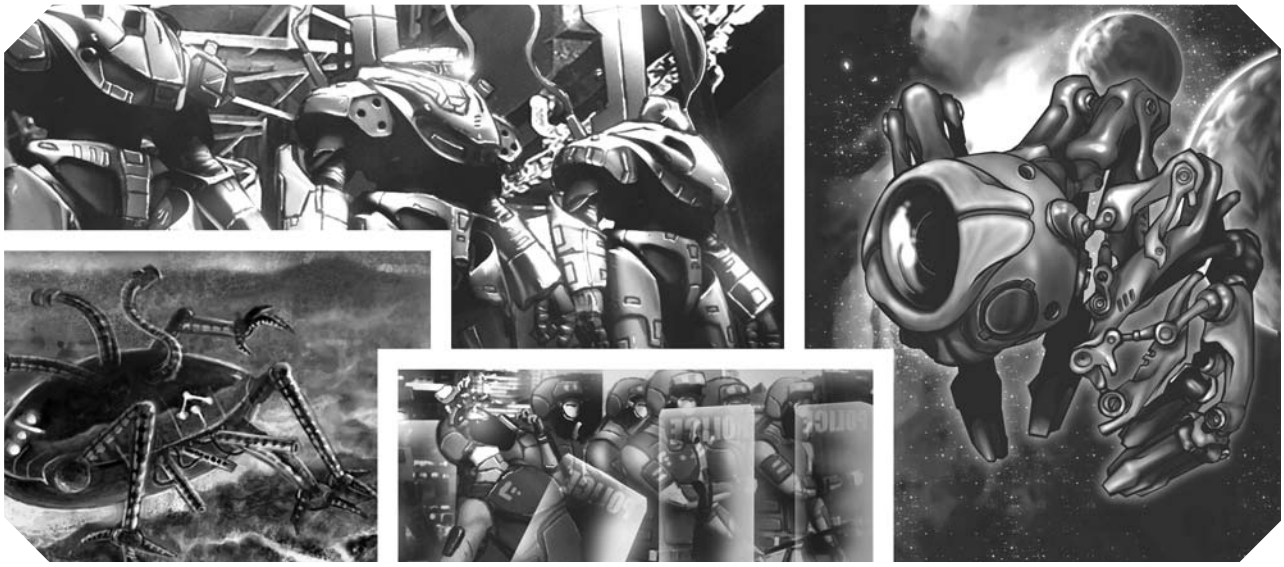
GURPS® Fourth Edition

TransHuman Space

CHANGING TIMES™



Written by PHIL MASTERS

Edited by THOMAS WEIGEL

Additional Material, Consultancy, and Template Assistance by DAVID PULVER

Additional Material by DAVID MORGAN-MAR

Art by PAUL DALY, JESSE DEGRAFF, MATT KRESGE, RAMÓN PÉREZ, CHRISTOPHER SHY, DAN SMITH, and BRIAN TARSIS

An e23 Sourcebook for ***GURPS***®

STEVE JACKSON GAMES

Stock #37-6701

Version 1.0 – December 4, 2006

CONTENTS

A Summary for New Players 4

INTRODUCTION 5
ABOUT THE AUTHOR 5
ABOUT ***GURPS*** 5

1. TRANSHUMAN SPACE CAMPAIGNS. 6
CONCEPTS 6
The Baseline Wave. 6
Waves and 4e Tech Levels 6
Crossing Waves 7
Less Advantages at Home 8
Campaign Focus 9
Campaign Moods: Excitement and Terror 10
Campaign Moods: Satire and Comedy 12
Gritty vs. Cinematic 13
APPROPRIATE CHARACTERS 14
Mandatory Features. 14
Character Legality 14
Team Building 14
Weird Options 15
RUNNING GAMES 15
"Our Servants Will Do That For Us" 15
Gathering Information 15
Combat 15
Adventures in (Relative) Safety? 16
Exceptional Wealth 16
Tracking Character Capabilities 17
Mutable Point Totals 17

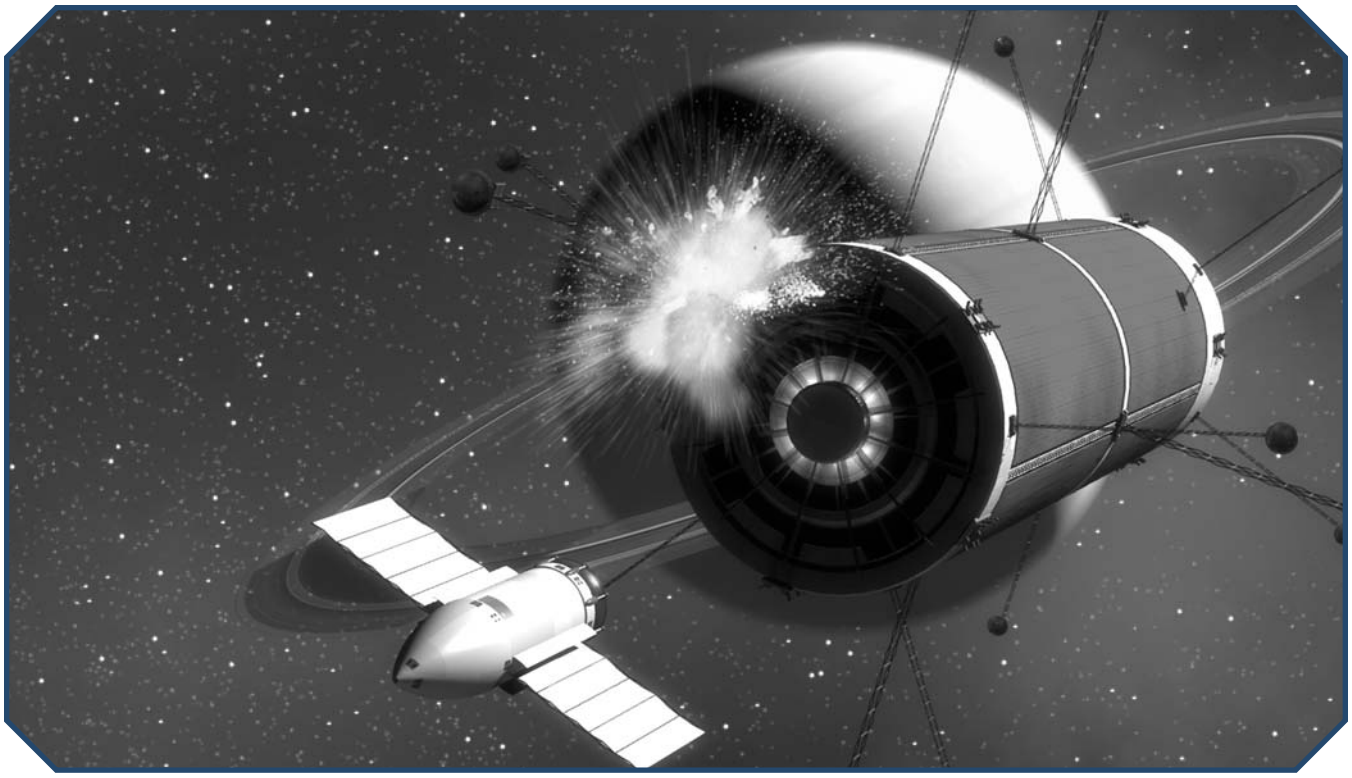
2. A GM'S VIEW OF 2100 18
TECHNOLOGY AND SOCIETY 18
The Waves. 18
Ubiquitous Computing 19
Microbots 19
Nanotech. 19
A Game of Ideas 20
Biotech 20
Artificial Life. 20
Memetics. 20
THE STATE OF EARTH 21
The Power Blocs 21

GURPS System Design ▌STEVE JACKSON
GURPS Line Editor ▌SEAN PUNCH
Indexer ▌THOMAS WEIGEL
Page Design ▌PHIL REED and JUSTIN DE WITT

Production Manager ▌MONICA STEPHENS
Art Director ▌WILL SCHOONOVER
Production Artist ▌ALEX FERNANDEZ
Print Buyer ▌MONICA STEPHENS

Marketing Director ▌PAUL CHAPMAN
Sales Manager ▌ROSS JEPSON
Errata Coordinator ▌ANDY VETROMILE
GURPS FAQ Maintainer ▌STÉPHANE THÉRIAULT

Lead Playtester: Jeff Wilson
Playtesters: Frederick Brackin, Roger Burton West, Ze'Manel Cunha, Eric Funk, Anthony Jackson, Rev. Pee Kitty, Jonathan Lang, Brett Pasinella, Bill Seney, Antoni Ten



Memes at War 21
Reasons to Travel 22
LIFE OFF EARTH 23
The Practicalities of Space Flight. 23
Opportunities in Orbit. 24
Mars. 24
The Olympus Project. 24
Mercury and Venus 25
The Outer System 25
EMPLOYERS AND EMPLOYMENT 26
Law Enforcement 26
Private Investigations 26
Intelligence Work. 27
Software Agents. 28
Dangerous Masters 28
Military Organizations 29
Working for Industry. 29
Conspiracy 2100 . . . . . *29*
Enforcing Intellectual Property 30
CAMPAIGN IDEAS 30
African Hearts, Transhuman Minds 30
Orbital Storm 31
Bringer of War 31
Ts and Cs 31
Time Travel to 2100. 32
Caught in the Communal Web 32
Peruvian Gothic 32

3. *GURPS 4E* UPDATE: CHARACTERS 33
CHARACTER DESIGN 33
Attributes and Secondary Characteristics 33
Vehicle ST and Other Attributes 34
Cultural Backgrounds 34
Disadvantage Limits 34
Character Points 35
Wealth, Status, and Cost of Living 36
Fifth Wave Characters. 36
Transhuman Space Status Table 37
What Cost of Living Gets You in 2100 38
Advantages and Perks 38
"Vessel" Cybershells 39
Talents for 2100. 40
Perks 41
Disadvantages and Quirks 41
Bioroid Social Stigmas and Wealth 43
Meta-Traits 43
Features. 43
Skills 44
New Features. 44
Brain Hacking 45
Computer Intrusion Under 4e . . . 46
Memetics as a Wildcard Skill . . . 46
Memetic Operations 47
Memetics. 47
TEMPLATES 48
Humans. 48
Human Genetic Upgrades. 48
Parahumans and Bioroids 48
Uplifted Animals 49
Infomorphs. 50
*IQ 0 in **GURPS***. 51
Indomitable Ais and "Machine Empathy". 52
Terminology: Sapience 52
Cybershells 53
Bioshells 59
CONVERTING EXISTING CAMPAIGNS 59

4. *GURPS 4E* UPDATE: TECHNOLOGY 60
WEAPONS AND EQUIPMENT 60
Software 60
Communications Implants 61
Sensors 61
Weaponry 61
Weapon Tables. 62
Medical Treatments. 64
VEHICLES 67
Bioship Templates 67

APPENDIX: OFF-THE-SHELF ALLIES 68

INDEX 71

Transhuman Space: A Summary for New Players

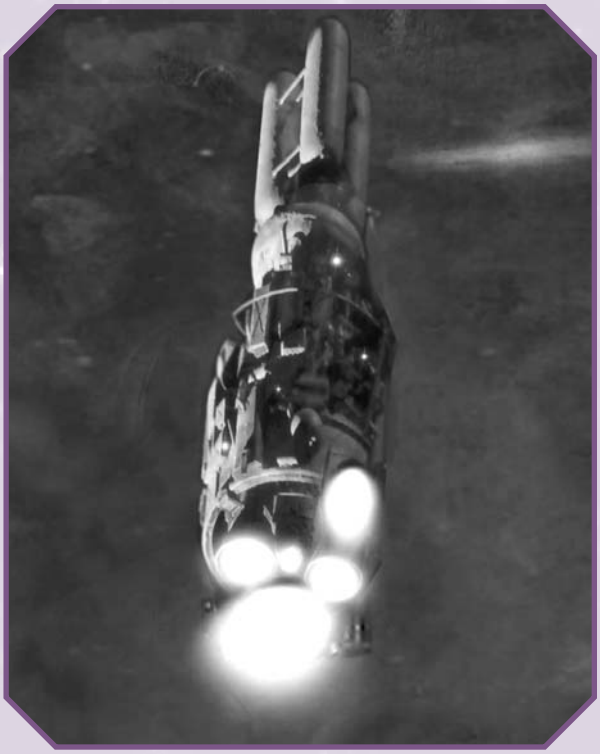
The year is 2100; the future is in the balance. ***Transhuman Space*** takes, broadly speaking, an optimistic view. There has been no global nuclear war, no great catastrophe; pollution and global warming, while by no means ended, have been more or less brought under control; resources mostly meet needs.

But this isn't a utopia either. There are still wars, tyrannies, and gross inequalities, and privacy is hard to find. Indeed, new sciences have created new evils.

Biotechnology

Most people, in advanced areas at least, have had all clear genetic problems eliminated in the womb, and many are enhanced, some to the point where they are no longer strictly *Homo sapiens*. Advanced medical treatments can largely eliminate disease (for a price), and lifespans are growing longer – though true immortality remains a dream.

Bioroids are synthetic beings, mostly created as servants and lacking some human complexity – but they still think and feel. Biotechnology can also "uplift" other species to near-human intelligence, create exotic farm animals and pets, and synthesize drugs which can modify the human mind to order.



Engineering

Computers in 2100 are powerful and cheap, though not superhuman; processors are embedded in almost every piece of technology. They are controlled by *infomorphs*, most of which are artificial intelligences ranging from nonsapient "NAIs" – clever talking user interfaces – through low-sapient "LAIs" – versatile, self-motivated, but not-quite-human minds – to fully sapient "SAIs." It's also possible to scan a human brain to create a *ghost*, an apparently perfect infomorph model, but as this destroys the brain, opinions are divided over whether it's a path to immortality or an expensive form of suicide. *Cybershells*, the machine bodies which infomorphs inhabit and control, range from industrial machinery and weapon systems, through beautiful "cyberdolls," to "wearables" and even implants within human bodies.

Nanotechnology (micro-scale engineering) is currently limited to "wet nano" – pseudo-biological creations which manipulate organic processes." Dry nano," capable of manipulating any matter on an atomic scale, is a hopeful research topic. Portable *3D printers* can manufacture complex objects to order, while *microbots* are insect-sized robots which work in collaborative swarms.

Space

Fusion-powered ships can cross the solar system in a few months. Indeed, *fusion power* is one key to humanity's wealth, but it depends on helium-3, a rare isotope which must be mined from the surface of the moon or the atmosphere of Saturn. This is one of the major reasons for the growth of space flight. Meanwhile, a Chinese-dominated colony on Mars is terraforming the planet while modifying humanity to live there, and space navies, criminals, and bizarre ideologies are expanding through the void. Earth orbit is downright crowded, and may grow even more so when the space elevator currently under construction is complete.

