUNAR INSTITUTIONS 60
 - The Lunar Cooperative Credit Union 60
 - Pro-Gov Rabbits* 60
 - Luna, Incorporated 61
- LUNAR SETTLEMENTS:
 - SOUTH POLE 61
 - Shackleton Crater 62
 - Artemis Studios* 62
 - Malapert Mountain 63
- LUNAR SETTLEMENTS: NEARSIDE 63
 - Tranquility Industrial Zone 64
 - Helium City 64
 - The Blue Flame* 64
 - Tycho Spaceport and Proving Ground 65
 - Mare Frigoris Industrial Zone 65
 - Nectaris Mining Complex-1 65
 - The Dreaming City 66
 - COSMAC 66
 - Balatronia 66
 - Vacuum Pollution?* 66
 - Sunflower 67
- LUNAR SETTLEMENTS:
 - NORTH POLE 67
 - Moonshadow 68
- LUNAR SETTLEMENTS: FARSIDE 69
 - Tsiolkovsky Farside Observatory 69
 - The Quiet Side of the Moon* 69
 - Why Do Astronomy on the Moon?* 70
 - Time Capsules* 70
- MILITARY FORCES ON LUNA 71
- LUNAR ORBIT 72
 - Port Diana 72

4. LUNA CITY 73

by John Snead

- History of Luna City 74
- Luna City Data* 74
- Visiting Luna City* 74
- Physical Structure 75
- Hidden Wealth* 75
- The Old City Today 76
- Government 76
- Economy 77
- Culture and Society 77
- The Flying Dome 78
- Biotech Euphrates Chiroptian 78
- Reality Games 78
- The Hidden Sectors 79
- Illegal Hormone Sprays* 79
- Luna City External Relations 80
- Luna City Adventure Seed* 80

5. L4: CITIES IN SPACE ... 81

by John Snead, Gene Seabolt, and David Pulver

Asteroid Mines 82
 Space Habitats 82
 Cities in Space 82
The Lagrange Points:
 Where Are They? 82
 The L4 Population 83
 Distances from L4 and L5 83
 ISLANDIA 83
 History 83
 The Islandia Habitat 84
 Government 84
 Economics and Finance 85
 Living in Islandia 85
 Visiting Islandia 86
 Transhuman Subcultures 87
Islandia Anti-Violence:
 Memetics 87
 Hive Characters 88
 Virt Characters 88
 Islandia External Affairs 89
 CLARKE-1 89
Standing Extraterrestrial Force Cis-Lunar (STANEXFORCISLUN) 89
 Clarke-1 Habitat 90
 Government 91
 The Economy 91
 Religion 91
 Local Memes 92
 Clarke-1 Characters 92
 Vac Bioroid 92
 Joseph Rosen 92
 Visiting Clarke-1 92
 Clarke-1 External Affairs 93
 DIE SONNENSPINNERIN SIEBEN 93
 History 94
 Die Sonnenspinnerin Sieben Habitat 94
 Inside die Sonnenspinnerin Sieben 96
 Sieben 96
 Behind the Façade 96
 Life in die Sonnenspinnerin Sieben 98
 Die Sonnenspinnerin Sieben Characters 98
 Visiting die Sonnenspinnerin Sieben 98
Adventure Seed:
 Herr Herzberg Reborn 100
 Technology 100
 Herzberg Cybershell 100
 Herzberg Infomorph 100
 Wiper Treatment 101
 Adventure Seed: The IAs Want You 101
 MARGARET 102
 History 103

Margaret Habitat 103
 Economy 104
 Society 104
 Government 105
 Hippolyta Parahuman 106
 Visiting Margaret 106
 Margaret External Affairs 106
 THE MACLARREN UNITY 106
 History 107
 MacLarren Unity Habitat 107
 Inside the MacLarren Unity 108
 Government 108
 The Economy 108
Visiting the MacLarren Unity 108
 MacLarren Clone Templates 109
 MacLarren Clone Parahuman 109
 MacLarren Unity External Affairs 109
 Hiroshi MacLarren 110
MacLarren Unity Adventure Seed 110
 OTHER L4 COLONIES 111
 Amagi-3 111
 Aquarius Station 111
 New Deseret 111
 Vosper-Babbage Factory Asteroid 112

6. L5: THE JUNK JUNGLE . 113

by Jon Zeigler, John Snead, Dawn Elliot, and David Pulver

L5 Today 114
 The L5 Population 115
 CORNERSTONE 115
 History 115
 Cornerstone Habitat 116
Freedom Day 117
The Cornerstone Economy 118
 External Affairs 119
Visiting Cornerstone 119
 Life in Cornerstone 120
The Habitat Fee 120
 Cornerstone Characters 121
 Cornerstone Technology 122
Cornerstone Adventure Seeds 122
 FOUNTAIN-1 122
 History 122
 Fountain-1 Habitat 123
 Inside Fountain-1 124
Vocational Stimulus:
 Hotshotting 124
 Fountain-1 Characters 125
 Local Memes 125
 Visiting Fountain-1 125
 Economy 125

Inside Fountain-1 126
 External Affairs 126
Fountain-1 Adventure Seed: Infiltration 126
 STARBURST STATION 126
 History of Starburst Station 127
Yantari Philosophy 127
 Colony Design:
 Starburst Station 128
The Eternal Commander 128
 Inside Starburst Station 128
 Command Staff 128
Replay 129
 Life in Starburst Station 129
 External Affairs 130
 SAKHAROV STATION 130
 History of Sakharov Station 130
 Sakharov Station Habitat 131
 Inside Sakharov Station 131
 External Affairs 132
The Junkyard 132
 OTHER L5 COLONIES AND STATIONS 133
 Nickajack Station 133
 Peng-Lai Habitat 133
 Ravenstar 133
 Seventh Heaven 134
 Zhengsheng Station (Originally Kujang Station) 134