Memetics

Memetics is a young science of the mind. It sees "memes" (ideas and thought-patterns) as propagating like genes, using minds as their hosts, mutating and adapting as they go. Some people dismiss memetics as either seriously unreliable or, worse, deeply amoral and manipulative. Memetics isn't magic mind control; rather, it raises the ancient arts of propaganda, rhetoric, and teaching to new heights. Populations are increasingly seen as a memetic battleground for radicals, politicians, and pranksters.

The World Powers

There are several Great Powers. *China* is the largest, though more advanced in some areas than others; the *E.U.* (European Union), a loose but expanding confederation, is perhaps the most advanced. The *USA* is still a force to be reckoned with, controlling helium mining on Saturn, but increasingly divided socially.

The *TSA* (Transpacific Socialist Alliance) is a relatively weak confederation driven by a "nanosocialist" ideology which promotes the redistribution of information. It is a major concern in world politics, having fought a war with China in the 2080s and triggered the formation of the *PRA* (Pacific Rim Alliance) as a counterbalance. *India* also has the power to make itself heard, as does the *Islamic Caliphate*, a high-minded theocratic alliance.

The Waves

Technology determines much about the state of human society. The first great "wave" was defined by agriculture, and the second by the Industrial Revolution; by the end of the 20th century, humanity was riding the third, powered by digital computing. In the 21st century, *most* of the world experienced a Fourth Wave, based on genetic technology; now, it seems, a Fifth Wave is rising, based on a combination of nanotechnology, memetics, and artificial intelligence." Fifth Wave" societies are the wealthiest on the planet, but no one can be quite sure where they are heading.

Introduction

A face-to-face meeting with Gao Yanghou is never a comfortable experience. It doesn't help that you can never know whether it's really him or just one of the Swarm – his sculpted hatchet-men. Though it probably doesn't actually make much difference, especially if the rumors are true about the shadows running in their implants.

This time, I was meeting – whoever it was I was meeting – in a warehouse on the edge of the Anglo quarter of New Shanghai. The choice of venue might have been his idea of a joke, but I try not to assume too much about the sense of humor of the man who runs the Triads in the capital of Rust China.

He stood five meters away from me, and handed a package to one of his lesser flunkies. The man scurried over and handed it to me. It was a blank in augmented reality, no ID chips, but when I opened it up, my wearable decided that the logos and canister design gave it an 80%-plus chance of being genuine. I gave it 100%; Gao doesn't play stupid games.

"From the Belt?" I asked.

"Fresh down the elevator this morning," he said."The latest Omokage refinement." I wondered if this meant that Gao had settled his differences with Xie Feng out on Hesheng – but that was another subject not to be discussed.

"Your price?" I asked.

"You know of the bioroid known as Sally Xan?" he replied, and my wearable woke up.

"Not a good job to take," it murmured to me, "Xan's a Triad-made bioroid, but America/Mars got hold of her. She's a Commonwealth agent these days."

I tried not to smile. Things were suddenly turning interesting.

About *GURPS*

Steve Jackson Games is committed to full support of ***GURPS*** players. Our address is SJ Games, P.O. Box 18957, Austin, TX 78760. Please include a self-addressed, stamped envelope (SASE) any time you write us! We can also be reached by e-mail: **info@sjgames.com**. Resources include:

Pyramid (**www.sjgames.com/pyramid/**). Our online magazine includes new ***GURPS*** rules and articles. It also covers the ***d20*** system, ***Ars Magica, BESM, Call of Cthulhu,*** and many more top games – and other Steve Jackson Games releases like ***Illuminati, Car Wars, Transhuman Space,*** and more. *Pyramid* subscribers also get opportunities to playtest new ***GURPS*** books!

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 SASE, or just visit **www.warehouse23.com**.

e23. Our e-publishing division offers ***GURPS*** adventures, play aids, and support not available anywhere else! Just head over to **e23.sjgames.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.

Internet. Visit us on the World Wide Web at **www.sjgames.com** for errata, updates, Q&A, and much more. To discuss ***GURPS*** with SJ Games staff and fellow gamers, come to our forums at **forums.sjgames.com**. The ***GURPS Changing Times*** web page can be found at **www.sjgames.com/gurps/books/changingtimes/**.

Bibliographies. Many of our books have extensive bibliographies, and we're putting them online – with links to let you buy the books that interest you! Go to the book's web page and look for the "Bibliography" link.

Rules and statistics in this book are specifically for the ***GURPS Basic Set,*** *Fourth Edition.* Page references that begin with B refer to that book, not this one.

This supplement is designed to help you run games in the ***Transhuman Space*** setting. It consists of a guide to GMing and playing in the setting, and an extensive set of notes on updating ***Transhuman Space*** material to ***GURPS***, *Fourth Edition*.

While this book might be considered a "GM's Guide to ***Transhuman Space***," there is little or nothing here that will have to be kept from players. Instead, it answers the question, "What do I *do* with this setting?"

Read on, and find out.

About the Author

Phil Masters is a British games writer, previously responsible for a number of ***GURPS*** and other RPG supplements, including ***Personnel Files*** and a chapter of ***High Frontier*** for ***Transhuman Space***; he was also co-author of ***GURPS Banestorm*** and ***GURPS Powers*** for ***GURPS*** *4e*, and many other books. He's trying to change with the times himself, but not always succeeding. His website is at **www.philm.demon.co.uk**.

Chapter One
Transhuman Space Campaigns

"You don't look like the usual contractors I carry." The human pilot was making casual conversation as the OTV coasted.

"No, we're just out here for a short while." The passenger who'd spoken fidgeted in his cramped couch.

"Phew – expensive day trip you're on."

"Seems like we're needed."

A second passenger switched out of his briefing display with a muttered command, hoping that a quick answer would stop the pilot from chattering any more. "We're cops," he said flatly, "Genetic Regulatory Agency."

Transhuman Space is a *setting* – a panoramic view of a diverse solar system. A ***Transhuman Space*** *campaign* requires something more specific; a subset of the locations available in that system, some things for PCs to do, a guiding theme or idea. This chapter is about campaign design – about moving from the panoramic to the specific.

Concepts

Choosing appropriate locations and things to do demands some decisions. Given all the possible directions of the game, the GM has to nail the basics down from the beginning.

The Baseline Wave

Other sourcebooks have discussed the "waves" which define the technological and social state of things in various parts of the world of 2100. (See especially ***Fifth Wave***, p. 7.) The wave which the PCs are riding will define their likely level of wealth and resources, as well as their comfort with the most advanced technology and its personal consequences – which in turn has a major effect on the feel and style of the campaign.

Waves and 4e Tech Levels

The ***Transhuman Space*** waves correspond fairly well to ***GURPS*** *4e* tech levels; Third Wave is TL8, Fourth Wave is TL9, and Fifth Wave is TL10. But remember; the world is Fifth Wave, and the world is globalized. The future shocks from the Fourth and Third Waves are all decades in the past; now, only the economic distinctions really remain, and few people are shocked by anything but the Fifth Wave cutting edge. A poorly-educated character from a backwards area might have a level or two of the Low TL disadvantage, but most people, even in such settings, can have picked up any TL10 skills and familiarities they need through Web access and use of cheap but adequate imported gadgets.

Third Wave

A Third Wave setting places the PCs at the margins of the ***Transhuman Space*** world, in a situation not too different from the early 21st century. Third Wave characters see bioroids as strange, alien creatures – perhaps as "vat-grown soldiers" employed by their foreign-backed government, or as "synthetic servants" in images of the luxurious lives of the super-rich. While cybershells are a straightforward enough idea – Third Wavers know all about machines – true artificial intelligence is another extraordinary concept, and the idea of machines becoming superior to humanity in any way should worry most of them. Actual encounters with such things will be rare and challenging.

Third Wave PCs are stuck out on the margins, struggling to make their way in the world, even though they may have a secure place in their own local societies. The problem with this situation is that it downplays much that is interesting about ***Transhuman Space*** – it precludes playing any really exotic character types, traveling into space, or helping determine the course of human evolution. Still, it enables players who are unfamiliar with the setting material to ease their way into it gently, with less initial "future shock," perhaps moving to more advanced areas later as they gain familiarity with the world. The idea may also have a certain "cyberpunk" appeal for some.

The less-advanced regions of 2100, and the way things tend to happen there, are discussed in detail in ***Broken Dreams***. Remember that areas like these are poor and backward, and that there are usually reasons why places get in such a state. Sometimes it's a misfortune of past history, and local society may be working to catch up with the rest of the world; the government may be quite competently promoting development. In that case, game plots can revolve around efforts to acquire and exploit advanced resources on the cheap, whether by legitimate trade (with the PCs perhaps working as or for brokers, acting as bodyguards and guides to foreign visitors, or investigating criminal or

dubious projects), or by illegal means (with the PCs as crooks or cops). Examples in 2100 include Armenia, Ghana, and Cameroon.

In other cases, such as Kyrgyzstan, South Sudan, or Cambodia, development may be stymied, as political or cultural deadlocks prevent the area from advancing. In that case the setting will tend to *feel* backwards and corrupt, or at least culturally restricted; ambitious individuals will dream of getting away to somewhere better, or, if they're idealists, of changing the local system. Scenarios can still involve attempts to improve things, but they'll feel much harder, perhaps even fruitless.

Lastly, some Third Wave areas such as Haut-Zaire and Afghanistan are outright hell-holes, held back by the complete failure of civil order and social cohesion. These places are likely to be violent and dangerous, possibly being used as proxy battlefields by more advanced powers, and competent PCs will be forced to take sides in fights, even if they dream of getting out or somehow resolving the place's many problems. Scenarios in such a setting are likely to be military or paramilitary in nature; potentially exciting, but maybe rather nihilistic.

Fourth Wave

In a typical Fourth Wave game, the PCs are still out on the margins of advanced society. They are unlikely to have infomorphs to perform the wide range of tasks routinely handled by software in Fifth Wave settings, although their computer resources can still be quite respectable. They should, however, be familiar with advanced biotechnology, including bioroids.

Fourth Wave locations can be quite prosperous. They include less advanced areas of major global powers such as China and the USA, as well as "second-line" nations such as Kenya and many outlying members of the European Union. Conversely, there is nothing to stop them being conflict zones; Transhumanist biotechnology is driving social unrest in Nigeria, Ecuador faces threats to its borders from

Crossing Waves

Sometimes, PCs from a given background will venture into areas where the general level of technology and related social assumptions – the "wave" – differ from what they're accustomed to. These incidents should be treated as interesting roleplaying opportunities, as the characters find that crucial assumptions are unreliable and the complexity of the transhumanist world is brought home to them.

"Visiting Up"

Characters visiting a higher-wave region than they're accustomed to should be prone to confusion, practical problems, and probably emotional responses – classic "future shock." (See also "Social Transition Stress Disorder," ***Broken Dreams***, p. 55.) A lot of this should be reflected in practical ways, such as PCs finding that they don't have the virtual interfaces and augmented reality gear that they need to operate in society, shortages of funds, or lack of nanomod treatments to protect them against hostile nano or zero-G. The game rules express this idea with TL penalties, but enthusiastic roleplayers can take the opportunity to play it as something more; a chance to respond honestly to the radical nature of the ***Transhuman Space*** world, as their characters suffer the same confusion that they might feel themselves. The PCs might feel jealous of or inspired by the greater technological power of the advanced world, but they might also disapprove, seeing transhuman technologies as dehumanizing, new social models as amoral, and Fifth Wave people as smug and exploitative.

"Visiting Down"

Characters based in a higher-wave region who visit less advanced areas will also be disadvantaged and disoriented, especially if they can't prepare properly; their advanced technology relies on continually available resources. Computer access is harder is lower-wave regions – systems can't always access the Web, and even if they can, connections may be slow and unreliable. The lack of augmented reality or fast search tools may be frustrating and even confusing. Likewise, power and fuel supplies, ammunition, and so on, may be hard to obtain.

Some PCs visiting lower-Wave environments may be arrogant, some may be sympathetic, and some may take the opportunity to promote their own pet ideologies – to plant their personal memes in potentially fertile soil. Aside from what it says about them as people, such behavior can have repercussions, especially if the PCs turn out to need local help later.

The Technological Edge

Alternatively, characters based in a lower-wave area can have personal access to higher-wave technology, giving them an advantage over less sophisticated or wealthy locals. Many Third Wave power elites have Fourth or Fifth Wave gear; it's just that the masses around them don't.

A single tech level can make a big difference in technology. Weapons have better range, accuracy, and hitting power, while armor is likewise improved. A high-Wave adventurer may also have infomorph or cybershell support that enables him to effectively handle several tasks at once, or to work from a safe position while his opponents are exposed to danger.

This sort of advantage can lead to arrogance or complacency. Low-tech doesn't mean stupid, though, and even a Third Wave opponent will have some access to the Web, which can provide information on high-tech gear's limitations and vulnerabilities. Still, advanced equipment used with ruthless subtlety can produce very scary results; see the description of Alma-Ata in ***Broken Dreams*** . . .

nanosocialist neighbors, and even Kenya is suffering from social complications caused by the Olympus Project (p. 24). Fourth Wave regions don't necessarily see themselves as poor or backward, although the inhabitants will be aware that technology and lifestyles have developed further in other parts of the world. They may be working to catch up, with a fair chance of doing so in the fairly near future, or the local culture may be relatively cautious, unwilling to accept the radical technology-driven changes that progression to the Fifth Wave demands.

PCs may become actively involved in the "drive for progress," importing and implementing Fifth Wave technologies, or they may work for a cause with more complicated ideals. They may also have to deal with the machinations of Fifth Wave agencies who see Fourth Wave nations as profitable targets for exploitation or manipulation – especially when something like the Olympus Project draws their attention to these areas.

A Fourth Wave setting is different enough from today for the game to feel rich and strange, but not so exotic as to confuse the players to the point where they can't roleplay their characters properly. The PCs will have to rely on their own skills and resources rather than on software to perform many tasks – but these personal abilities can be varied and interesting. On the other hand, such settings may feel like too much of a compromise, lacking the bleeding-edge excitement of the Fifth Wave and the street-level satisfaction-in-survival of the Third.

Less Advantaged at Home

One way to set up a "high wave" game without giving the PCs huge resources or confusing the players with too many options is to make the characters members of a highly advanced society who don't, for one reason or another, have full access to all that it offers. A PC group might include a rich adolescent slumming it, his trusted but increasingly rickety old volkspider companion, a neighbor's bioroid servant, and the ghost of his grandfather, running on a mainframe but teleoperating a lot of buzzbots and striving to stave off boredom.

The obvious problem here is that people without a lot of social clout or resources aren't supposed to become involved in significant events. But it can happen anyway. A group of kids may have "young detectives" adventures, while slightly older adolescents or plain impoverished folks can become agents in street-level conflicts. "Indentured" AIs or bioroids can be assigned important missions, and so on.

Many of these characters will have significant Patrons (parents, employers, owners, etc.) This gives GM a way to connect them to other events and factions, and a way of recovering the situation if the PCs get into trouble over their heads. The problem is that the players may come to rely on this aid, or to feel that their actions are mostly irrelevant when set alongside the patrons' wealth and influence. Make sure that not *too* many points go into the Patron advantage at the start, and then emphasize the limitations and restrictions. A Patron should be a help, but not a *deus ex machina*.

Fifth Wave

Many game groups will want to play in the Fifth Wave, the state of the art of the ***Transhuman Space*** setting. In the great cities and technological enclaves of North America, western Europe, South Africa, and southern China, businessmen, secret agents, politicians, law enforcers, and memetic engineers struggle with everything that's special and dazzling about the setting, sometimes shaping the future but often simply struggling to discern that shape before it engulfs them.

Fifth Wave areas are wealthy, as stable as their own technological advance permits, and have well-established governments. Interpersonal violence isn't *impossible*, but it's seen as both highly objectionable and somewhat out of date; in any case, advanced weaponry makes it very dangerous for everyone involved, and advanced forensic enforcement technology makes it hard to avoid the consequences of breaking the law. (All this is one reason why, as for the past two or three centuries, the most advanced nations have been prone to resolving their differences with proxy wars in less wealthy regions.)

On the other hand, PCs prepared to use the memetics rules as freely as the combat system, to track faction wars and political subtleties, and to exploit the full range of Fifth Wave resources – and to respond when their opponents do the same – should find that a Fifth Wave campaign is a unique experience.

Off Earth

Life off Earth has challenges of its own. The technology and resources are necessarily quite advanced, but much of it is dedicated simply to keeping everyone alive. Characters are often a long way from some things which the typical citizen of 2100 takes for granted, and may occasionally be disconcerted by the lack of "standard" facilities.

The Web is more diffuse, and – away from Earth orbit – slightly less comprehensive. Even a small spacecraft will have vast quantities of data available for casual reference, but very obscure or recent information may be absent. Augmented reality, while commonplace, serves practical purposes, such as assisting spacecraft maintenance; tags may have a distinctly businesslike look. PCs in near-planetary space can access wider information sources, but may be disconcerted to notice a significant signal delay, and all spacers are dependent on the goodwill of whoever or whatever is running the local networks.

Signal lag and communication bottlenecks also prevent space travelers from using teleoperation of rented or borrowed cybershells as heavily as many ground-dwellers, and restrict access to the countless live slogs and other real-time interactive sources that define Fifth Wave society. The ground-dweller is a participant; the space traveler is limited to being, at best, a watcher. In deep space, such interactions are *strictly* local.

Basic day-to-day survival is a serious consideration in space, but shouldn't *usually* be an overwhelming concern in games. ***Transhuman Space*** assumes that Fourth and Fifth Wave technologies can adapt equipment (and, when necessary, *people*) to extreme environments. With smart materials and extensive AI oversight of every aspect of the

technology, routine space flight is remarkably safe and even straightforward. Still, it isn't really *luxurious*; spacecraft are cramped, travel times are long, and your life depends on a lot of AIs watching over you, though they are generally very polite and discreet about it.

While there are many large bases, and multiple stations are in close communication in some areas, some groups may be millions of miles from anywhere, isolated from broader society and from the instantaneous information flows of the Web, and everyone on the same small ship really has to get along with everyone else. When things *do* go wrong, they go wrong dramatically. Space isn't a natural environment for unmodified humans, and atmosphere mixtures, pressure levels, radiation, and complex medical and psychological effects can all conspire against space travelers in dramatic or insidious ways.

Life on Mars is slightly different, at least in the larger settlements. While the natural environment is hostile, most people live in substantial quasi-urban communities. The Web is still less extensive than Earth's, but is more than adequate for almost any purpose, and augmented reality and teleoperation may be used for relatively frivolous purposes. Still, life on Mars remains something of a "frontier" existence, with pioneers, prospectors, and explorers developing a new land. It involves both overt – if *mostly* non-violent – conflict between several powers all staking out their claims on new territory, and the camaraderie of people who have more in common with each other than they have with the hierarchy "back home."

Campaign Focus

Transhuman Space doesn't mandate any particular plot or focus for a campaign. Rather, it supports at least as many types of game as present day Earth. As a GM, you can pick any story that interests you in the present-day, then move it forward a century and see how it changes. While this doesn't necessarily bring out the full rich strangeness of the setting, it does give players a reliable, familiar reference point at the start.

Investigations

Investigation plots can work very well. They encourage the players to pit their wits against complex puzzles and meet all sorts of unusual people. Pursuing a mystery through different parts of a society and multiple locations can provide a broad introduction to the setting as a whole, providing all sorts of important details in a digestible form while giving the audience every reason to pay attention to these facts.

The PCs may be cops, private investigators, spies, news reporters, or indeed interested amateurs of some sort. (See the next chapter for organizations that might want to employ skilled investigators.) They may also be memeticists, analyzing communities and whole nations to monitor for memetic manipulation (and if necessary to stop it).

Transhuman Space investigative campaigns may be episodic, with a different mystery each week, or there may be some grand overall puzzle to be solved in bite-sized pieces, with the big answer coming as a climax which ends the campaign or sends it off in a completely new direction. However, the complexity and novelty of the setting can make them challenging to run; the GM will have to plan fairly carefully so as to be able to respond to any given PC action. The mysteries also have to be designed so that they can't be solved by simply throwing computer resources at the problem, although AIs and the web can certainly provide a way to cut short dull research problems and feed new information to the PCs when the GM needs to give events a kick.

GURPS Mysteries (which is available online at **e23.sjgames.com**) is a comprehensive guide to how to run mystery plots, and could be very useful here. All of the formats discussed on pp. 9-11 of that book are possible in the ***Transhuman Space*** world. Thrillers are always popular, while hard-boiled stories can be set, not only on the mean streets of numerous Earth cities, but on shabby L5 space stations or at the foot of the Mars space elevator. It's equally straightforward to run slightly updated "cozy" plots, perhaps in genteel Fifth Wave Eloi communities, where the intellectual mystery of how anyone could commit an undetected crime will be far more pressing than the rather limited options for violence. ("Investigative memetics" plots will often have a rather "cozy" atmosphere.) Procedural stories are more work, as the GM and players will have to determine what procedures and techniques are possible in the setting. Likewise, puzzle stories may be hard to set up in the face of TL10 technology. Lastly, McGuffin plots are an option, especially if the McGuffin is some new computer design, biotech sample, unique nanotech creation, or rampant meme.

Combat

Combat situations are common in 2100, and fairly dangerous. The PCs may be soldiers, wandering mercenaries, or other combat specialists such as a police SWAT team. Their adversaries may be enemy soldiers, terrorists, violent criminals, rogue infomorphs, or the bearers of radically divergent memes in some lightly-policed area such as the Martian outback or the Belt. Both sides can use a wide range of technologies – not just powerful guns and exotic ammunition, though those are diverse enough, but also cybershells, cyberswarms, and insidious nanotech. This means that, in all but the most marginal conflicts, combatants must be technicians as well as warriors.

One way to make such a campaign less prone to PC casualties is to permit a lot of teleoperated technology. This may lower the sense of personal risk, but a police SWAT team attempting a complex hostage rescue in the face of desperate opposition should feel concern for the safety of the hostages, even if the cops themselves are safely in teleoperation booths a mile from the scene – and, of course, the tactical challenges will be no less interesting. Meanwhile, shrewd opponents will be looking for ways to put the PCs *personally* at risk. Likewise, infomorphs (who actually form the majority of Fifth Wave armed forces) can always be restored from backups, and can sometimes even escape from danger by downloading, which may make them more casual about danger – although that can become expensive in cash and character points if the players become too careless, and enemies who can locate a hero's backup can suddenly look *terrifying*.

Armed forces are more socially inclusive in some respects than civilian society, and a soldier in 2100 may find that working with a nonhuman partner is part of the job, even if the nation doesn't class that being as a full citizen. He may even have to accept that the nonhuman takes a nominal "rank" above his own. (If an army trusts its AI strategists, for instance, it may decide that they should be empowered to issue orders.)

Another factor to note is that conflicts in the ***Transhuman Space*** world are almost invariably memetic as well as physical. An effective team may well have members dedicated to propaganda, counter-propaganda, and psychological operations, even at the squad level – and missions will often include a "hearts and minds" element. This can provide an extra dimension to plans, problems when different objectives clash, or the possibility of paranoia if memetic warfare specialists appear to be applying their skills to the rest of the team.

Combat-oriented campaigns can also include a certain amount of "downtime" activity. However much discipline is designed to control such things, armed forces are often the setting for personal rivalries, driving ambition, and the odd emotional storm. These "home base scenarios" need not be mere soap opera; there are, for example, possibilities for illicit activities or internal investigations into wrongdoing.

There are several useful ***GURPS*** *Third Edition* references dealing with these subjects. ***GURPS Special Ops*** deals with the kind of high-intensity small-unit military actions which are most likely to appeal to roleplayers; while the technology and conflicts both change radically by 2100, special forces still exist, and the book provides a useful overview of tactical concerns and possible scenarios. Likewise, ***GURPS Covert Ops*** describes clandestine conflicts. Finally, ***GURPS SWAT*** deals primarily with police SWAT operations in the present day, but many of the operational and tactical issues it covers will be just as valid in 2100, even if it's remote-commanded cybershells doing the close assaults.

Crime and the Streets

"Streets" campaigns don't have to involve professional criminal PCs, but they do imply a relaxed attitude to the letter of the law. In other words, this category doesn't necessarily mean "playing thugs," but it probably involves PCs who have to break a few rules in order to survive. (It can draw from *Neuromancer* or *Casablanca* – or it can take *The Usual Suspects* as its inspiration.)

Assuming that the players want to feel at least somewhat heroic, this in turn means choosing a setting where the rules aren't entirely fair – or just emphasizing the dubious side of any given society. The ***Transhuman Space*** setting isn't dystopian, but it has its share of corrupt states, run-down cities, and lawless outposts. Indeed, some players may have enough doubts about the "runaway technology" and "radical change" aspects of the setting that they find the idea of playing rebels and outsiders entirely heroic. ***Broken Dreams*** provides the most specific view of the dark side of the setting, although there are plenty of options for shady activity described in ***Deep Beyond*** (with criminal factions operating extensively in the belt) and ***In the Well*** (with Mars having become populous and chaotic enough to support a thriving underworld).

Such games are likely to be more about survival than about changing the world, at least to begin with. Criminals tend to have a hard time of it in the most advanced areas – forensic technology is just too good, AIs are too pervasive – but there are gaps and flaws in any system, and shrewd operators who don't *actually* break the law (much), or who do so with some discretion and the best equipment, can go a long way. Memetics has opened up whole new areas for crime, with the manipulation of ideas and the fine-tuning of rumors offering

Campaign Moods: Excitement and Terror

While the setting and practical focus of any campaign is important, so is the mood. This can vary within a game – indeed, a "one-note" campaign is usually rather dull – but radical changes and no stability can feel very unsatisfactory.

Thrillers work very well in the ***Transhuman Space*** setting. The PCs are heroic, either as a career choice or because circumstances demand it; action and adventure are expected. Action heroes in 2100 need to be expert users of technology, and will have impressive resources – but so do their opponents, so courage and dedication still provide an essential edge. Thriller plots can be straightforward struggles between heroes and villains, or shades-of-gray tales of betrayal and moral ambiguity, with the PCs forced to decide how far they're prepared to go for a cause, or to compromise their ideals in the hope that they'll eventually turn out to have done the right thing.

Horror games lack the underlying confidence of the thriller. While this isn't an explicitly dark world, it has many problems and dangers. Advanced biotechnology and digital intelligence permit many abuses which can affect players in an visceral way, from bioroids designed to *want* sexual abuse to the editing of sapient personalities. Meanwhile, conflicts beneath the surface of Europa or on far-flung space colonies involve as much claustrophobia and isolation as any horror fan could want. ***Transhuman Space*** horror games are likely to focus on the dehumanizing effects of runaway technology and the tendency to treat sapient beings as objects to be manipulated.

As a reasonably rigorous hard SF setting in which competing schools of thought not only clash, but take physical forms, Transhuman Space provides an exceptional opportunity for games of *Philosophical Exploration*, looking at questions such as "What is Human?" and "What defines Sapience, or Individuality?" Some PCs may find themselves regarded as subhuman property, while radical factions argue whether great acts of terraforming and bioengineering are humanity's destiny or hubristic abuse. While such plots may involve a lot of sitting around talking, they can also involve direct action, or attempts to propagandize – and in a world with sophisticated memetics, attempts to promote ideas may *themselves* raise large ethical questions.

new opportunities for dubious profits and specialized defensive work; see ***Toxic Memes*** for ideas. Street-level "meme hackers" may be small-time politicians, local businessmen, freelance deprogrammers – or con artists with some interesting tools and large target groups.

Memetics and Politics

Alternatively, PCs may operate entirely within the social order. Memetics turns politics into both a dubious branch of science and a genteel form of warfare (if it wasn't already both), and managing society and its transformations in the face of Fifth Wave technology should be adventure enough for anyone.

PCs can be politicians or activists, their memeticist advisors (some of them very possibly powerful AIs), other support staff, trusted family, and – in many areas – their bodyguards. While the last category can include the traditional heavies with fast reflexes and small, powerful handguns, it can also encompass skilled technicians whose job is to monitor their employer's environment and medical condition in real time, especially when he's out in public, and to respond instantly to biotech, nanotech, or microbot assaults by deploying countermeasures – preferably quickly and subtly enough that the employer's schedule isn't disrupted.

This implies a cerebral style of game, but it doesn't preclude physical action, especially if the bodyguards of either sort are called on to ply their trade. The PCs will be attempting large-scale memetic operations to acquire and maintain popular support for their employer and their cause, but they will also be facing equally capable rivals. Radicals and terrorists may provide ruthless, effective opposition. This can be a grand *West Wing*-style saga of great power and responsibility, a more localized game of electioneering and deal-brokering – or, if things take a dark turn, a *Manchurian Candidate*-style story of memetic sabotage, uncertainty and betrayal.

One problem when setting up a political campaign is that the players' own real-world political opinions are quite likely to slip in, defining what their characters regard as ethical behavior. On the other hand, just because some PCs disagree with the "leader" doesn't mean that they can't work for him; the cynical, amoral memeticist who works for whoever pays best, and the honor-driven bodyguard for whom the job comes first, are both viable character concepts.

Exploration and Research

Transhuman Space isn't a "frontier" setting. There *is* a frontier out there, of course – the outer system – but it sees a pretty substantial government presence, and it can be observed directly by telescope from "back home." Games are more likely to be about the future of a mature technological civilization and interactions with a large and rapidly evolving human society.