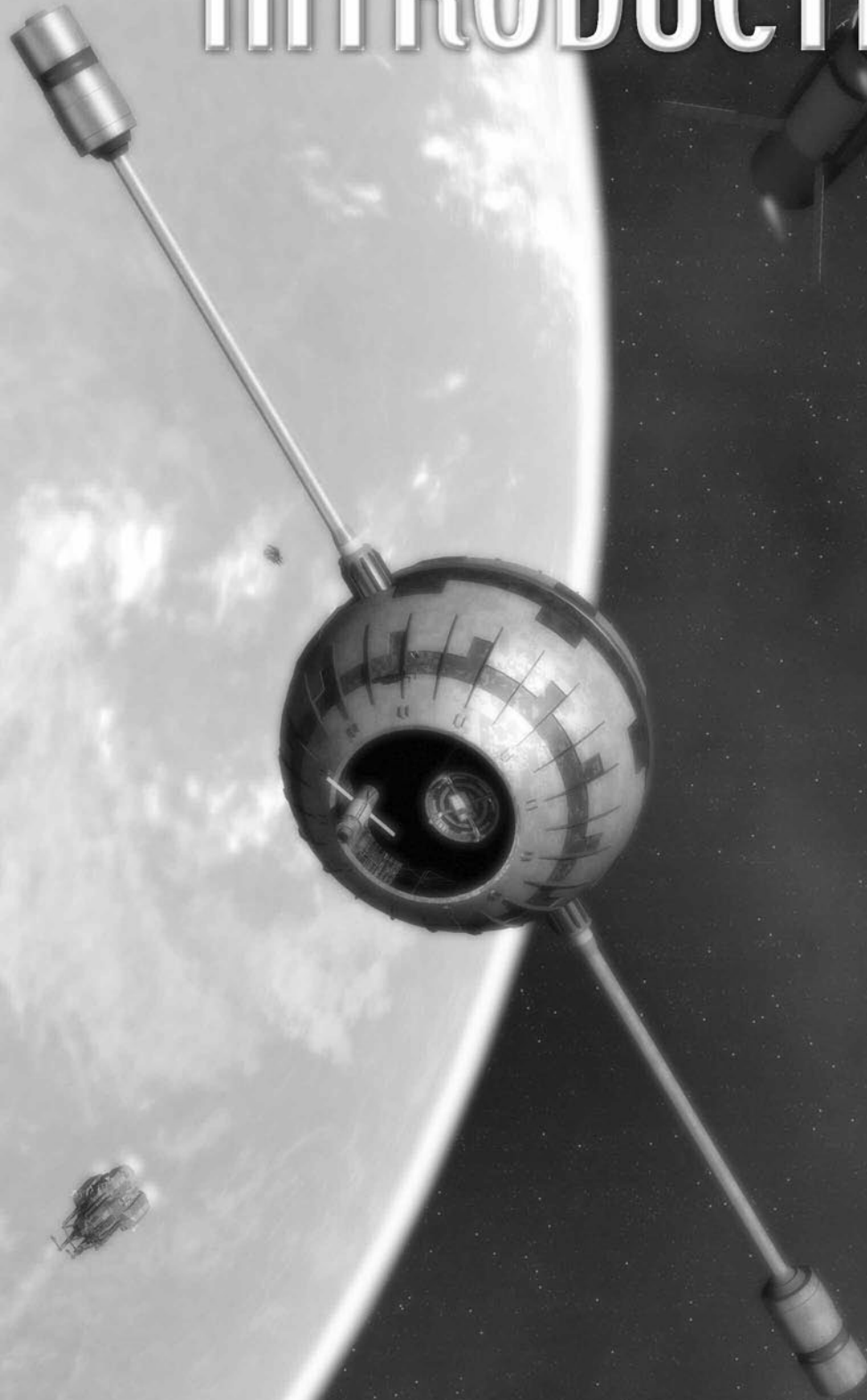
APPENDIX: SPACECRAFT AND STATIONS 135

by David Pulver

PERSONAL SPACECRAFT 135
 RSX-100 "Broomstick" 135
 Lunar Mining Vehicle 135
 SPACECRAFT AND STATIONS 136
Enterprise-Class
 Modular Station 136
Concierge-Class
 Defense Module 137
Cynosure-Class Station 137
Shanzi-Class
 Space Defense Platform 137
Omnistar-Class
 Space Platform 138
Steptoe-Class
 Debris Recovery Vehicle 138
Usagi-Class "Hopper" 139
Vulcan-Class Station 139
Von Braun-Class Station 140
 NEW DESIGN OPTIONS 140
 Control Systems and Sensors 140
 Sensors 141
 Communications Modules 141
 Habitat Modules 142
Station-Keeping Thrusters 142
Satellite Maintenance 142

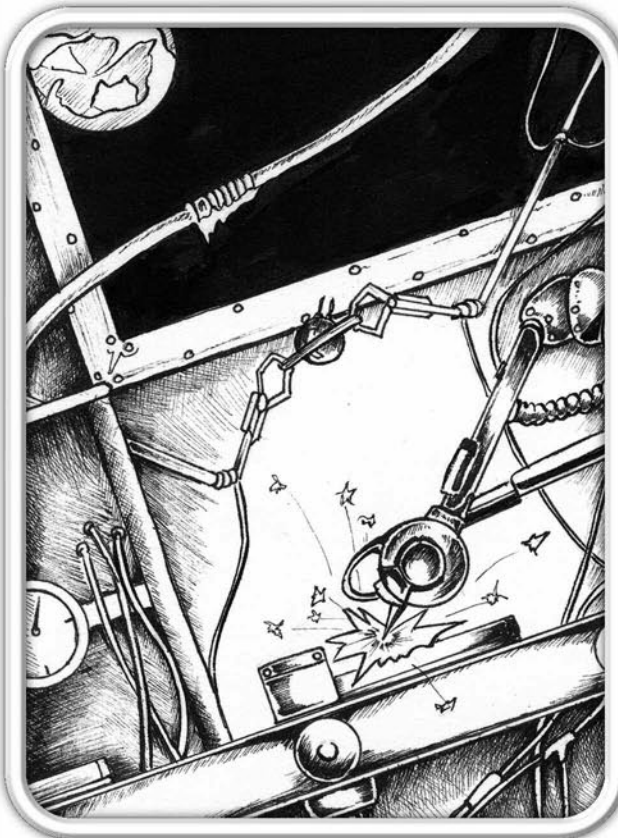
INDEX 143

INTRODUCTION



ABOUT TRANSHUMAN SPACE

The *Transhuman Space* series presents a unique hard-science and high-biotech universe for roleplaying. Set in the Solar System in the year 2100, it is a setting rich in adventure, mystery, and exploration of the possibilities of existence. The core book in the line is *Transhuman Space*, written by the series creator, David Pulver.



In the year 2100, Earth-Lunar space is the most densely populated area of the solar system outside Earth itself.

Earth orbit is buzzing with busy space factories and bustling spaceports, under the watchful eye of rival orbital weapons platforms. But the biggest danger is not the threat of war but the ravages of 150 years of space junk, moving at 17,000 miles per hour!

Further out lie the two Lagrange points: L4, where giant cities in space glitter like jewels in the night, presided over by the massive O'Neill colony Islandia, and L5, the ghetto of the solar system, colonized by dreamers, ideologues, and undercapitalized entrepreneurs.

Finally, there's Luna. Humans returned, and we brought bulldozers. Luna is the solar system's industrial park, with helium-3 mines that feed the fusion reactors

ABOUT GURPS

Steve Jackson Games is committed to full support of the *GURPS* system. Our address is SJ Games, Box 18957, Austin, TX 78760. Please include a self-addressed, stamped envelope (SASE) any time you write us! Resources include:

Pyramid (www.sjgames.com/pyramid/). Our online magazine includes new *GURPS* rules and articles. It also covers *Dungeons and Dragons*, *Traveller*, *World of Darkness*, *Call of Cthulhu*, and many more top games – and other Steve Jackson Games releases like *In Nomine*, *Illuminati*, *Car Wars*, *Toon*, *Ogre Miniatures*, and more. *Pyramid* subscribers also have access to playtest files online!

New supplements and adventures. *GURPS* continues to grow, and we'll be happy to let you know what's new. For a current catalog, send us a legal-sized or 9"×12" SASE – please use two stamps! – or just visit www.warehouse23.com.

Errata. Everyone makes mistakes, including us – but we do our best to fix our errors. Up-to-date errata sheets for all *GURPS* releases, including this book, are available on our website – see below.

Gamer input. We value your comments, for new products as well as updated printings of existing titles!