But research, and even exploration, are still valid themes for a ***Transhuman Space*** campaign. To begin with, there are some peculiar "frontiers" within the volume of mostly-explored space; the ocean depths of Earth and other worlds still have their mysteries, while the deserts of part-terraformed Mars have something of a Wild West atmosphere. Meanwhile, the Web is evolving into a whole new universe, ripe for investigation; it's arguable that the true pioneers of the setting are mostly infomorphs, exploring and expanding this realm of pure data while also exploring the possibilities of their state. Perhaps more importantly, *research* certainly isn't dead; better AI, "dry" nanotech, and black hole physics are just some of the intellectual frontiers.

Turning this sort of thing into an exciting campaign can be tricky. The key is that more than one group or faction is likely to be pursuing the same goals, and may be prepared to fight for precedence or bigger profits. Claim-jumpers on Mars and preservationist vs. expansionist groups almost anywhere are obvious examples, while the pursuit of, say, a newly discovered primordial black hole could easily turn deadly. On the other hand, economic expansion could lead to subtler battles, in the courts or the media, with memeticists as the warriors . . .

Colonization

Likewise, there are still some places where new communities can be built and shaped by the determination of their founders. Mars again qualifies, and humanity's expansion into the Belt and beyond is just getting under way. The colonization of the outer system may not be something for which organic humanity is really suited, but infomorphs can dwell in cybershells suited to almost any environment. If these infomorphs are radicals, such as refugees from Exogenesis, the "colonies" have the potential to become rather strange.

In the absence of enemies, such as Nanodynamics for the renegade Exogenesis infomorphs or whoever drove other exiles away from their homes, pioneering adventures may be rather low-key. Nor are these generally large projects, though the task of setting up an asteroid base, Martian town, or lunar research center could be enough to fill a campaign. "Colonial" games can also feature other activities, such as negotiation with neighboring communities, internal power struggles, and the odd fight with criminals or saboteurs from rival powers. The most effective sabotage might actually be *memetic*, as this can take a colony over to a rival side or put it in conflict with its original sponsors, so colonies are likely to include memetic defense specialists (hopefully not turning into political officers or propagandists, but the difference may seem vague to others in the colony). A "frontier marshals" campaign in which roving groups of troubleshooters aid outlying colonists with their internal and external conflicts could involves as many battles of ideas as gunfights.

Business

Business campaigns are about getting rich – or sometimes, just surviving in a competitive corporate environment. They should tend to be low on violence (this *isn't* a stock-cyberpunk setting, and corps will only resort to hiring armed help in very special circumstances) and long on thought and politics. However, PCs may be interested in high-risk, high-return options, which can lead them into geographical areas where not everyone plays by civilized rules; in some campaigns, a party may consist of a mixture of smart risk-taking entrepreneurs and their personal bodyguards and infomorph support. Also, remember that one of the most dramatic high-tech conflicts in the setting, the Exogenesis confrontation, was the consequence of commercial activity.

Many of the major corporations in the ***Transhuman Space*** world are rather staid and cautious, and there are few areas where capitalism operates in totally unrestrained cut-throat style. However, there are new opportunities opened up by rapid technological development, including humanity's expansion into space. There are also niches where the individual entrepreneur or small company can make a good profit by dint of adventurous management. With fast communications, clever memetics, and rapid innovation, the small, agile outfit can do very well indeed – if it's smart and lucky.

Nor need business campaigns focus on dull accountancy or ruthless profit-grubbing. The small, agile company may well be riding the crest of the Fifth Wave, throwing itself into new possibilities days or even weeks ahead of the competition – or it may be working to bring all of humanity up to date, earning an honest profit as a broker on the border between more and less advanced areas and helping the latter to catch up with the former.

Thus, the first thing to decide when setting up such a campaign is what sort of business the PCs are going to be in – and what their big starting opportunity for profit might be.. A business game should also involve opposition – not necessarily violent rivals, but certainly competition. These may be established companies whose profits will be hurt if the PCs succeed, other entrepreneurs with similar ideas or a ruthless willingness to steal, or latecomers who may be willing to use dubious tricks or a lot of investment cash to catch up when they move into the same field as the PCs' company.

Picaresque Wandering

A "picaresque" story is one about wanderers and travelers seeing the world (originally, the word meant stories about wandering rogues). Hence, the term implies a loose plot in which the main interest is the stuff which the characters encounter.

There are also plenty of people in ***Transhuman Space*** who make good picaresque protagonists; wealthy Eloi playing tourist, bored "recurvers" living off their savings while they look for a new career, radical ideologists lying low after making themselves unpopular somewhere, and professional edge-hunters and tippers whose job is to identify or propagate the Next Big Thing a crucial few days ahead of mass awareness. It's even possible to run a picaresque campaign in which the PCs hardly ever leave their homes (physically); they can "wander" the Web, or use teleoperated cybershells to explore almost anywhere within half a light-second or so.

The snag with a picaresque story is of course the lack of focus or goal. Unless the GM keeps coming up with new and bigger amazing sights, the players are certain to get bored sooner or later – and the biggest wonders, verbally described, are bound to pale eventually. If the PCs develop soap-operatic relationships within the party, this problem can be deferred, but it will always be a threat – and a picaresque campaign that just fizzles out will probably be seen as a failure.

Hence, a picaresque game may evolve over time into something else. The PCs may develop some goal or goals for themselves – starting a business or a colony, taking revenge for some assault, stopping some evil – or the GM may drop something important in their paths. Clever GMs can work hints and foreshadowing events into the campaign from early on, so that when the change comes, the players can look back and see that it was coming all along.

Campaign Moods: Satire and Comedy

As a relatively near-future SF setting, the world of ***Transhuman Space*** takes some of the features of our society to extremes. Hence, it almost inevitably has overtones of *Satire*, which can become central. Just as music and software "piracy" is a concern today, people in 2100 may find that their genes include "rights management" features that prevent them having children without paying a fee, and "content providers" may try to charge people for having *memories* of their products. Meanwhile, the hacker mindset has moved from computing to the human mind. Politicians in ***Transhuman Space*** games can turn out to be mere face men for artificial intelligences, while fans of a cancelled SF series try to replicate their favorite stories in an all-too-real space environment.

Satire can be hard to sustain in games, as players tend to want their characters to have adventures and accomplish things. Characters in effective satire tend to be subservient to the ironic point being made. Still, a more or less satirical approach can provide games with an unusual, twisted style.

This can also be a good setting for *Comedy* games. The weirdness of the future world can easily tip over the edge, with talking furniture, pets almost as smart as their owners, people complaining about the stress of a 20-hour working week, and genetically engineered octopuses being sold, unsuccessfully, as sex toys.

GMs running comedy games should keep the stakes and the risks fairly low. Players who see their characters as having a lot to gain or lose tend to play them efficiently, which loses many chances for humor. Still, once the characters' comic natures are established, they can have significant adventures; players will take to making humorous remarks, even (or especially) at moments of tension, and will come to accept defeats as well as victories as the stuff of humor.

Sitcom/Soap Opera

Life is interesting enough in the ***Transhuman Space*** world that "people just hanging out, having relationships and doing their jobs" can be a serviceable campaign theme in itself, without even the need for picaresque wandering. These plots can be modeled on television sitcoms and soap operas. Indeed, players with a taste for soap opera will often create plots with minimal encouragement, though the GM can always throw in a visitor, a minor personal problem, or a business opportunity to stir the pot.

Sitcom campaigns can be set in relatively mundane parts of the setting – such as a peaceful community on Earth – or in more exotic locations, such as a slightly decrepit L5 station, a research base on the ocean floor, or a military outpost in the

Gritty vs. Cinematic

As a rigorous hard SF setting, ***Transhuman Space*** tends to be "gritty" rather than "cinematic." Characters are realistic people (in the context of the setting), with serious concerns and (usually) a serious fear of dying, actions have logical and sometimes painful consequences, and the heroes have to be very smart, lucky, or rich if they want to single-handedly change the history of the world.

However, this isn't a ban on cinematic play. "Cinematic" stories such as the James Bond movies are set against the background of a normal-seeming world; that's what makes Bond's skills and accomplishments look so impressive. Likewise, it would be perfectly possible to construct games around 2100-era super-spies, ultra-tough mercenaries, ace pilots, or master detectives.

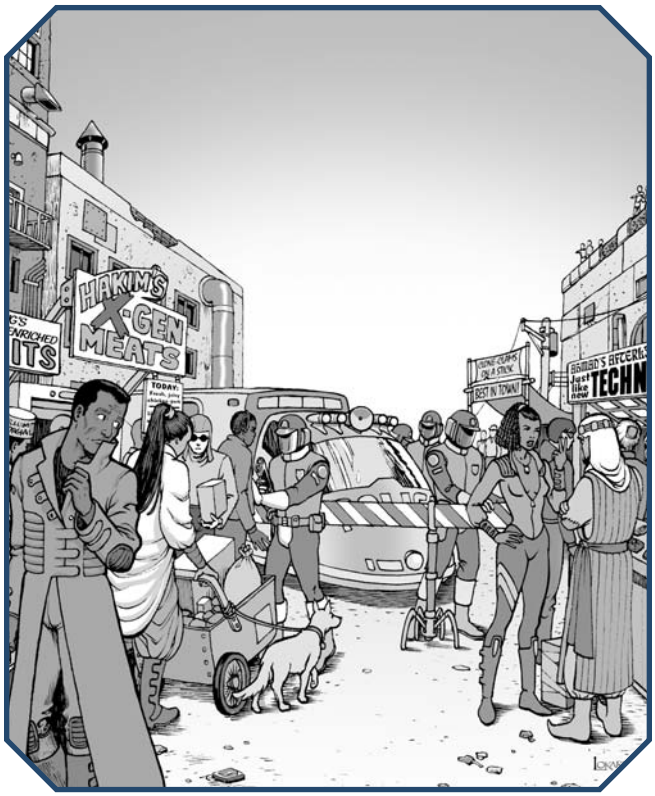
Furthermore, one of the cool things about advanced technology and weird environments is that they make things possible that would once have looked "cinematic." In 2100, martial artists really can leap right over the heads of their opponents – on Mars, given the right training or modified biology – while boosted nervous systems or AI control permit impressive feats of gunplay or driving. The laws of physics haven't been repealed, but they *can* be exploited. A game played on the edge of high-tech plausibility can work very well indeed.

The Wildness Quotient

Transhuman Space also tends to be rather "low key" in plot style, full of moral shades of gray. Aside from a few psychopaths and renegades, there are few clear villains and few perfect heroes; even, say, the TSA, likely to be an antagonist in many games, has a clear ideology that appeals to some people today. Meanwhile, stories of global memetic control, world-devourer nanotech, or alien artifacts, are the province of InVid dramas and ***Toxic Memes***, not "reality."

But again, that doesn't *have* to be so, at least not all the time. A "*Xoxhunter* the InVid series" campaign, cinematic in style and flamboyant in tone, would be entirely viable. For that matter, even in the grittiest game, the occasional scheming boosted-IQ psychopath or wild new invention could be an interesting surprise for PCs who've become used to subtler problems.

But the GM and all the players should make sure that they have similar ideas about the tone and style of their ***Transhuman Space*** campaign. If the GM wants to play rigorous and gritty, while some of the players are expecting two-fisted cinematic action, some scenes will inevitably descend into messy chaos, with attempted stunts that players think are "cool" and the GM sees as stupid and suicidal. Groups should talk through "setting assumptions" in advance, and everyone involved should pay attention to what works and what other people seem to assume.



Belt. Soap operas require a little more tension and pressure, and can overlap with the business-oriented form or less frenetic versions of the action-adventure style. They can be set in areas with moderate levels of conflict, such as slightly less advanced and stable regions of Earth, or expanding communities on Mars or in the Belt. They can also work very well among the very rich of the Fifth Wave.

It's important, when setting up such a campaign, that the PCs be developed to work as a group, with the GM supervising a collaborative character creation session. This doesn't mean that they shouldn't have some conflicts – sitcoms and soap operas thrive on rivalries and feuds – but the PCs have to be willing and able to stay in the same place for extended periods, mostly on speaking terms. An "organized" group structure can be invaluable, whether the group is a household (probably complete with infomorphs, and maybe some neighbors given to visiting), a small business, a military unit, or a scientific research team.

As with a picaresque campaign, a sitcom or soap opera can become boring if it doesn't go anywhere after a while, but there's nothing to stop changes happening; they just tend to happen in the same place. Births, marriages, and (occasional) deaths are staples of the form, after all. And, if necessary, the GM can always send the group off on a quasi-picaresque journey, or raise the external conflict level for a while.

Appropriate Characters

Transhuman Space supports a huge range of characters, but they are *not* all suitable for every possible type of campaign or adventure. If players all just come up with PCs they think are cool, they might produce perfectly reasonable characters for the setting, but the chance of them all fitting into one campaign will be slim. So character creation has perforce to be *managed*. The GM should offer guidelines, discuss ideas with each player in turn, and veto ideas that look inappropriate or incompatible.

Mandatory Features

To begin with, some things may simply be required. If the campaign is to be set in space, for example, the PCs must be able to handle the medical consequences of zero-G and radiation. This may mean permanent biomods or nanotech treatments, an appropriate cybershell, or just the wealth to pay for temporary treatments. But it is equally important that PCs for a game set in an Eloi enclave should have some good reason to be there and to be more or less accepted, whether they are wealthy Eloi themselves, employees, owned or indentured AIs or bioroids, or the sort of people (cops, lawyers, financial advisors, etc.) who might regularly visit.

Hence, the GM may prepare a short list of requirements before character creation begins. These may be negotiable if someone comes up with a viable character concept which deals with issues in a different, unexpected way, but they should determine the tone and assumptions of the campaign. If it becomes apparent in play that some characters are somehow unsuited for their environment, the GM and players should look for solutions, whether in the form of a sponsor paying for useful biomods, a few extra bonus character points to cover "crash training," or a new PC to replace one who really isn't working.

Character Legality

One feature of this setting is that some characters may be illegal in some jurisdictions, and treated as non-persons in others; for example, ghost programs are regarded as abominations by the theologically-derived laws of the Caliphate. Rogue AIs are treated as a menace almost everywhere, and emergent intelligences are almost as widely distrusted. In other cases, there may be lesser complications; for example, a SAI citizen of the E.U. isn't classed as a person in the USA (though it can be the property of an E.U. corporation, so the common solution to the problem is for the European AI to set up such a company in which it is the sole shareholder).

This doesn't make such characters impossible to play – but they should be aware of the problem, and find some way to deal with it. In many cases, this is as simple as having a significant Secret disadvantage (a rogue AI can often pass as a stable, legitimate program), or even just a Social Stigma. Still, preserving such a secret or dealing with the stigmatization should be a significant concern for the player, and GMs who don't want to spend part of the game dealing with such problems should feel free to prohibit such characters.