Internet. Visit us on the World Wide Web at www.sjgames.com for errata, updates, Q&A, and much more. *GURPS* has its own Usenet group, too: rec.games.frp.gurps.

GURPSnet. This e-mail list hosts much of the online discussion of *GURPS*. To join, point your web browser to www.sjgames.com/mailman/listinfo/gurpsnet-l/.

The *Transhuman Space: High Frontier* web page is at www.sjgames.com/transhuman/highfrontier/.

PAGE REFERENCES

Rules and statistics in this book are specifically for the *GURPS Basic Set, Third Edition*.

Any page reference that begins with a B refers to the *GURPS Basic Set* – e.g., p. B102 means p. 102 of the *GURPS Basic Set, Third Edition*. Page references that begin with CI indicate *GURPS Compendium I*. Other references are TS for *Transhuman Space*, BIO for *GURPS Bio-Tech*, DB for *Deep Beyond*, FW for *Fifth Wave*, ITW for *In the Well*, SSS for *Spacecraft of the Solar System*, and VE for *GURPS Vehicles*. The abbreviation for *this* book is HF. For a full list of abbreviations, see p. CI181 or the updated web list at www.sjgames.com/gurps/abbrevs.html.

of Earth, and more cybershell robots than people. But it's not all machines: the north and south poles are home to the pleasure domes of Moonshadow and thriving transhumanist Luna City. And on Luna's far side, a massive telescope array unravels the mysteries of the cosmos . . .

SALVAGE, DEBRIS, AND SPACE LAW

The clauses of the Revised Outer Space Treaty relating to the *creation* of orbital debris are a compromise between the need to control the amount of junk and commercial reality.

Some factions would seriously like to make every organization operating in space liable for everything they cause to be in orbit, including objects launched before the treaty was negotiated, but this is generally regarded as not only unenforceable, but too extreme in principle. A less excessive approach would require every object placed in orbit to have a demonstrable capacity to de-orbit itself – i.e., to cause itself to re-enter the atmosphere and burn up – at the end of its useful life, or to be recovered by its owner. The former option is simply too expensive – it would demand that every cheap satellite would include a fairly substantial motor. The latter, which seemed ludicrous in the early part of the century, has become at least theoretically possible with the growth in low-cost space flight and routine human operation in space.

At the other end of the negotiating range, some groups (including, in 2100, some, though not all, nanosocialist states) argue that “space is free,” and that attempts to impose restrictions on its use represent an attempt by established Fifth Wave powers to close off an area they currently dominate due to their own earlier unrestricted activities. A less extreme faction, made up of an uneasy alliance of moderate nanosocialists and mid-sized corporations, argues for minimal restrictions based on “proven” safety issues.

The nanosocialists of the TSA clearly have an interest in avoiding taking much legal responsibility for past operations. Their orbital operations during the Pacific War were extensive, violent, and less well-documented than those executed by China, and as the losers in that war, they especially begrudge being forced to pay for any cleaning up. As a further complication, much identifiable debris left over from the war can be traced back to Thailand, which has undergone a regime change since the war. The new government reacts badly to attempts to hold it responsible for its predecessor’s actions.

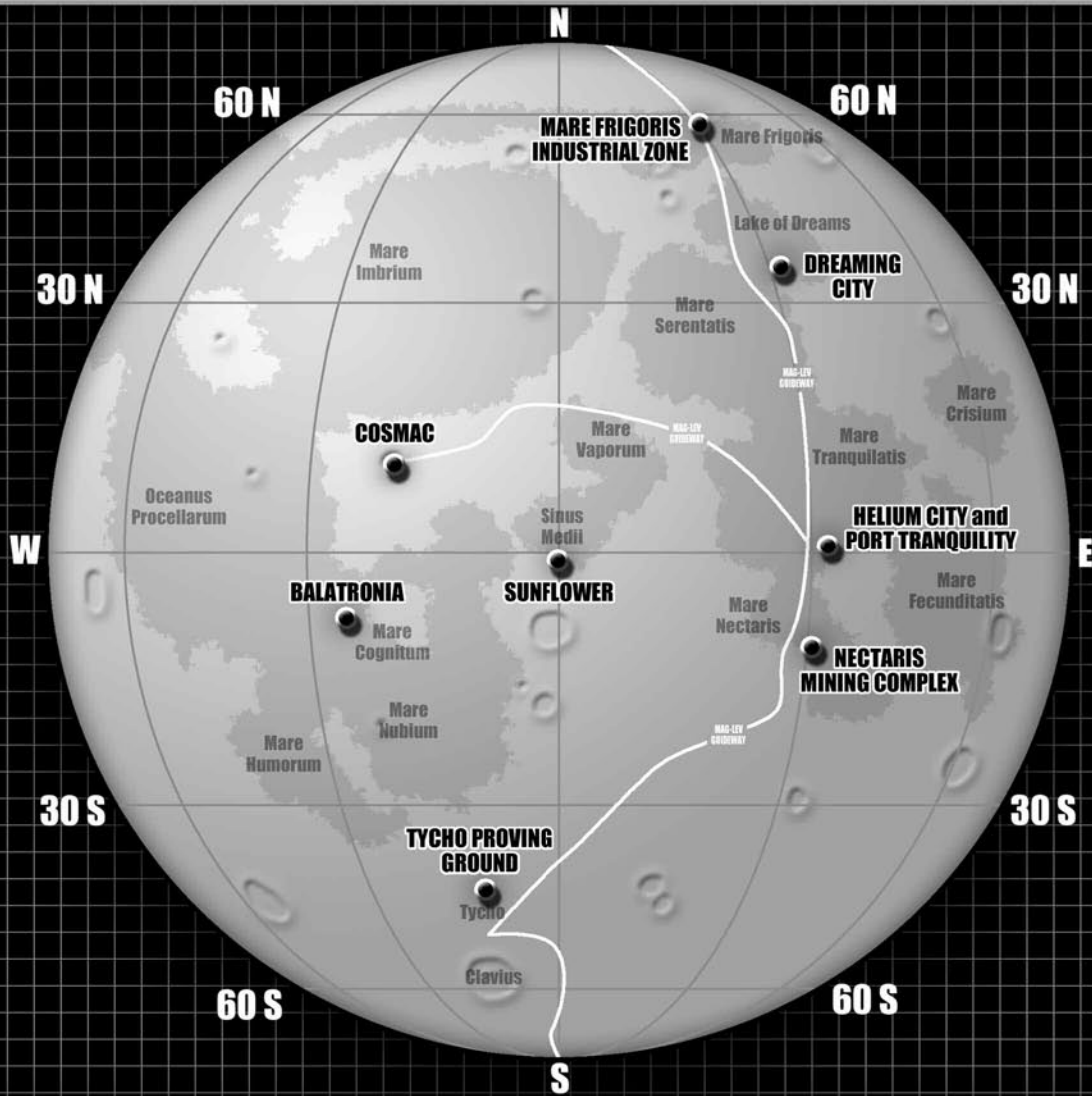
The working compromise embedded in the Treaty has survived because neither extreme faction can muster enough support to change it, and most people feel that it works tolerably well. It is based on the concept of liability for any damage caused, and places a responsibility on courts and arbitrators to determine not

only the origins of an object which caused damage, but also the extent to which its builders attempted to minimize risk. For example, an LEO satellite which was designed to de-orbit itself but did not due to systems failure is considered less culpable than one that was simply left to drift. Originally seen as a “cop-out clause” that left corporations free to do what they liked with little chance of anyone proving their guilt, this rule has been enforced with increasing effectiveness as investigators gained better access to space flight, tracking systems, and databases. Several organizations that originally supported this “good intentions” rule do so no longer, now that they have suffered its effects.

The Vacuum Cleaners themselves – who are, after all, the ones paid to remove all the old satellites and other junk – love the rule, as it keeps them in steady employment. It can even be used to make sure a reluctant customer pays promptly and fairly. (If a “responsible party” seems ungrateful, the threat of bad publicity sometimes changes minds. Still, most Cleaners try to avoid being seen as blackmailers.) The rule can trigger interesting space-based detective/mystery scenarios, with the PCs working to track down the “owner” of some piece of debris which has just caused an accident, uncovering old secrets and illicit operations in the process.

Another section of the ROST deals with geostationary satellites. They are required at the end of their working lives to be either removed by salvage crews or nudged via “graveyard burns” (see p. 42) to designated higher-altitude areas. Recent concerns about the “Graveyard” becoming overcrowded may lead to changes in this policy, but nothing has happened yet.

More importantly, another clause extends various conventions governing maritime salvage into space; while there are sometimes disputes, it is now established law that, if an unmanned satellite is demonstrably no longer under control (not due to the actions of the salvager!), anyone who recovers it gains extensive salvage rights. In order to get the property back, the original owner must either pay the salvager’s price, or submit to the jurisdiction of a court to set a payment. Moreover, anything unused and uncontrolled for 30 years, or which was causing a significant hazard due to its uncontrolled status, belongs to whoever recovers it. Governments will often want to recover their property themselves, but stations are generally happy to have dangerous debris near them removed by anyone.



Lunar Nearside

1 Inch = 412 Miles

Radiation

With neither an atmosphere nor a magnetic field, Luna is unprotected from both solar flares (p. TS30) and galactic cosmic radiation (p. TS59). Lunar bases must be buried underground (or heavily shielded) to protect their inhabitants.

Luna, like the Earth, is actually within the outermost effects of the sun's corona and during periods of peak solar activity, failure of electronic equipment and interference with radio signals are not uncommon. However, that same radiation provides Luna with the resources to support a colony. Billions of years of exposure to the solar wind (p. TS58) have impregnated Luna's regolith with the valuable element helium-3.

Water and Ice

Water is very scarce on Luna. What water there is came from ancient comet impacts. Numerous comets have struck Luna in the billions of years since its formation, and each produced clouds of water vapor on impact. These clouds fell back to Luna and froze. Most of this ice evaporated during the lunar day, but some ice in the perpetual shadow of craters near the north and south poles remained. (A similar phenomenon resulted in the survival of ice deposits on Mercury.)

About 6.5 billion tons of ice was found on Luna, split between various craters on the two poles. This may seem like a lot, but a city of a million people on Earth can use half a million tons of water each year . . . Even so, it's one of Luna's most important resources.

SPACECRAFT AND STATIONS

These were designed using the rules on pp. TS173-190 and the options described on pp. 140-142.

ENTERPRISE-CLASS MODULAR STATION

A 150' long, 30' diameter cylinder used as the central core of a small space station. It will often have 1-5 Lab, Housing, or Defense Modules attached to it, nestled in its cradles or even secured by tethers.

The station has a small docking bay (if empty, often used as zero-G recreation area), internal warehouse space, and tanks for refueling vessels. There are four halls usable as conference rooms, shops, or work shops. It also has eight cabins (although these are in microgravity).

The *Enterprise* core module can also function as a small solar-electric ion drive craft on its own. It has enough delta-V for orbital maneuvering, although this will drastically decrease when modules are attached to it.

Design: Cylinder (216 spaces, carbon composite, light frame); cDR/cPF 0.2/1 (aluminum armor). Solar panels (20 ksf). Solar cells (4 ksf).

Modules: Old basic bridge; Very small PESA; very small radar; 2.5 ion drive; 40 tanks (5 argon, 35 empty); 8 cabins; 4 halls; large entry module; 3 minifac workshops; small entry module; 0.1 battery; spacedock hangar (50' by 25' by 25', 62.5 spaces); 4 external cradles (125 tons each); 52 cargo (260 tons).

Statistics: EMass 219; CMass 500; LMass 520. Cost M\$10.34. cHP 119. Size Modifier +9/+4. HT 12. Maintenance Interval 6.22 hours (15.4 man-hours/day). RRA 0.

Performance: SAccel 0.00002 G. Burn Endurance 10,000 hours. Burn Points 720. Delta-Vee 2.2 mps. No air speed. Adding more modules will reduce performance, e.g., adding 4 housing/lab modules or 1 shelter/defense module halves sAccel, Burn Points and Delta-V; adding both divides by 3.

Housing Module

This is a 75' long, 30' diameter cylinder containing cabins, dining, and recreation space for 20-40 people. The module has no gravity, but two modules are often attached to a station core and spun on tethers.

The module may be used to quarter space workers and researchers, or as a cheap space hotel. A typical internal arrangement is five floors, with four

of them residential (each with a hall and five cabins), and one central service floor (with the entry module, reception hall, and a cargo area/battery room).

It relies on the attached Core module for power; on its own, batteries can operate it for five hours, or it could be equipped with extra solar panels.

Design: Cylinder (108 spaces, carbon composite, light frame); cDR/cPF 0.2/1 (aluminum armor). Solar cells (4 ksf).

Modules: 20 cabins; 6 halls; large entry module; 0.1 battery; 4.4 cargo (22 tons).

Statistics: EMass 100; CMass 125; LMass 125. Cost M\$1.26. cHP 17. Size Modifier +7/+4. HT 12. Maintenance Interval 52.16 hours (1.8 man-hours/day). RRA 0.

Fate protects fools, small children, and ships named ENTERPRISE.

— Cmdr. William T. Riker, "Contagion" (STAR TREK: THE NEXT GENERATION)

Lab Module

This is a 75' long, 30' diameter cylinder containing microgravity labs and workshops. The halls are used as laboratory and manufacturing work areas, with the exception of one that is used as an office/conference room. It includes bunk space for 4-8 lab technicians or researchers. The module can operate as an independent station, but usually, the lab module is clamped onto a larger *Enterprise* Core Module. If so, the bunks are often assigned to technicians or grad students, while the senior scientists stay in somewhat roomier cabins in a different station module.

Crew: 4-8. Two lab technicians (with Electronics Operation and Mechanical skill) will maintain equipment; they may be cybershells.

Design: Cylinder (108 spaces, carbon composite, light frame); cDR/cPF 0.2/1 (aluminum armor). Solar cells (4 ksf).

Modules: 2 bunk; 6 labs; 9 halls; large entry module; 2 minifac workshops; 0.1 battery; 0.2 cargo (1 ton).

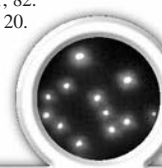
Statistics: EMass 123; CMass 125; LMass 125. Cost M\$9.04. cHP 65. Size Modifier +7/+4. HT 12. Maintenance Interval 6.65 hours (14.4 man-hours/day). RRA 0.