Note also that some character types are sometimes referred to as "illegal" because *the act of creating them* is illegal. They *may* be treated as innocent victims, much like escaped slaves among abolitionists. For example, bioroid production is illegal in the E.U., but a pre-ban bioroid, or one who came to Europe from abroad, can be a citizen, albeit one likely to be treated with curiosity and occasional disdain from the bigoted. In other cases, though, the character may be regarded with distaste or suspicion. For example, if a criminal gains access to the backup of a legal ghost or SAI, he may illegally create a xox; if it is subsequently liberated, the law is in a difficult position. Authoritarian governments who don't have much regard for AI rights may delete it anyway, because "the law is the law," but other governments may have to award it provisional legal status. However, it's still the distrusted product of illegal activity, probably with a Secret or Social Stigma; it may well decide to migrate to somewhere more tolerant, or where its background is unknown.

Team Building

In general, the PCs in an RPG campaign have to operate as a group. This can lead to complications in any game; it can get especially complicated in ***Transhuman Space***, where one perfectly reasonable PC may sincerely believe that another isn't even a sapient being, and different "racial" templates are designed to survive in radically different environments.

Hence, in this even more than in most games, the PCs must be created as a group – designed not only to fit in the same specific campaign environment, but to be capable of cooperating with each other, and also to possess a full set of any skills that the GM suggests will be essential for the game. (Ironically, it *may* be possible to play quite successfully even if one party member doesn't regard another as sapient, provided that the pair aren't actually hostile and the two players don't mind a certain amount of friction in their character-level interactions.) This implies a certain amount of discussion and negotiation before play begins, and the GM should be clear about what the team will need in the way of skills and advantages.

In less goal-oriented campaigns, especially picaresque and sitcom campaigns, throwing together a random bunch of beings and seeing what develops may be a lot of fun. They should still have some reason to come together, but the GM may be able to get away with a one-sentence briefing – "Create PCs who could all work for a failing biotech company in upstate New York," or "At the start, you're all going to be traveling on a Chinese-owned PSV heading for Mars."

Weird Options

There are some odd characters in ***Transhuman Space***. Indeed, whole parties may seem "bizarre," intentionally or as a result of several players deciding to explore the limits of the setting. The PCs may all be infomorphs running on static computers, or ghosts of cryogenic subjects, or emergent AIs. This can be a good way of defining a cohesive group, and a degree of weirdness is part of the *point* of this setting, but it can also make for confusing, disruptive roleplaying. If everyone is trying to out-weird everyone else, all the time, there's little scope for either character development or efficient achievement of goals.

"Strange" characters may be totally unable to do some things, and find others trivial. As discussed above, some may be barred from some locations, and others may have dominating secrets. They may also be strongly averse to some things (such as, say, working for anyone opposed to AI rights) and obsessive about others (such as obeying their programming). GMs who don't want to have to deal with such things may ban or modify some character concepts.

However, GMs should *not* set out to make everyone play "ordinary humans" (unless that's a key feature of the campaign concept). The chance to play manufactured, genetically modified, or technologically enhanced beings is a crucial selling point of ***Transhuman Space***; players may be disappointed if it's barred. And remember, in many parts of the world in 2100, these things aren't really "weird" at all. They're intended to be a standard, although certainly not *the* standard, mode of play.

Running Games

Running a ***Transhuman Space*** game is much like running any RPG. However, the setting does involve some special considerations.

"Our Servants Will Do That For Us . . ."

One general issue, especially in Fifth Wave games, is the possibility that the PCs will delegate every significant task to specialized AIs and cybershells. This runs the risk of making the PCs themselves seem irrelevant. However, they should always be required to *manage* these systems. Even when an AI can be fully trusted with a secret task, it may well lack initiative and imagination. Furthermore, the PCs can actually *be* the infomorphs who are doing everything exciting. Certainly, much of the point of treating lower-grade infomorphs as Allies is so that they can be played just like any other NPC – complete with flaws and the sort of personality quirks which make for interesting roleplaying interaction.

Gathering Information

Secrets and hidden knowledge are often the key to game plots; in ***Transhuman Space***, there are many ways to track such things down. Most PCs have good access to the global Web, most or all of the time, and can search it for what they want to know. Hence, the GM should have some idea of the answers to any sensible queries which the PCs are likely to pose, and should try and have enough grasp of the setting as a whole that he can improvise responses to anything else.

However, even if an answer exists somewhere on the Web, the PCs may not know to look for it. Much of the point of plots in this setting should be knowing what question to ask in the first place. Also, if an important item of information is held in just one place, that place can be *watched* by other AIs. Those who ask too many questions should be careful who overhears them.

Combat

Serious fights in this setting are often likely to be short, especially if military-grade weapons are involved and the participants aren't using military-grade armor. However, using all this high-powered hardware to full effect requires full understanding of its capabilities. Players who want to engage in a lot of fight scenes (and have their PCs survive) should be prepared to play technically adept characters, and should pay close attention to the game rules and weapon statistics. Microbot swarms, recon cybershells, and stealth gear are all important to survival for the transhuman combatant.

Mortality and Otherwise

The lethality of weapons in this setting is mitigated by several factors. The first is that pretty good armor is also available – although the best of it is rather obvious when worn, and will itself be treated as military-grade weaponry by many observers, including law enforcers. The second is the high quality of medical treatment; any party expecting a fight should include at least one member with first aid skills and good equipment. They shouldn't depend on this too much – a

head hit from an explosive round tends to render all the bandaging in the world irrelevant – but they'd be foolish not to notice the possibility.

Also, many combatants may be infomorphs, who can have "extra lives" in the form of digital backups in safe locations. This renders "death" an annoyance rather than an end. Still, it's also a drain on cash (to pay for new hardware) and character points (to rebuild the character's skills and create a new backup).

Adventures in (Relative) Safety?

Many TL10 weapons are powerful, well able to kill with one shot – so PCs should take the possibility of being shot at very seriously. And if they threaten NPCs with weapons, those NPCs are likely to become very polite, while looking for ways to report these dangerous thugs to the proper authorities, who will respond with greater force. In other words, violence should often seem like a *stupid* idea.

This means GMs must make a choice between high-risk action-adventure games, and other, less danger-laden styles of play, such as mystery, political thriller, and soap opera. A PC can have other things to worry about than his life; surely wealth, fame, ideals, and the future of the human race are high enough stakes?

And lastly, not every fight *has* to be to the death, because not all weapons are lethal. ***Transhuman Space*** offers some effective alternatives. Cops, and anyone with an interest in avoiding murder charges, can opt for electrolasers and tangler rounds. These have less guaranteed stopping power than lethal rounds, but they are remarkably effective nonetheless.

In fact, whenever the players are preparing for a possible fight or the GM is preparing details of an antagonist group, questions of goals and legalities are very important. In most places, displaying heavy body armor, battle rifles, or military cybershells will mark someone down as a probable killer and possible maniac, and may inspire a proportionate response from local law enforcement. Anyone using bullets or lasers aboard a thin-hulled spacecraft is likely to be treated as a lunatic. And standard light handgun rounds can be at least slowed by light personal armor – enough to give those skilled medics some chance to save the victim, at least. Still, GMs and players should both remember that fights involving serious weapons can be unpredictable and messy.

Exceptional Wealth

In Fifth Wave games especially, PCs may have rather impressive amounts of wealth. Even with 80% tied up in personal resources, as generally recommended, that can lead to very well-equipped parties. If everyone starts out wealthy, treasure-hunting expeditions and high-risk careers lose some of their appeal.

But "wealthy" protagonists aren't an insuperable problem, even in action-adventure campaigns. Heroes may be fighting to do good, or to preserve their honor, or to survive attacks by enemies – and may find themselves thrown into such situations without any time to prepare. In social, political, or

memetic games, the motivations and risks are rather different – and while these aren't usually obviously violent, the occasional episode featuring would-be assassins, deranged stalkers, or armed revolutionaries can fulfill players' urges to just go out and shoot something. Such games also tend to imply social and legal controls on "useful" equipment; politicians and businessmen aren't supposed to go around armed to the teeth, and even their bodyguards are usually supposed to be *discreet*.

It should also be noted that merely being filthy rich has never stopped human beings from wanting *more*. The players may have to adjust to this, especially with the word "Wealthy" appearing on every character sheet, but the idea of rich businessmen still on the lookout for opportunities is hardly new.

Tracking Character Capabilities

Transhuman Space GMs should take care to remain familiar with the PCs' abilities – first, because these are likely to be quite extensive, and something which the GM forgets might short-circuit a plot, and second, because NPC Ally infomorphs and suchlike ought to know about such things, perhaps reminding the PCs of their options at times. This can be as simple as keeping up-to-date copies of all the PCs' character sheets on file at all times (along with sheets for all their allies), and probably also keeping a "quick reference sheet" with notes on specific skills, resources, and advantages. A log of campaign events and useful acquaintances made can also be handy. This is especially important in a "Mutable Point Totals" campaign (below).

Given that some PCs may have multiple infomorph Allies, keeping track of all *their* abilities, and using them to best effect, may become something of a heavy load. Strictly speaking, this *is* the GM's job; Allies are NPCs, and shouldn't become mere puppets of the players. However, Minions – especially those with programmed loyalty and limited initiative – *are*, to a large extent, subservient extensions of the PC's will, so letting players run them is not only easier for the GM, but not too unbalancing.

Watch out for evidence that the PCs aren't looking after their cybershells properly. Any with the Maintenance disadvantage will suffer immediate and specific problems if not treated properly, but even those without can suffer *minor* (but cumulative) problems if not occasionally checked over and allowed to update their anti-virus protections and purge their memory space. Physically maltreated cybershells can also break down if they suffer extremes of temperature (beyond the limits defined by their model template), have to run on poor-quality fuel, or whatever. In addition, if they, come under attack, they may show the marks even if they aren't actually damaged; a chipped and scruffy cybershell may attract adverse attention in polite society, and one with bullet scars will raise eyebrows when it next goes in for maintenance.

Mutable Point Totals

One approach to ***Transhuman Space*** games is to treat character points as an administrative record-keeping score, rather than a means of rewarding character advancement. *Starting* point value is a measure of the campaign's initial power level, but is expected to go up and down a lot in the course of events. Whenever a character does something that would cost points, like an infomorph character buying an extra body, simply increase his point total. Whenever something happens that would cost him points, like losing an Ally, decrease his total.

An example:

Tanith Tokamura Hecate starts out as a 200-point character. She's a Tennin parahuman working for a Vacuum Cleaner orbital salvage operation, while moonlighting as bounty hunter. Tanith has two Allies: Jim, an NAI infomorph in a wearable interface, and Bob, another, high-end NAI residing in a tech spider cybershell. She also has a partner, Grimalkin – a free Felicia bioroid – who is another PC.

In Tanith and Grimalkin's first adventure, a troubleshooting expedition to a secret research station turns nasty, and Tanith's tech spider is eaten by devourer cyberswarms! Medical bills for the team's injuries (Tanith is badly injured by nanoburn gas) use up the rest of their resources, and Tanith can not afford to replace her tech spider (although its NAI is backed up somewhere). She earned 2 bonus character points, but lost a 45-point Ally/Minion; she's now a 157-point character.

In Tanith's second adventure, she and Grimalkin rescue a kidnapped slinky idol from xoxnappers, earning a $15,000 reward. Tanith spends some of it to buy a Guardians perm nanomod (2 points). She also earns 5 bonus character points, which she puts toward skills. Tanith is now a 164-point character.

In the group's third adventure, they continue their bounty hunting, tracking down Jill the Ripper, a cyberdoll sex worker possessed by the shadow of a notorious serial killer. They capture it, but Tanith loses her right hand to the cyberdoll's razor-sharp katana! She now has the One Hand [-15] disadvantage, but the GM awards her 4 character points, bringing her to 153 points. Tanith also retrieves the disabled cyberdoll, planning to repair it eventually – if she does, it might become a new Ally, but until then it's deactivated and not worth any points.

This approach has a great deal going for it, but requires a little care from the GM to avoid accusations of favoritism or increasingly unbalanced parties. There's no need to hose a player just because he's been lucky in recent adventures, but if someone has fallen way behind the others in terms of points, that's a sign that he might be due a stroke of luck soon – and if someone gets *way* ahead, then fate, or more reasonably, smart enemies, *may* mark him down as a target. Also, to prevent players from "gaming" this system during character creation, the GM may wish to rule that accessible starting wealth must mostly be spent before the first adventure begins, and can't go toward anything that would add to the character's point value.

Chapter Two
A GM's View of 2100

*"What **is** this place? It's so complicated, and there are so many sorts of people."*

The teacher looked at her student with a kindly smile, but couldn't keep a note of amusement out of her voice.

"This is an ordinary street," she said. "When you're fully trained and installed, you'll carry your owners along something like this every day."

"That'll be neat," said the new AI.

The world of ***Transhuman Space*** is a complex place, detailed at length in the previous supplements for the line. However, GMs should try and acquire a general understanding of its major features. This chapter provides a working overview.

Technology and Society

Technological progress is the main thing that makes the world of 2100 so different from today. Of course, there are also political and social movements to consider, but many of those are driven by technology.

The Waves

The idea of technological "waves" is defined elsewhere (pp. 6-8, p. TS21, and in ***Fifth Wave***), but players may have difficulty seeing how they affect their characters. What do they *mean*?

First: the technological "wave" isn't the same as wealth level, or even the local level of technological knowledge, exactly. While the richest parts of the setting do get that way by using Fifth Wave technology, a Fourth or even Third Wave region with ample natural resources and a stable, peaceful society may be wealthier than a more advanced locale which is suffering from the traumas that arise from rapid progress, extreme social inequality, overstressed resources, and high-tech pollution. Likewise, most of the *knowledge* that drives the Fifth Wave is available anywhere in the world, though *using* it requires some infrastructure.

Rather, the local wave is determined by the technologies which underlie life in the area. Almost all of Earth is at least Third Wave, meaning that there are plenty of computers around, and almost all of them are connected to the Web. Most areas are Fourth Wave, meaning that advanced biotechnology is available; many or all people can afford some kind of genetic treatments, and bioroids may be present and performing some tasks. Also, those ubiquitous computers may be running low-sapient AIs, and microtechnology is fairly widespread; hence, manufacturing tends to be small-scale but efficient, and the ideas of "home" and "workplace" are blurred.

In a Fifth Wave area, these trends have come to fruition, and are overlaid with the most powerful AI systems and the products of nanotechnology. The conceptual difference between "reality" and "online" is blurred; people often think of the world around them in terms of v-tags and augmented reality labeling, and talk about "meeting" people who they only ever encounter on the Web. The result may be unnerving for the lower-wave visitor, especially as concepts of personal privacy shift.