INDEX

- 3D Orbital Solutions, 26.
6-16, 22, 29.
Albert & Haraldt, 18, 36.
Algernon Foundation, 91.
Alien contact meme, 130.
Al-Khwarizimi Station, 16.
Alliance Space Defense, 28.
Alliance Volatiles, 61.
Althasian Enclave, 129.
Alvarez Orbital S.A., 26.
Amagi-3, 111.
Amethyst Games, 103.
AntiSingularity Principle, 97.
Anti-violence memetics, 87.
Apogee, 9, 15.
Aquarius Station, 111.
Arganthonios, 18.
Ariadne parahuman, 104.
Ariadne II parahuman, 104.
Arifa Ali's Grand Unified Theory, 69.
Arnorthite, 56.
Artemis Studios, 61-63.
Artsutanov-Pearson Station, 24.
Asteroid mines, 82.
Atheism meme, 121.
Auremond Orbital Hotel, 16.
Autonomous Kill Vehicle, 37.
AVPK Moiseyev, 26.
Balatronia, 66.
Bangalore Aerospace, 18.
Baumann Krankenpflege AG, 17.
Beanstalk, 23.
Beijing Academy of Space Technology, 26.
Beyond LEO, 42.
Bifrost Station, 22.
Biofactory, 142.
Biotech Euphrates, 17, 61, 67, 74.
Black Blood, 98, 100.
Bleep box, 41.
Blue Flame, 64.
Brainbugs, 80.
Broomsticks, 91.
"Bruno" radio telescope, 69, 70.
Bunk rooms, 19.
Camazotz parahumans, 78.
Captain Palma, 41.
Capture technologies, 37.
Cargo, 8.
Cascade catastrophe, 32, 33.
Casino, 133.
Characters, *Clarke-I*, 92; *Cornerstone*, 121; *die Sonnenspinnerin Sieben*, 98; *Fountain-1*, 125; *Hive*, 88; *Vacuum Cleaners*, 44; *Virt*, 88.
Chatarang Space University, 20.
Chiroptian-series parahumans, 78.
Cholasuk, Dr. Suwanee, 29.
Church of Latter-Day Saints, 111.
CIT/Provençale, 17, 26.
Clarke Governmental Union, 91.
Clarke-1, 80, 89.
Classification, *satellite*, 9.
Clean sky, 31.
Cleaners, *freelance*, 37.
Clone templates, *MacLarren*, 109.
Clones, 107.
Coastal regions, 51.
Cockpit, *simple*, 140.
Coilguns, 27.
Collision avoidance, 35.
Collision damage, 33.
Columbia Aerospace, 11, 20, 26.
Columbia Deep Space Port, 20.
Columbia Hilton, 16.
Columbia Station Spaceyard, 21.
Combat, *orbital*, 27.
Combs, 65.
Commercial carriers, 25.
Committee for Orbital Traffic Safety, *see COTS*.
Communication modules, 141.
Communication satellites, 9.
Communities, *isolate*, 60.
Comsat, 9.
Concierge-class defense module, 137.
Constellations, 8, 9, 15; *in GEO*, 22; *in HEO*, 20; *in LEO*, 16.
Construction projects, 13.
Control center, 140.
Control systems, 140.
Convenience, *flags of*, 13.
Copernicus Superconducting Macro-Particle Accelerator, *see COSMAC*.
Cornerstone, 114, 115.
COSMAC, 56, 66.
Cosmic rays, 15, 50.
COTS, 32, 33, 35.
Countermass, 24.
Craters, 52.
Cryptic Cybershell, 41.
Curvature of the Earth, 27.
Customs in orbit, 29.
Cybershell, *Cryptic*, 41; *Herzberg*, 100; *rentals*, 59.
Cynosure-class station, 137.
Daedalus Farside Radio Telescope, 70.
Damage, *collision*, 33.
Dancing Crane Studios, 103, 104.
Dark side of the moon, 48.
Data feed, *SDR's*, 35.
Data, *Luna City*, 74.
Day and night, *lunar*, 49.
Debris elimination technology, 37.
Debris Recovery Vehicle, 37, 40.
Debris, 27, 32; *salvage and space law*, 38.
DECASTAR, 22.
De-orbiting, *of debris*, 39.
Design options, *new*, 140.
Destruction, *of debris*, 39.
Diana's Crescent, 68.
die Sonnenspinnerin Sieben, 93, 109.
Dreaming City, 66.
Drinking in microgravity, 19.
DRV, *see Debris Recovery Vehicle*.
Earring, *emerald*, 41.
Earth Fleet, 28.
Earth orbit, 6.
Earth-based lasers, 28.
Earthlight Enterprises, 61.
Eating in microgravity, 19.
Economy, *Clarke-I*, 91; *Fountain-1*, 125; *Islandia*, 85; *Luna City*, 77; *lunar*, 56; *MacLarren Unity*, 108; *Margaret*, 104.
Electronic Intelligence Satellites, 10.
Elevator, *space*, 23.
ELINT, *see Electronic Intelligence Satellites*.
Ellison Orbital, 25.
Emerald earring, 41.
Endymion cybershell, 59.
Enterprise-class modular station, 136.
Environment, 49.
Equatorial Orbit, 9.
Esperante Enterprises, 22.
Eternal Commander, 127, 128.
European Robotics and Aerospace Corporation, 26.
Executive Decisions International, 30.
Exogenesis, 41.
External affairs, *Clarke-I*, 93; *Cornerstone*, 119; *Fountain-1*, 126; *Islandia*, 89; *Luna City*, 80; *MacLarren Unity*, 109; *Margaret*, 106; *Sakharov Station*, 132; *Starburst Station*, 130.
Extra-light frames, 140.
Factories, 12, 142.
Farside Observatory, 56, 74.
Farside settlements, 69.
Ferrets, 10.
Fighting in Earth orbit, 27.
Flags of convenience, 13, 15, 29.
Flares, *solar*, 20, 50.
Floaters, 131, 132.
Flying Dome, 78.
Foam sphere, 39.
Fountain-1, 122.
Foursight, 22.
Frames, 140.
Free Star League, 127.
Freedom Day, 117.
Freelance cleaners, 37.
Furniture in microgravity, 19.
GaiaStar, 25.
Galileo 5, 10, 20.
Garages, 11.
Gardens, *rock*, 54.
Gauss-II brain implant, 122.
Generators, *radiothermal*, 142.
Genetic Regulatory Agency, 25.
GenTech Pacifica, 89, 111.
GenTech Pacifica Ocean Surveyor, 20.
GEO, *see Geostationary Earth Orbit*.
Geostationary Earth Orbit, 7, 9.
Geostationary satellites, 42.
Geosynchronous Earth Orbit, 22.
GETEPOS, 20.
Golf, 69.
"Good intentions" rule, 38.
Government, *Clarke-I*, 91; *Fountain-1*, 124; *Islandia*, 84; *Luna City*, 76; *MacLarren Unity*, 108; *Margaret*, 105.
GPS systems, 10.
Graveyard burns, 42.
Graveyard, 25, 37, 38, 42.
Gravity, *lunar*, 49.
Ground fire, 28.
Habitat fee, 120.
Habitat modules, 142.
Habitats, *Cornerstone*, 116; *die Sonnenspinnerin Sieben*, 94; *Fountain-1*, 123; *MacLarren Unity*, 107; *Margaret*, 103; *microgravity*, 112; *Sakharov Station*, 131.
Handbray Segment, 41.
Handholds, 19.
Hawking Foundation, 20.
Heavy industry, *lunar*, 58.
Helium City, 64.
Helium-3, 50; *extraction*, 57; *mining*, 57; *byproducts of*, 57.
HEO, *see High Earth Orbit*.
Herzberg cybershell, 94, 95, 98, 100.
Herzberg infomorph, 100.
Hidden sectors, 79.
High Earth Orbit, 7, 20.
Highlands, 51.
Highly Elliptical Earth Orbit, 9.
Hippolyta parahuman, 104, 106.
History, 32; *Cornerstone*, 115; *die Sonnenspinnerin Sieben*, 94; *Islandia*, 83; *Fountain-1*, 122; *Luna City*, 74; *MacLarren Unity*, 107; *Margaret*, 103; *Sakharov Station*, 130; *Starburst Station*, 127.
Hive characters, 88.
Hives, 87, 109.
Holidays, *Luna City*, 77.
Horizon in orbit, 27.
Hormone sprays, 75; *illegal*, 79.
Hospital, 142.
Hotels, 12; *Auremond*, 16.
Hotshotting, 124.
Housing module, 136.
IAs, 96.
Ice mines, 62.
Ice mining, 77.
Ice, *lunar*, 50.
Identity-based neighborhoods, 85.
Ilmenite, 56.
Imagery Intelligence Satellites, 10.
IMINT, *see Imagery Intelligence Satellites*.
Imperial Legion InVid, 129.
Implants, *puppet*, 87.
Inclined orbits, 42.
Indaba Station, 21.
Industria Bio Reactores, 17.
Industrial parks, 13.
Infomorph, *Herzberg*, 100.
Infosocialism, 96.
Ingelheim Station, 16.
Inner radiation belt, 15.
Institutions, *lunar*, 60.
Intellectual Artists, *see IAs*.
Intelligence services, *and Vacuum Cleaners*, 46.
Intrastation transport, 142.
Iris Group, 88.
Islamic Caliphate, 16.
Island-3, 83.
Islandia, 15, 80, 82, 83, 109, 114; *Business Committees*, 84; *Charter*, 84; *Emergency Force*, 86; *habitat*, 84.
Isolate communities, 60.
Ithemba Biotechnologies, 21.
Japanese Self Defense Force, *see JSDF*.
Jasper, Scott, 128.
Job Table entry, *Vacuum Cleaner*, 43.
Jorge Chavez Station, 17.
JSDF, 71; *Lunar Composite Force*, 71.
Junk Cleaners, 31.
Junk Jungle, 113; *Vacuum Cleaners*, 43.
Junkmen, 31.
Junkyard, 132.
Kanzaki Robotics, 59, 61.
Kenya, 24.
L4, 81; *other colonies*, 111; *population*, 83.
L5, 113; *other colonies*, 133.
Lab module, 136.
Labs, 13.
Lacus Somniorum, 66.
Ladar, 10.
Lagrange points, 82.
Lagrange rush, 116.
Lake of Dreams, 66.
Lammergeyer Station, 17, 33.
Landscape, *lunar*, 51.
Lasercom, 141.
Lasers, 27, *earth-based*, 28.
Lava tubes, 52, 53.
Laws, *in orbit*, 29; *space*, 38; *weapons*, 30.
Leaving Earth orbit, 22.
Lenin's Tomb, 131, 132.
LEO, *see Low Earth Orbit*.
Lieutenant Bliss, 127.
Lifters, *mag-lev*, 141.
Light and shadow at the lunar poles, 49.
Light-lag penalty, 8.
LOGOSAT, 16.
Long Term Gravitation Study, 70.
Low Earth Orbit, 7, 15; *satellite constellations*, 16.
LSDI, 71.
Luna City, 55, 58, 62, 73, 89.
Luna, 47; *environment*, 49; *landscape*, 51; *map*, 50; *military forces on*, 71; *statistics*, 48; *tourism*, 59.
Lunar Consortium, 74.
Lunar Cooperative Credit Union, 60.
Lunar Democratic Congress, 60.
Lunar Guideway, 54, 60, 94.
Lunar institutions, 60.
Lunar mining vehicle, 57, 135.
Lunar Optical Array, 69.
Lunar Optronics, 61, 63.
Lunar poles, 49.
Lunar Preservationist Party, 60.
Lunar radiation, 50.
Lunar Rescue Force, 56, 60.
Lunar Space Defense Initiative, *see LSDI*.
Lunar water and ice, 50.
Lynx Crew, 80.
MacLarren clone parahuman, 109.
MacLarren clone templates, 109.
MacLarren Unity, 106.
Macrosats, 9.
MAG, 94.
Mag-lev, 24; *lifters*, 141.
Magnetic field, 15.
Magnetic storms, 20.