Street Scenery

If you look at the streets in Third, Fourth, and Fifth Wave societies, it looks like the world is growing less busy – unless you can perceive the rising level of online activity. A

higher-wave street has less traffic and fewer billboards. It's likely to be cleaner, assuming that someone is paying for cybershell cleaners. Late Third Wave technology brought a lot of visible wearable computer technology, which grew ever more widespread over time, but the development of implant systems causes this to fade from sight again somewhat in the Fifth Wave world. "Future shock," once typified by barely-repressed panic at the growing speed of industrial society, now takes the form of confusion at the way that people seem estranged and detached from the world around them. Bioroids and cybershells may be commonplace in Fourth and Fifth Wave settings, but that depends on local laws, customs, and ethics. A naive Fifth Waver may send a teleoperated cybershell out onto a Third Wave street, but this all too easily attracts too much curiosity and sometimes violent hostility.

Many of the people "present" on a high-wave street aren't physically present at all, but access the scene through the Web, teleoperating cybershells if necessary; if anything interesting starts happening, many more may quickly "arrive," at least as passive observers downloading imagery from local static systems. Advanced augmented reality systems may have ways to indicate this fact; a street may become "physically empty, virtually crowded," especially if anything dangerous starts happening. In authoritarian societies, however, the rulers may decide to break communication links when something uncontrolled is happening, emptying the virtual street.

All this can have significant consequences when characters engage in typical adventuring behavior. Violence may lead to no more than a few damaged cybershells, followed by the rapid arrival of wired-up cops. Likewise, it can be harder to intimidate or seduce someone who's not actually physically present – but it's not impossible. And people who do discover a need to be personally present somewhere may be all too easy to identify and track.

Ubiquitous Computing

Ubiquitous computing has all sorts of ramifications for ***Transhuman Space*** plots and the feel of the setting. Many people are permanently online. Amongst other things, this means that cutting off their connections should have a dramatic effect – though GMs should avoid overplaying this trick, lest it become a cliché.

If someone is attacked or is otherwise the victim of a crime, and if they have some kind of Web connection, it's hard to prevent them sending a call for help. Even a visible wearable can probably get some kind of emergency signal out before an attacker can remove or destroy it. Likewise, anyone stealing an item should be sure to check what kind of electronics it incorporates; even if it isn't smart enough to call for help, it may be traceable.

Meanwhile, augmented reality means that anyone with a virtual interface of some kind can find out a fair amount of detail about most high-tech items. One consequence of this is that *falsified* v-tags can have a significant effect on anyone who's used to trusting this technology; this can loom large in mystery plots. The ability to download, not only data, but skill set programs, given a connection and a little time, means that parties need not be disabled by gaps in their experience.

Remember also that technology can be turned against PCs, who may be traced by their Web access, if an antagonist has sufficient authority on the relevant systems. The ability to turn off one's interface, go "electronically invisible," and still operate effectively in a high-tech environment may become the mark of the truly competent hero. And for those who don't mind relying on some technology, there are a number of handy toys to use in conflicts. See the Radio Direction Finder (p. TS149), which can make for suspenseful games of cat-and-mouse, as two parties track each other by their encrypted signals through various environments. This in turn may lead adventurers to use laser or infrared beamed comms wherever possible – large enough lasers can even be used to connect to satellite systems, although this will generally require prior arrangement with the satellite operator, and implies a stable mounting platform out of doors, and software-controlled aiming.

Given the possibility of being cut off from information sources, some PCs will rely on downloading vast quantities of data from a source for later reference. GMs may rule that the databases involved are large, but storage is cheap in this setting, though communications links may impose a bottleneck. The main problem is knowing what's likely to be needed later, and also how to sort through and analyze all that information when the time comes.

Microbots

While microbots aren't the subtlest or weirdest technology in this setting, they do have many uses and potential complications. They make effective spies, weapons (of various sorts), and tools, useful for spies and soldiers as well as farmers and mechanics.

But microbots are quite limited in their capabilities, even when operating in swarms under the direct control of an operator. They may be TL10 robots, but their brains are tiny, their tools aren't much bigger, and their small bodies are subject to numerous problems caused by their surroundings. Flying microbot swarms can be swept away by bad weather, while crawlers are simply slow. Properly equipped and prepared troops should have relatively little difficulty fighting cyberswarms (use the *Swarm Attacks* rules, p. B461), though they can be dangerous and frightening to civilians.

Microbots also have to follow strict orders and limited patterns; they should seem far more *mechanical* than bigger, more self-aware computers. Many people would call them downright stupid, even when operating as a group. A controller can make them do slightly more subtle things, but this calls for full-time attention and implies the continued presence of a signal which can be blocked, jammed, or traced.

Nanotech

Likewise, it's important to remember that ***Transhuman Space*** nanotechnology is relatively low key, mostly biological, and doesn't defy the laws of physics. Its main uses, from the point of view of adventurers at least, are medical and pharmacological, and "medical nano" is mostly administered in controlled environments. It also explains how much of the setting's more advanced materials and miniature devices are put together. It can't reconfigure steel or make diamonds (at least, not in usefully short times), and nanobots can't fly through the air under their own power or display any great initiative.

A Game of Ideas

Science fiction is a "literature of ideas," and ***Transhuman Space*** follows this model. This doesn't mean that games have to revolve around detailed points of engineering and advanced physics (although they certainly *can*). It can just as easily mean that they can explore the social and economic consequences of advanced technologies, or the moral and ethical questions of changing humanity. Players may end up arguing about these, and perhaps changing their minds in character in response to events in the game.

On the other hand, GMs should usually try to avoid letting sessions get bogged down in abstract debates, especially if not all the players are interested. Sometimes the story should move along too fast for argument! It's also best to make sure that the players don't start out playing characters with philosophical positions too far from their own, unless they're doing so very consciously. For example, if the player thinks that sapient AIs should have the same rights as human beings, a game about xox exterminators might feel too much like playing mass murderers.

Biotech

For all its power, biotechnology faces the same limits as are faced by life and evolution. Biotech systems have to get energy from somewhere (and may generate a lot of waste heat while working), and individual cells and chemicals can't *think*. They can generally do what they're designed to do, or go wrong in sometimes bizarre ways, but they can't easily adapt to unexpected situations. Furthermore, genetics is an immensely complex subject; while a biotechnologist might study the life processes and even the genes of an animal in order to give a parahuman or bioroid design features similar to that species, the trick is a *lot* more complicated than just splicing an animal gene into the human genome.

Nor is biotechnology a "field science" except in specific, limited ways. ***Transhuman Space*** scientists can create new species and "wonder drugs," but the process takes weeks, months, or years, in huge and complicated laboratories. Scientist-adventurers are certainly possible, but will be limited to operating standard equipment, conducting straightforward tests, and administering pre-prepared treatments when out of the lab.

Which said, they may prove to be very useful characters in some games. Because of the complexity of biological processes, anyone combining or modifying treatments or techniques in unusual ways can produce unpleasant unplanned effects, unless they know exactly what they're doing.

Artificial Life

Despite all these limitations and problems, ***Transhuman Space*** technology has achieved wonders. Aliens exist – *because we made them*. PCs will probably have regular dealings with AIs or bioroids, and may *be* such things themselves. One of the questions which games can tackle is how "human" these beings really are, and how society may have to adapt to accommodate them.

PCs may fight for AI or bioroid rights, or find that the military unit they've joined includes as many free-willed machines as human soldiers, or help a young couple escape the disapproval of the parahuman girl's parents at her love for a bioroid.

The players also get to create some *really cool characters*. Anime fans and cat-lovers will pounce on the idea of a Felicia-series bioroid, while players who want the best possible fighter character will study the range of combat cybershells with intense interest. And how many comedy games make it perfectly reasonable for a party to consist of a boy and his scooter, his jacket, and his dog?

Memetics

The science of memetics is another kind of technology, with its own capabilities and limitations. It makes propaganda and related techniques (rhetoric, advertising, popular arts, etc.) much more powerful and precise, to the point where even a lone amateur can have quite large-scale effects – but it can't reach into individual human brains and reprogram them to order. (Some nanodrugs might accomplish that, but even with those, *specific* words and images can only be planted if the victim's environment can be precisely controlled.) Memetics isn't telepathy; it's mass psychology with some powerful scientific tools and a mechanistic view of its subjects. It also provides a handy vocabulary for describing social movements and conditions to players. For example, a "meme war" is a competitive propaganda campaign, in which both sides analyze and break down the ideas being spread by each other, prepare balancing ideas, and then try to spread them through a population which is familiar with memetics and may be all too aware of what's going on.

But memetics doesn't have to be actively manipulative. Changing and propagating memes is hard work, and not terribly reliable; it is far easier to observe the "natural" memes in a population, and work to exploit those. Edgehunters and analysts might look rather dull as PCs, but that depends where they have to work, and what their goals might be; they can find themselves out on the fringes of society, acting as talent scouts as much as advertisers. They can also spot toxic memes before they spread, and prepare countermeasures. A campaign could involve a police unit, its official memeticist consultants, and a couple of sympathetic freelance edgehunters or social activists, locked in battle with psychopathic meme-hackers who create suicide cults and nihilist radical movements for kicks.

The State of Earth

Earth in 2100 is no less complex a place than in our present day – and hence, no less full of potential adventure settings.

The Power Blocs

With so many great powers in competition, international politics are complex and unstable. Heroes who work for the intelligence agencies of one power can't automatically assume that A is a friend and B is a foe – even friendly powers have radically different policies and moral stances on specific subjects. For example, the E.U. and the USA are likely to collaborate on many things, both large (keeping the powers of China and the TSA in check) and local (fighting Triad crime in the Belt), but if, say, an American bioroid seeks sanctuary on E.U. territory, the Europeans may well refuse to hand it back. Even individual member states within power blocs such as the E.U., TSA, or PRA can have serious differences in attitude and policy; they are still independent nations, after all.

These complicated relationships make for high-action espionage or political campaigns full of triple-crosses and temporary alliances. Alternatively, such a game could be played as cynical and morally ambiguous; agents and diplomats might regard the leaders and populations they serve as simple-minded and unstable, and feel that they have much more in common with their counterparts on the other side of the border. On the other hand, even the most jaded of operatives may have one or two true ideals left – enough to keep him loyal and willing to destroy those counterparts, however much they resemble himself.

Hot Spots

For groups who want straightforward military games, or high-stakes wartime espionage, or the chance to play outsiders struggling to bring sanity or truth to a war zone, Earth still offers a number of active hot spots – some with declared wars, some with insurgencies or open revolts.

Haut-Zaire is a corrupt military dictatorship that ruthlessly exploits its local mineral resources. Amoral mercenaries might be interested in sustaining the long-standing colonial tradition of stripping this region of wealth; higher-minded characters, including South African agents, might tackle the hard task of improving things, or just help defend Haut-Zaire's neighbors.

Central America is the setting for a confrontation between nanosocialism and its rivals. In Honduras, the conflict is an open civil war, and Guatemala is trying to trigger something similar in southern Mexico.

Central Asia has a number of points of tension, a civil war in Uzbekistan, and a running set of local conflicts in Afghanistan. The government of Kazakhstan is likely to interfere with any of its neighbors, and both Russia and China may also take an interest; while few other outside powers have a direct interest in these conflicts, the instability isn't good for anyone, local terrorists have demonstrated a willingness to use "dirty bombs," and Kazakhstan's ambitions are uncertain and sinister enough that foreign intelligence agencies pay close attention to the region.

Burma is still fighting the breakaway states of Kachin and the Shan Republic – a military manifestation of the continuing struggle between the TSA and China.

Conflicts as Opportunities

War zones offer one set of plot possibilities, but there are plenty more where struggles take the form of espionage or memetic conflict, from polite diplomatic interaction between E.U. and Russia and policy-making for the GRA in Kaliningrad to cloak-and-dagger battles between PRA agents and TSA infiltrators in the back streets of Bangkok, from alliances of convenience seeking to protect or sabotage the Olympus Project in Kenya to the recurrence of old frictions on the Iran-Iraq border.

If a campaign is set to revolve around such conflicts, the PCs may be a team of agents working for one of the factions involved, in which case their ultimate objectives should be fairly straightforward, although incidents along the way may prove complicated and morally messy. If their side is one which the players can see as essentially good, this leads to a heroic campaign with enough subtlety to keep things interesting. Alternatively, the PCs may be mercenaries or opportunists, with few ideals and more or less purely selfish objectives. Or they may shift from one category to the other in the course of the campaign, being driven to cynicism or inspired to idealism. They may even set up their own miniature faction, with non-selfish goals that are still not quite the same as anyone else's.

If the conflict is open and violent, PCs will spend most of their time as soldiers, with appropriate skills and decent equipment. If it remains covert, however, they may be spies or informers, focusing on intrusion or social skills. In some cases, military PCs may train local forces to handle the situation, although "instructors" and "advisers" are notoriously prone to getting involved in shooting wars. Amoral PCs may also regard conflicts as good opportunities to engage in a little independent profit-taking, robbing banks amidst the confusion of a battle or establishing long-term alliances with the new regime after a successful revolution.

Memes at War

The nation-states of 2100 are also involved in conflicts ranging from subtle propaganda through trials of economic strength to old-fashioned military violence. But many of the setting's important conflicts have little to do with nationality; Preservationism vs. Green System advocacy, or amortalism vs. transhumanism, are memetic conflicts which can be fought out within a nation as easily as across national borders. Admittedly, different nations may sometimes adopt specific ideologies, turning the memetic conflict into an international one, but it's not always clear how sincere such commitments may be; many within the population may disagree with the ideology, or adopt it half-heartedly or in a rather shallow way, just to annoy their nation's rivals.

Reasons to Travel

"Adventure" is often almost synonymous with "travel," and this remains true in ***Transhuman Space***. However, it may sometimes be harder for people in the setting to find reasons for physical travel. High-speed, high-quality Web connections, combined with teleoperated cybershells, make ideas like "traveling to meetings" or "examining a scene in person" seem slightly odd, even *quaint*. Even mercenary fighters may mostly be expert tactical consultants, giving instructions to local forces and disposable cybershells from a very safe distance. Cops or doctors might claim that telepresence never lets them identify the last 1% of crucial sensory data that lets them do their jobs *right* – but even these purists will sometimes make initial inspections of problems through the Web, and they'll need to achieve good results to justify their travel expenses to their bosses.

Still, PCs can find reasons to travel. That last 1% of sensory data may be crucial, some facts on-site may be impossible to identify remotely, an area may not have proper communications infrastructure (and radio-screened "privacy rooms" can have legitimate purposes), and radio links are dangerously detectable. Clever opponents can use radio jammers, or just duck into "dead" areas, at which point an agent "on the ground" becomes essential. Some tasks will be rendered much harder by even a tiny communications lag, so traveling to within a few miles of the task may be essential. For that matter, some scenarios can easily begin with the PCs traveling for pleasure rather than business.

Space

Travel into space is still expensive in 2100; PCs should rarely be able to head from Earth to orbit or beyond without a *serious* budgetary justification. On the other hand, justification can sometimes be easy to find. Even at the speed of light, space means serious signal delays. Furthermore, in space, there are less likely to be local technical specialists on hand to deal with specific issues. And space colonization remains a matter of complex engineering, sometimes calling for skilled hands and eyes on the scene.