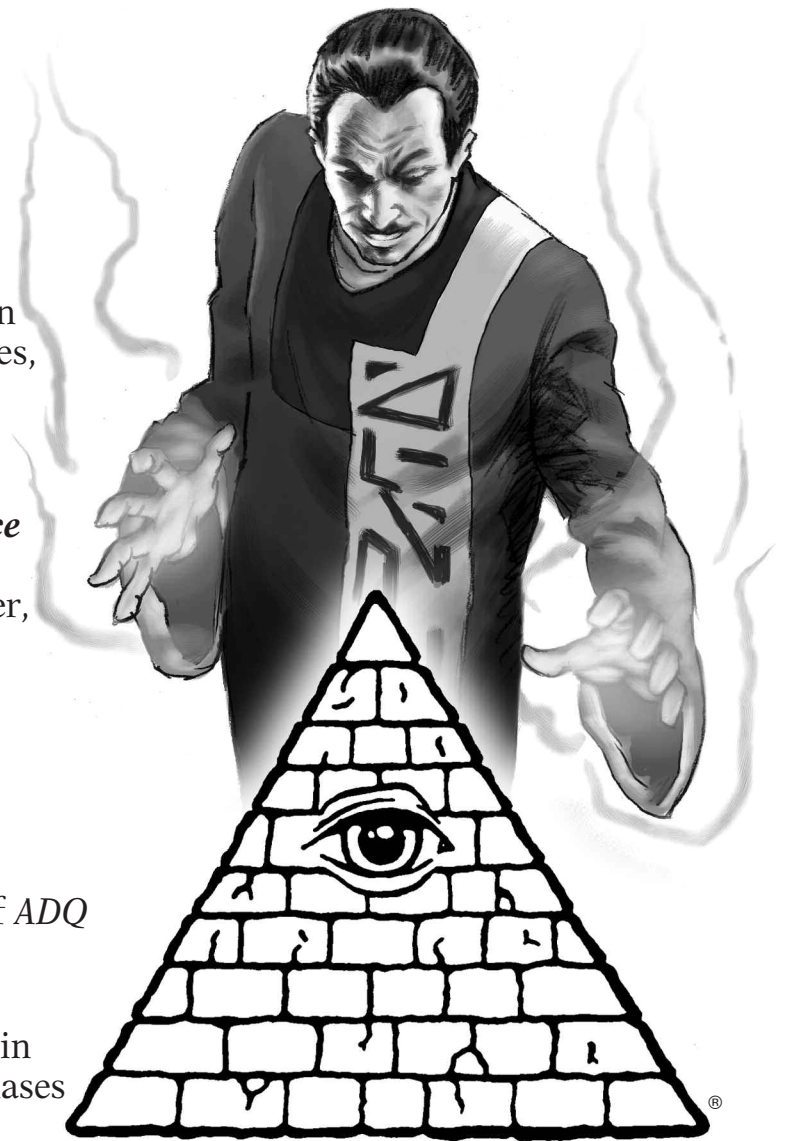
- Maintenance, *satellite*, 142.
 Majority Cultures Movement, 82.
 Malapert Mountain, 63;
 Space Defense Headquarters, 63.
 Malapert-Solaris, 61, 63.
 Maneuvering, *orbital*, 27.
 Mangliu, 13.
 Map, *of Luna*, 50.
 Maple Syndicate, 133.
 Mare Cognitum, 66.
 Mare Frigoris Industrial Zone, 65.
 Mare Procellarum, 57.
 Mare Serenitatis, 66.
 Mare Tranquillitatis, 57, 64.
 Margaret, 102, 111.
 Maria, 49, 51.
 Mars Interplanetary, 21, 25.
 Martian Triads, 65, 75.
 Materials Application Geosynchronous, Inc. (MAG), 94.
 Mawari Digital, 22, 127.
 Maxim-Herzberg LIC, 54, 94.
 MDB Integrated Systems, 21, 26.
 Mechanical telepathy, 87.
 Meme mining, 97.
 Memes, *Clarke-1*, 92;
 Cornerstone, 121;
 Fountain-1, 125; *Islandia*, 86; *MacLarren Unity*, 108;
 Margaret, 105; *Sakharov Station*, 131; *Starburst Station*, 130.
 Memetic therapy, 87.
 Memetics, 115; *anti-violence*, 87.
 Metanoia upgrade, 44.
 Microgravity, *living in*, 19;
 habitat, 112.
 Microsats, 9.
 Migrant spaceworkers, 13.
 Military forces, *on Luna*, 71.
 Military satellites, and
 Vacuum Cleaners, 46.
 Mining, *Helium-3*, 57;
 swarm, 57.
 Mining bases, *mobile*, 57.
 Mining camps, 58.
 Mining crawlers, 57.
 Mithra, 16.
 Mobile mining bases, 57.
 Modules, *communications*,
 141; *habitat*, 142.
 Moon bugs, 55.
 Moon hoppers, 55.
 Moon looping, 60.
 Moonshadow, 55, 60, 68.
 Morgenstern Station, 17.
 Mormons, 111.
 Mount Kenya, 24.
 Movement in microgravity,
 19.
 Nairobi, 24.
 Nanodynamics, 22, 61.
 Nanosats, 9.
 Nanospazio, 26.
 Nanosymbionts, 124.
 Nanotherapy, 87.
 National Technical Intelligence Bureau, 16.
 Naval lasers, 28.
 Navigation satellites, 10.
 Navstar, 10.
 Nearside, 48; *settlements*, 63.
 Nectaris Mining Complex-1,
 65.
 Neighborhoods, *identity-based*, 85.
 New Deseret, 89, 111.
 New Enlightenment, 115.
 Nickajack Station, 133.
 Nippon Uchuukaihatsu Kaisha, 111.
 North Pole settlements, 67.
 Ntinga Spaceways, 25.
 O'Neill, Gerard, 83.
 Obsidian Station, 17.
 Old city, 76.
 Olympus cleanup, 40.
 Olympus consortium, 40.
 Olympus Project, 12, 22, 23,
 24, 83, 114.
 Omnistar-class space platform, 138.
 Oppolzer crater, 67.
 Orbits, 7; *inclined*, 42; *lunar*,
 72.
 Orbital combat, 27.
 Orbital commercial carriers,
 25.
 Orbital construction projects,
 13.
 Orbital Department of the People's Armed Police, 30.
 Orbital Investments, 17.
 Orbital maneuvering, 27.
 Orbital paths, 9.
 Orbital population, 12.
 Orbital spaceports, 12.
 Orbital stations, 12.
 Orbital Sweepers, 31.
 Orbital telepresence, 8.
 Orbital velocity, 27; *table*, 7.
 Organic solar collectors, 67.
 Organizations in Earth orbit,
 25.
 Orion Industries, 30.
 Orion Security, 16.
 Ortrac, 16.
 Outer radiation belt, 15.
 Outsiders, 109.
 Pacific Rim Alliance, 126.
 Pacific War, 14, 20, 27, 41,
 82, 134.
 Pan-sapient rights, 105.
 Papillion Dome, 76.
 Particle accelerators, 66.
 Particle beams, 27.
 Paths, *orbital*, 9.
 Peak of Eternal Light, 62.
 Peng-Lai Habitat, 133.
 Perigee, 9, 15.
 Permanent shade, 49.
 Personal spacecraft, 135.
 PESA, 10.
 PICOMEX, 22, 26.
 Picosats, 9.
 Pipelines, *volatile*, 58.
 Plaskett crater, 67.
 Platonics Limited, 122.
 Polar Orbit, 9.
 Poles, *lunar*, 49.
 Pollution, *vacuum*, 66.
 Pool, *swimming*, 18.
 Population, *orbital*, 12; *L5*,
 115; *Luna*, 52.
 Port Diana, 72.
 Port Tranquility, 55, 64, 65.
 Posthuman Fitness doctrine,
 122.
 Posthumanism, 83.
 Powersats, 10.
 Privacy rooms, 77.
 Project Xian, 18.
 Puppet implants, 87.
 Quiet side of the moon, 69.
 Rabbit Transit, 55.
 Rabbits, 53; *pro-gov*, 60.
 Radar, 10.
 Radiation, *lunar*, 50.
 Radiocom, 141.
 Radiothermal generators, 142.
 Ravenstar, 106, 133.
 Reality gamers, 76.
 Reality games, 78.
 Rebecca's Arm, 131, 132.
 Red Arrow, 25.
 Red Rabbits, 60.
 Regolith, 51, 57.
 Remora, 79.
 Remote-sensing satellites, 11.
 Research satellites, 11.
 Revised Outer Space Treaty,
 29, 32, 35, 38.
 Rilles, *sinuous*, 52.
 Ring current, 20.
 Robofac, 58, 142.
 Rock gardens, 54.
 RSX-100 "Broomstick," 135.
 Russian Federation, 130.
 RV Interorbital Ltd., 25.
 Sabra, 132.
 Safety, *lunar*, 55.
 Sakharov Station, 130.
 Salvage, *debris, and space law*, 38.
 Salvage companies, *smaller*,
 36.
 Salvage finds, *six most interesting of 2099*, 41.
 Salvage stations, 12.
 Satellite classification, 9.
 Satellite Debris Removal, *see*
 SDR.
 Satellite maintenance, 142.
 Satellites, 8; *in GEO*, 22; *in*
 HEO, 20; *in LEO*, 16.
 Scaled Composites, 22, 26.
 Science, *lunar*, 56.
 SDR, *see Space Defense Platform*.
 SDR, 17, 33, 34.
 Search For Extraterrestrial Intelligence, 70.
 Seas, 49.
 Sectors, *hidden*, 79.
 Selenology, 49.
 Sensors, 140, 141.
 Service nanosat, 11.
 Service satellites, 11.
 Service stations, 12.
 Settlements, *lunar*, 53.
 Seventh Heaven, 66, 114,
 119, 134.
 Shackleton Crater, 62, 74.
 Shade, *permanent*, 49.
 Shanzhi-class space defense platform, 137.
 Shepard Golf Course, 69.
 Shou-Xing Station, 18.
 Showers in microgravity, 19.
 Simple cockpit, 140.
 Sinuous rilles, 52.
 Sinus Medii, 67.
 Sirius, 16.
 Six most interesting salvage finds of 2099, 41.
 Skytrain Industries, 26.
 Sleep restraint systems, 19.
 Society of Isidore, 91.
 Society, *Fountain-1*, 124;
 Islandia, 85; *Luna City*,
 77; *Margaret*, 104.
 Solar Express, 21, 25, 55.
 Solar flares, 20, 50.
 Solar wind, 15.
 Solo vacuum certification, 55.
 South Atlantic Anomaly, 15.
 South Pole, 74; *settlements*,
 61.
 South Pole-Aiken Basin, 52,
 61.
 Space Aquaculture Project,
 111.
 Space Defense Platform, 11,
 13.
 Space development corporations,
 26.
 Space elevator, 23.
 Space factories, 12.
 Space forces in Earth orbit,
 28.
 Space habitats, 82.
 Space hotels, 12.
 Space industrial parks, 13.
 Space junk, 31.
 Space labs, 13.
 Space weather, 20.
 Spacecraft, 135.
 Spaceports, 8; *orbital*, 12.
 Spaceworkers, *migrant*, 13.
 Spaceyards, 13.
 SpaTek, 61, 67, 68.
 Speculative object recovery,
 37.
 Spitzbergen Vakuumbabrik,
 89.
 Srinivasan Station, 18.
 St. Petersburg, 131.
 Standing Extraterrestrial Force Cis-Lunar, 65, 72,
 89.
 Standing Space Force Earth Orbit,
 29.
 STANEXFORCISLUN, 65,
 72, 89.
 STANSAPFOREO, 29.
 Starburst Station, 126.
 StarCross, 22.
 Station Légère Industrielle,
 18, 36.
 Station types, 12.
 Station-keeping thrusters,
 142.
 Stations, 135; *in GEO*, 22; *in*
 HEO, 20; *in LEO*, 16.
 Statistics, *Luna*, 48.
 Steptoe-class debris recovery vehicle,
 138.
 Storms, *magnetic*, 20.
 Subcultures, *transhuman*, 87.
 Sunflower, 67.
 Sun-Synchronous Orbit, 9.
 Super-collider, 66.
 Swarm mining, 57.
 Swimming pool, 18.
 Sylvester-Nansen crater, 67.
 System Technologies AG, 16,
 17, 26, 41, 52, 58, 61.
 Taiko Station, 12, 21.
 Taishan Station, 18.
 Tantalum Claw, 16.
 Tartessos Low-Earth Orbit Luxury Resort, 16, 18.
 Telepathy, *mechanical*, 87.
 Telepresence, *orbital*, 8.
 Telescopes, 11.
 Teletourism, 59.
 Temperature, *lunar*, 49.
 Templates, *MacLarren clone*,
 109.
 TEN-Malapert, 63.
 Tenzan Heavy Industries, 52,
 58, 61, 82.
 Teralink, 20.
 Teralogos, 20.
 Terrel-Dieskau, 22.
 Therapy, *memetic*, 87.
 Thrusters, *station-keeping*,
 142.
 Time capsules, 70.
 Toilets in microgravity, 19.
 Tourism, *live*, 60; *lunar*, 59;
 realbody, 60.
 Tranquility Industrial Zone,
 58, 64.
 Transhuman Awakening, 82.
 Transhuman subcultures, 87.
 Transhumanism, 83.
 Triplanetary Lines, 21.
 TSA Orbital Strategic Directorate, 29.
 Tsiolkovsky Farside Observatory,
 69.
 Tsiolkovsky Base, 70.
 Spacecraft, 135.
 Tycho basin, 52.
 Tycho Spaceport and Proving Ground,
 65.
 Ultra-light frames, 140.
 University of Cornerstone,
 118.
 Uplifts, 18.
 USAF Orbital Command, 29.
 Usagi-class "hopper," 139.
 Vac Bioroid, 92.
 Vacc suits, *personal*, 55.
 "Vacs," 89.
 Vacuum, *lunar*, 49.
 Vacuum Cleaners, 11, 25, 27,
 31; *Job Table entry*, 43;
 noted, 44; *operations*, 37.
 Vacuum gardens, 54.
 Vacuum pollution, 66.
 Vacuum Station, 126.
 Van Allen Belts, 15, 20.
 Vandegriff Station, 22.
 Vela Station, 22.
 Velocity, *orbital*, 27.
 VEO, *see Very High Earth Orbit*.
 Very High Earth Orbit, 7, 25.
 Video walls, 53.
 Virts, 88.
 Visiting, *Clarke-1*, 92;
 Cornerstone, 119; *die Sonnenspinnerin Sieben*,
 98; *Fountain-1*, 125;
 Islandia, 86; *Luna City*,
 74; *MacLarren Unity*, 108;
 Margaret, 106.
 Vocational selection, 124.
 Vocational stimulus, 124.
 Volatile pipelines, 58.
 Von Braun Station, 12, 15,
 18.
 Von Braun-class station, 140.
 Vesper-Babbage, 66, 82;
 Factory Asteroid, 112.
 Vulcan-class station, 139.
 Warrens, 53.
 Washing in microgravity, 19.
 Water, *lunar*, 50.
 Weather satellites, 11.
 Weather, *space*, 20.
 Wiper treatment, 101.
 World Trade Organization,
 64.
 Wymins' Pantropic Collective, 104.
 Xarxa Enllaç SL, 16, 26.
 Xarxasat, 16.
 Xiao Chu, 14, 18, 26, 41.
 Yantari philosophy, 127.
 Zhengsheng Station, 134.
 Ziusudra parahuman, 107.



STUCK FOR AN ADVENTURE? NO PROBLEM.

Warehouse 23 sells high-quality game adventures and supplements in print and PDF formats.

- Free downloadable adventures for *GURPS*, *In Nomine*, and *Traveller*!
- Fun gaming accessories – shot glasses, shirts, specialty six-siders, and more!
- PDFs from Atlas Games, Amarillo Design Bureau, Pelgrane Press, Goodman Games, and many others – plus gems from the up-and-comers.
- Original material for *Transhuman Space* and new *GURPS* supplements from Kenneth Hite, Phil Masters, David Pulver, Sean Punch, and William Stoddard!
- Fully searchable files of *GURPS Fourth Edition* supplements.
- Digital editions of out-of-print classics, from *Orcslayer* and the complete run of *ADQ* to *GURPS China* and *GURPS Ice Age*.
- Buy board games and roleplaying PDFs in the same order! Download digital purchases again whenever you need to.



STEVE JACKSON GAMES
warehouse23.com