Not Traveling

Then again, in some cases, a campaign can simply *not* involve travel. It's perfectly possible to have entertaining adventures without physically moving from home. Classic fictional "armchair detectives" such as Nero Wolfe provide one possible model here; legwork can be performed by teleoperated cybershells as the 2100 counterpart of Wolfe's henchman Archie Goodwin.

Nor are "remote adventurers" necessarily 100% safe. If they can hire remote links, then so can their enemies – and if the situation is a matter of life and death, they may be traced by someone willing to spend money to ruthless ends. When faced with a remote antagonist, the idea of renting cybershells or local muscle and striking at him *personally* can be both effective and very satisfying.

Memetic conflicts don't *automatically* lead to physical violence; if they do, the results slip towards civil war, or armed insurrection, or terrorism – and smart ideologues may see those as counterproductive. On the other hand, given the power of memetics in 2100, it's very easy for a movement's campaigns to push some of its followers towards fanatical extremism.

Nanosocialism vs. the Rest?

One of the biggest conflicts is that between nanosocialism, both as a free-floating ideal and as the guiding ideology of the Transpacific Socialist Alliance, and other concepts of intellectual property and economic organization. Indeed, some players may see this as the central conflict of the whole setting, and good military or espionage campaigns can indeed be constructed around it. However, it's not the *only* conflict of interest around; not only are several non-nanosocialist states and groups far from friendly with each other, but there are conflicts within the "nanosocialist bloc." The TSA isn't a single state, and is far less unified than, say, the old Warsaw Pact. There are circumstances in which the TSA could split – such as India joining and disrupting the balance of influence. PCs could act to promote or prevent splits within the TSA, or could work for or against infosocialist groups in the rest of the world which regard the TSA as a perversion of their ideals, or could ally temporarily with TSA agents to foil the plots of China or the Caliphate.

"Rogue States"

The multipolar political balance means that there are few states which are regarded as outcasts by the world community, but there are some which most people would regard as extreme and dangerous. Burma and Colombia may be aligned with the power of the TSA, but they are radicals and dangerous nuisances. Haut-Zaire is too weak and too locally focused to be considered really globally dangerous; it's as much "failed" as "rogue." Kazakhstan is perhaps the most ostentatious rogue, although even President Zarubayev has some provisional allies and purchased supporters abroad.

When dealing with rogue states, remember that anyone trying to get rid of them may run into opposition from unexpected sides. If the rogue government is removed, it will either be replaced by something else – probably aligned with some major international faction, and hence a problem for several other factions – or it will slip into anarchy, which is bad for virtually everyone. There's always a terrible temptation for outsiders to prop up rogues and failures, for fear of the alternatives – and given how much carnage the disintegration of a state and government can cause, they often have humanitarian arguments to justify themselves, too.

Choosing Sides

Who might the PCs work for? Who might players *want* the PCs to work for? In some cases, the answer may seem pretty obvious – few people would want to play loyal agents of the government of Kazakhstan! In other situations, the distinction between "good guys" and "bad guys" is less clear. This can lead to a simple decision that one side or the other is the one to which this batch of PCs *happen* to owe loyalty; it's just a game, so "why" isn't very important. Or there might be the occasional moral problem in the midst of an otherwise straightforward conflict; the players might be able to offer serious reasons for favoring one side over the other, while admitting that their choice isn't perfect or unquestionable. Or the campaign might be a morally complex "hall of mirrors" espionage game, with the PCs at best *hoping* that they do more good than harm.

Memetic struggles can feature mercenary operators, in much the same way that open warfare can. Freelance memeticists, promoting whichever ideology pays best, are entirely feasible characters, although they can seem just as unattractive as amoral mercenary warriors. (They may not kill people directly, but they're likely to make a lot more people kill each other.) If they don't take care to remain obscure, and if they become too obviously good at their jobs, they may well become targets for espionage or assassination, so they may be surrounded by guards and other specialists.

Life Off Earth

While space flight is a mature technology in 2100, it's not *so* cheap or easy that ordinary people see it as trivial. Hence, PCs in a space-based game should be seen, if not as an elite, then certainly as being in an unusual profession. They're also cut off from much that Earth-based parties can take for granted – and faced with some of the strangest situations in the setting.

The Practicalities of Space Flight

Space travel in ***Transhuman Space*** involves hostile environments and millions of miles. Still, *some* journeys will be fairly routine.

Costs

Among other things, space travel still costs a fair amount of money; spacecraft are expensive to build and operate, and humans have to make special preparations to work in the space environment. Also, because the game pays attention to the logic of orbital mechanics, the cost of different journeys varies. See p. TS172.

Getting off Earth is expensive – a trip to low orbit costs $24,500, plus $12,500 to return to the surface. This will be a scheduled flight to an established station; most adventurers will need to pay more for a transfer to a higher orbit. Even given the much greater wealth of the setting, $37,000+ is a significant expense.

Hence, among other things, PCs who start a campaign in space must have gotten there somehow, or been born there – and in the former case, the cost must have been covered by *somebody*, who'll want some kind of return on the investment. Rich tourists can visit space, and companies can afford to take useful workers up to do their jobs, but – given the continuing costs of life support – individuals are highly unlikely to head up in the *hope* of work.

Travel between planetary orbits is cheap compared to the ascent and descent phases at either end. For example, a journey from Earth orbit to Mars orbit in 2100 (0.88 AU) costs around $2,600 per person in shared quarters. (The trip down to Mars is rendered significantly cheaper by the elevator; a one-way trip costs $1,000, whereas passage on a spacecraft would cost around $11,000 up, $5,500 down.)

Medical Requirements

Vacuum can kill a human being quickly, but radiation is more insidiously lethal (see pp. TS59-60), and prolonged operation in zero gravity causes further problems for the normal human body (p. TS55). These are problems that 22nd century medical technology can alleviate, but they can't just be *ignored*. The best approach usually employs nanomods; see p. TS165, and note that the cost will, once more, have to be paid by *somebody*. Employers will have a slight but distinct preference for individuals who have already acquired protection from somewhere, especially for long-term contracts where permanent treatments are really required. A permanent space-oriented nanomod may also be considered a valid perk or part of the payment in certain jobs.

Travel Times

Travel within the Earth-Moon system takes hours, or a few days at most, and hence is on a par with air travel a hundred years earlier; cramped, a little tiresome, but bearable. Passengers can eat the indifferent food, admire the view, or work on their personal computers. Interplanetary travel takes significantly longer: weeks or months. (It's also worth noting that how long varies *considerably* with relative planetary positions. Smart travelers time their journeys carefully.) This can leave traveling PCs twiddling their thumbs.

From the character point of view, the response should usually be a combination of heavy use of InVid entertainment, socializing with other travelers, and (ideally) exercise to minimize the effects of being cooped up in a cramped space in low gravity. Which is not to say that the experience isn't still boring for many. Obsessively self-perfecting PCs can take the opportunity for computer-aided study of various skills, though this may make them look odd to NPCs with less intense priorities.

A "time out" period like this can also be an opportunity to run a "change of pace" scenario. The players may be able to do minor favors for fellow passengers or crew members, teaching them new skills, advising them on personal or professional problems, or fixing damaged property – all good ways to make new Contacts. The ship's computer can be used to run a miniature digital kingdom, and the PCs can play a roleplaying game within a roleplaying game – which might seem a little silly, until the relationships with and discoveries about other participants start to prove relevant in the campaign.

Opportunities in Orbit

Earth orbit (including the Lagrange points) is a busy, bustling, varied place, exotic enough to be interesting for players, close enough to be reachable even for many Earth-based campaigns. ***High Frontier*** covers this topic in detail.

Adventures in an Industrial Park?

Earth orbit isn't really remote; everyone is mere hours, perhaps just minutes, away from well-equipped legal authorities. This part of space is also under constant observation, because it's not only close, it's also heavily trafficked; anything that creates debris or doesn't announce its planned trajectory will be treated as a nuisance.

In a sense, it's like an industrial park – or perhaps, more like an old, partly-rundown port city which is in the midst of a massive redevelopment project, which is hitting the problem that many old occupants don't want to move out of their properties. There are numerous old, battered, moldy can-stations, some of which have been up for 60 years or more, many of them run by layers of obscure false-front corporations; these can have a run-down gothic-decadent feel, and offer lots of privacy for the moderately careful.

Scenarios set here should be like classic urban adventures, dealing with various levels of society and trying to avoid the attention of the authorities. To add to the fun, there isn't a *single* government; this is international space, with countless stations and satellites claimed by every significant nation on Earth.

Vacuum Cleaning

The Vacuum Cleaners, described in Chapter 2 of ***High Frontier***, make natural Earth-orbit adventuring parties. They operate as small (PC-group-sized?) crews, some of them independent freelancers, and spend some of their time poking around old, sometimes mysterious hardware, some of it military. In some ways, they're ordinary working folks, but they display a sense of adventure along with advanced technological knowledge.

It's also important to note that freelance cleaner crews don't have to spend all their time vaporizing paint specks and salvaging fuel tanks. A *Steptoe*-class spaceship can go almost anywhere in near-Earth space, can land or take off from the moon, and has enough power and fuel capacity to serve as a tug for quite large loads. It's also armed, though it's no warship. For that matter, cleaners who want to raise extra cash could easily moonlight in almost any other job in orbit; it's usually easier for an employer with short-term work in hand to hire someone who has appropriate skills than to ship a specialist up from Earth.

Luna

The Moon, too, is something of an "industrial park." It's also a substantial body to explore, supporting multiple town-sized communities. Most of them are dedicated to industrial or scientific work (suggesting espionage plots), but there is also substantial tourism (good for mystery plots), a certain amount of political activism, and enough of an entertainment and arts community to add glamor and permit some "high society" plots.

Mars

While most locations in space are restricted in size and in the range of activities taking place, Mars is a *world*, with inhabitants who are set on making it into humanity's second home. ***In the Well*** covers this subject in detail.

Major Powers

The two biggest national powers on Mars are China and America, who are locked into a hostile confrontation that makes any number of espionage plots feasible. This is not a war, though, and American and Chinese agents might find themselves cooperating against TSA plots. Both nations are also opposed to the Free Mars movement, although their attitudes in that area would probably be more diverse; indeed, each side might try to promote the Free Mars meme in the other's territory, just to cause trouble. (Whether a successful independence meme could then be prevented from spreading is an interesting question. "The enemy of my enemy is my friend" is often a dangerous doctrine.) Likewise, both Americans and Chinese might find themselves fighting the same Martian organized criminals.

There are a number of other nationalities on the planet, notably the Peruvians and Europeans. PCs on Mars could encounter a wide range of communities.

The Olympus Project

The Olympus Project – the construction of an orbital elevator with its base in Africa, as described on pp. 23-24 and 40-41 of ***High Frontier*** and pp. 90-95 of ***Broken Dreams*** – can be the source of a huge variety of ***Transhuman Space*** campaigns. From politicians and engineers planning the project and dealing with the implications, through spies and agents working to defend or sabotage it on behalf of some faction with huge amounts of money at stake, and Vacuum Cleaners scurrying to remove every bit of potential dangerous debris from orbit, to working stiffs and opportunists on the streets of Nairobi who can see the biggest project in the solar system bringing vast and terrifying opportunities to their doorstep, the space elevator shapes countless lives.

Indeed, a campaign could be designed to encompass almost all of these "levels." A group of PCs could, say, be hired to defend some aspect of the Project (or one of its senior engineers), and could end up traveling between construction sites on Earth and in space, foiling sabotage and industrial espionage wherever they go and piecing together clues to a conspiracy among their opponents, or some complex sabotage scheme with elements on the ground and in space.

Campaigns and Scenarios

Mars is suitable for a wide range of games, including memetic warfare and crime-fighting as well as colonization and espionage. The strong presence of non-Western cultural influences, especially Chinese and Peruvian, can make this a rich and interesting setting, while the power of various corporations, Triad criminal groups, and the occasional anti-terraforming terrorist in this relatively under-resourced and sometimes unstable society can give games a cyberpunk edge.

With the elevator to give relatively cheap access to orbit, the proximity of the asteroid belt, and the use of space-based technology in the terraforming project, Mars-based games can also get to space and the outer system relatively easily. Of course, PC adventurers won't be the only ones exploiting this fact; criminals and saboteurs will be looking to orbit and beyond for opportunities.

Mercury and Venus

By contrast with Mars, the inner planets (again covered by ***In the Well***) are relatively lightly developed and populated. However, there are still activities of interest. *Mercury* has mines and antimatter production, a military resource which makes it a focus for potential sabotage and infiltration plots, while *Venus* is the location of a terraforming project and a certain amount of tourism. Its one substantial community, Research Station Aphrodite, could be a suitable setting for an offbeat mystery scenario.

The Outer System

The region beyond Mars is a frontier in more senses than one. It's also *big*, and mostly empty space; travel times become ever more significant in games set here. There's a substantial human and AI population, developing new societies and ideas in all that space, but it should come across as essentially *marginal* in many ways if compared to bustling Earth or even Mars. See ***Deep Beyond*** for details.

The Belt

Apart from a clutch of relatively large communities such as Ceres, humanity in the Asteroid Belt is spread thinly across numerous stations and bases, many of them locations for strange work and exotic memes. This makes it a great setting for "terror of isolation" horror plots and "closed community" mysteries, and also for bizarre soap operas and situation comedies. The opportunities for more open, free-ranging plots may be more limited, although the PCs might be the crew of a military vessel on patrol, or a "memetic countermeasures" team assigned to protect these remote communities from psychological sabotage or morale problems.

And, of course, those larger communities offer their own opportunities. The Duncanite community on Silas Duncan consists of independent-minded libertarian spacers and businessmen, heroic after their fashion and building a unique society (if also biochauvinist and potentially vulnerable to the larger national factions moving into the Belt). The Trojans hold even more radical communities, many with an outright criminal bent by most standards, and may serve as a source of antagonists in many campaigns – but even there, PCs could be independent-minded locals, seeking to navigate a survivable path between amoral exploitation and authoritarian government.

Jupiter

Jupiter's overwhelming gravity and magnetosphere make its neighborhood a difficult place to really work, and most adventures in those parts are purely in the nature of scientific exploration. However, there is a continuing battle between EDI and rebel infomorphs on Io, a dubious enterprise at Valhalla Station on Callisto, and most significantly, the War Under the Ice on Europa (covered in most detail in Chapter 3 of ***Under Pressure***) – any of which could form the focus of a dramatic scenario or limited-term campaign.

In fact, the Jupiter system has the advantage, from a game point of view, of having a significant range of interesting "planetary" environments within relatively easy travel of each other; strife-torn Europa (underwater or surface), hellish Io, icy Callisto, Jupiter itself, and so on. GMs who want a game where PCs shuttle between multiple "alien" worlds might set them up as troubleshooters or spies in this "miniature solar system."

Saturn

Saturn can be seen as the most important part of the outer system, simply because it supplies Earth with so much vital helium-3. This in turn fuels growing industries on Titan, which has acquired a bustling, semi-lawless frontier town atmosphere. This is a good place for "frontier life" plots, where Wild West meets exotic technology and a substantial military presence. The rest of this moon-system is slightly sparser in plot potential than Jupiter's, but there's scope for a fair amount of military espionage.

The Far Reaches

There aren't many settlements beyond Saturn, but there are Gypsy Angel colonies in the Kuiper Belt, primordial black holes to locate in the Oort Cloud, and things happening on Neptune's moon Triton that would lead to a lot of trouble if they were ever discovered.

Employers and Employment

While the idea of "jobs for life" isn't terribly common in 2100, there will still be many times when adventurers will find themselves working for a specific group.

Law Enforcement

Law enforcement campaigns have a lot going for them. They provide a strong structure, with definite heroes (honest law enforcers) and villains (criminals), while still allowing for moral complexity in the form of unjust laws, corrupt cops, and lawbreakers with sympathetic motives. They permit plenty of action and combat (car chases, shoot-outs, raids on criminal HQs), while not being as unrelentingly dangerous as front-line military service. Individual adventures or whole campaigns can be cerebral exercises in detection and deduction.

Law enforcers must be prepared to take orders or handle the consequences of "doing the job their own way," but a beat cop or senior detective still has some freedom to make decisions. Law enforcers won't *usually* change the world, but they can have the smaller satisfactions of making the world a better place a step at a time. Most law enforcers have to limit their use of physical force to what the rulebook permits, and generally have to live by rules made by others – but those rules are generally *supposed* to be admirable.

In the cities and towns of advanced parts of Earth, law enforcers are members of organized police departments working under long-established legal systems, with all the benefits and responsibilities that implies. A "cop show"/*CSI* campaign is a perfectly valid option here. Law enforcement arrangements are more complex in a wilderness or under the oceans, but communications are generally good and jurisdictions are fairly well determined in 2100. A law enforcement campaign set in an area of civil upheaval or insurgency can be messier and more "militarized," with, sometimes, more moral complications, but cops are generally cops everywhere.

Law enforcement in space or on other planets is more complicated again. Jurisdiction may be uncertain, so that law enforcers may have to spend much of their time confronting or negotiating with their counterparts from other nations, while criminals may be able to escape justice by ducking across a convenient border. (This is all too easy for infomorphs, which can make the move electronically.) Hence, there is often some temptation to bend or break the rules.

Types of Organization

Law enforcers come in several varieties. The classic uniformed police force enforces the law and keeps the peace in a specified territory. Not all members of the force may wear uniforms – many fictional heroes are plainclothes detectives – but they are all generally defined by the job, and probably worked in the uniformed branch at some point (unless they're civilian forensics experts – who could make good PCs in a technothriller-ish ***Transhuman Space*** game). While such cops are mostly quite strictly limited by geography and defined duties, their work can make for strong episodic campaigns, in TV cop show style.

A second type of force, typified by groups such as the FBI, has broader geographic responsibilities and specific tasks, such as dealing with "federal crimes." In an age of supranational federations such as the E.U. and TSA, this type of organization may become more common, while advanced technology and social change creates new kinds of crime needing specialized responses. (The Genetic Regulatory Agency is one example.) This category can also encompass intelligence organizations such as the CIA or MI5 working in "investigative mode."

A third category is the "frontier marshal" sort of group, mostly found in colonies and suchlike remote, underdeveloped areas. ODPAP, China's orbital police unit (see ***High Frontier***, p. 30) is an example of a specialist "frontier force" operating quite close to home. Some such people may even be

Private Investigations

As in our own era, many nations permit independent civilian "private detectives" to operate in society, often with some kind of registration or licensing scheme to avoid abuse. Such business is usually legal if the local CR is 4 or less, although it will usually be subject to significant controls at CR4, and may be seriously restricted even at CR3. Investigators who want to carry weapons may be subject to much tighter controls than those who don't, while even in CR5 societies, an unarmed freelancer may be able to eke out a living as an innocuous solver of minor problems. In CR0 societies, "private detectives" may be the nearest thing that there is to law, and will probably *have* to go armed.

A party may provide the same sorts of services that have been available since the days of Allan Pinkerton and the Sherlock Holmes stories – finding missing persons, pursuing crimes that the cops can't solve or won't touch, resolving domestic mysteries that don't *seem* to involve actual crime, maybe a little bodyguard work or bail bond enforcement. However, in a complex world, all sorts of people can end up investigating mysteries. Computer consultants, memeticists, and biotech experts may all be called in to assist in dealing with complicated crimes, or may stumble across mysteries in the course of their work. See the Barrymore Consultancy in ***Personnel Files***, a commercial consultancy which ends up dealing with all sorts of enigmatic problems throughout South African society.

An effective high-tech detective agency will need many of the same resources as the police – observation technology, Web-based tracking capabilities, forensic microbots, and so on. This can give a game an interesting blend of (limited) high-tech resources, thoughtfulness, and action.

part-timers – America/Mars frequently deputizes government employees to provide *some* kind of legal presence out in the wilderness, while the commander of a small station may have the legal powers traditionally assigned to a ship's captain. In small communities such as those based on asteroids and artificial habitats, law enforcement may be handled by private companies; see the Duncanite Security Companies (***Deep Beyond***, pp. 84-85) for one example.

Law Enforcement and Technology

In the world of ***Transhuman Space***, advanced technology gives the professional law enforcer many advantages, especially if he's well-funded. Even if the government doesn't deliberately set out to monitor every public area, both public and private areas are likely to contain cybershells or other machines with cameras which will record everything that they see – and criminals who seek to sabotage these may simply find that the controlling AIs call the police. Microbots and related technology enable forensics specialists to sweep crime scenes a dust particle at a time, and methodical, tireless AIs can sift through vast quantities of information in search of crucial clues. Stolen goods and kidnap victims may well carry electronics with radio communication capability, and even if they don't call for help, these are easy to track. Neuroscience creates reliable lie detectors. And once a criminal is located, officers equipped with excellent squad-level communications, tactical software, and reliable less-than-lethal weapons can usually carry out arrests with quiet efficiency.

However, a minority of criminals have access to advanced technology of their own. Teleoperated and NAI-controlled cybershells can enable crimes to be committed from a safe distance. Microbots can remove and destroy every trace of evidence. Nanobugs and biotech provide whole new categories of weapon, and space travel provides whole new worlds to which to escape. Indeed, high-tech criminals in a low-wealth area may be all too effective at evading under-resourced local cops. Characters committing serious crimes in this setting have to be *smart* – and they still run the risk of being outsmarted.

Intelligence Work

An intelligence game requires thought and judgment, especially in the world of ***Transhuman Space***, where a lack of subtlety will usually lead to rapid detection and defeat. Such games suit players who are prepared to be cautious and thoughtful about their PCs' actions.

While it's possible to play heroic PCs foiling the plots of dangerous ideological radicals, international criminals, and the agents of dark authoritarian powers, stories about intelligence work provide opportunities for moral ambiguity, from occasional qualms about using deceit and violence to "shades of gray" epics in which the enemy are little different from the "heroes," and objectives are set by cynical and ruthless leaders more interested in political advantage than the public good. PCs are likely to think of their own beliefs and those of their enemies as the arbitrary result of memetic conditions, while the support that either side receives from the public at large is almost certainly the product of manipulation. Memeticists in the intelligence services may regard humanity as a crowd of automatons to be secretly reprogrammed as convenient, and many agents will find themselves working for or against such schemes.

The intelligence agencies covered in ***Transhuman Space*** sourcebooks (p. TS97-98 and ***Fifth Wave***, p. 38), are not the only agencies in the game. Bureau 10 isn't the sole Chinese agency; it's merely the one most likely to be sending spies off-planet. Likewise, the SIA handles American intelligence outside Earth's atmosphere; the CIA and FBI are still very active back on Earth. This can lead to "jurisdictional" disputes and cross-service rivalries; if the SIA, for example, discovered that terrorists were moving weapons through an American spaceport, they should work with the FBI, and with the CIA if the terrorists were an international problem – but the case officer's instinct might be to move against the problem while the weapons were off-world, to reduce the risk of leaks – and to keep the credit with the people who'd discovered the problem. Life could then become very tricky for any CIA moles within the terrorist group . . .

American Agencies

The SIA (p. TS98) is the patron agency of choice for high-energy, high-tech, cross-system campaigns featuring American heroes. It has to process the gargantuan quantities of traffic data generated by activities in Earth orbit, takes a major role in the complex "secret frontier wars" of Mars, and even (with USAF aid) hunts down Triad bioroid smugglers and probes Trojan Mafia data havens in the Belt. With such a wide area of operations, its agents become accustomed to independent action and the associated responsibility. However, it's required to stay off Earth, where the mass of American interests are located, and an SIA agent caught out of place could find himself months away from help.

On Earth, the CIA remains the primary international branch of American intelligence, and can be played much like the CIA of a hundred years earlier – a major factor in the subtle, sophisticated information wars of Fifth Wave powers and the dirty little struggles of Third Wave proxy warriors. The FBI defends American interests at home, and can appear in counter-espionage as well as crime-busting games. Lastly, the National Technical Intelligence Bureau is mostly concerned with signals intelligence – but, given the highly technological nature of intelligence work in 2100, it is very likely to play a part in any American-oriented intelligence story.

European Agencies

Because the E.U. is still a federation rather than a monolithic state, its individual members still all maintain national intelligence services – often more than one major agency each. For example, British characters could be members of the Secret Intelligence Service ("MI6," complete with persistent James Bond glamor) – but they could also work for the Security Service ("MI5"), or GCHQ (the British counterpart to America's NTIB). Germany has the BND, which is committed to a policy of expansion of E.U. membership and influence, France has its General Intelligence Service, and so on. All of these are in theory coordinated by the E.U. External Intelligence Coordination Committee (EUEICC), an office of the European Parliament, which regularly performs wonders of AI-directed bureaucratic synchronization and delicate secret diplomacy. When groups pursue any kind of coherent, unified policy, however, it's likely to be as much luck as judgment.

Software Agents

PCs in "intelligence" campaigns will often be old-fashioned "spies on the ground," using social skills and violence to achieve their goals. They may be selected because they are, or can pass for, "baseline" humans; the first qualification for a good spy throughout history has often been that he's *unremarkable*. However the majority of entities working in intelligence are not human.

"Software agents" are powerful tools. They can operate freely on the Web, sometimes working methodically and patiently to crack enemy data security, but more often soaking up vast volumes of unsecured information. They also make superlative analysts, taking as much time as they need to correlate unsorted facts, and bringing fewer preconceptions and personal agendas to the task than most humans. Even the most cinematic "active service" field team will need infomorph support to manage communications, assist with tactical analysis, and occasionally don combat cybershells to provide massive firepower.

While most players who want to play an intelligence game will probably be more interested in playing field agents, leaving the AI support function to NAI or LAI programmed allies, a more cerebral "software agents" game could have some interest. The PCs would be memeticists as much as spies, and could be heavily involved in memetic defense work. They don't all have to be AIs; data collection still sometimes requires human eyes and ears on the spot, while enforcement and physical asset extraction work still needs muscle. AIs can download to teleoperate cybershells, but humans can sneak into places where cybershells are sure to be detected.

The one E.U.-level body with an intelligence role that does command cross-border support is the Genetic Regulatory Agency. Unfortunately, although it mostly works to prevent unlicensed and dangerous genetic manipulations, along with acting against bioroid trafficking ("the new slavery") and genetic terrorism, it has *serious* critics within and beyond the E.U. It's been called "the iron fist of militant Preservationism," and its agents are frequently depicted in popular InVids as sinister men in black, dedicated to suppressing radical, life-saving new medical treatments, and hostile to oppressed bioroids. Its habit of casually claiming supranational authority at any excuse, its Preservationist bent, and an institutional disdain for memetics, don't help with this image. Still, it also has its glamorous aspects, combined with a grudging willingness to employ freelance talent if necessary (see ***High Frontier***, p. 25).

PRA and SAC Intelligence

The USA and E.U. are massive powers, which can all too easily make their intelligence agencies look sinister; players might be more interested in taking the part of agents of sympathetic second-string powers.

The Pacific Rim Alliance is another loose grouping, with its national intelligence agencies being coordinated by high-level committees within its united military command and control structures. (Non-military intelligence coordination has to be dangerously *ad hoc*.) The Australian Secret Intelligence Service is highly effective, thanks to decades of dealings with a wide range of erratic but determined potential opponents; any spy-counterspy game set in the ferment of southern Asia is virtually certain to feature ASIS intervention. Japanese agencies are more internally focused, though technologically competent, while the agencies of other PRA members tend to be badly over-stretched.

Likewise, South Africa has its National Intelligence Agency, which has a taste for advanced biotech tools, giving it a formidable edge in the Third Wave border states across Africa where it fights many of its secret struggles. This can also make NIA agents and operations downright frightening as villains; they're likely to deploy subtle toxins and drugs, including behavior-modifying nanobugs. Still, NIA human and bioroid agents, working for an Africa united, peaceful, and democratic, should mostly seem heroic enough.

Dangerous Masters

Some potential employers, especially in the intelligence field, should be distinctly *worrying* for most PCs. While the Chinese or TSA intelligence agencies aren't evil, they lack democratic accountability and have long traditions of ruthlessness. PCs are unlikely to be employed by them in the long term, but might well be hired on a one-off basis or find themselves working for the same short-term goal – knowingly or not. Smart PCs who find themselves entangled with such organizations should take care not to find themselves classed as "disposable assets," and should make sure that they have a way of leaving the relationship smoothly when the job is finished.

The agencies in question include China's Bureau 10 and Indonesia's BAKORSTAPAS, both of which may also be involved in industrial espionage, and Saudi Arabia's GID. Both BAKORSTAPAS and the GID are heavily involved in highly ideological memetic operations. The GID enforces Shariat law in the Caliphate through the Mutawi'yyun (see ***Broken Dreams***, p. 33), while BAKORSTAPAS and other TSA agencies are thoroughly entangled with the External Intelligence Directorate (see ***Broken Dreams***, p. 43), and must also sometimes work with the Acquisitions and Internal Intelligence Directorates. This web of national and alliance-level organizations often produces rivalries and "boundary disputes."

Agencies focused on internal national security and last-ditch memetic defense, such as China's Ministry of Public Security or the TSA Theory and Praxis Directorate, are unlikely to employ outside operatives on anything more than a very short-term basis. They are dangerous to encounter; it's their *job* to be paranoid about foreigners and foreign ideas.

Military Organizations

Most military campaigns focus on national forces, which follow broadly traditional organizational patterns. In most situations, the players can just decide which nation the PCs will be serving, and determine from that what force they'll have to join. In many cases, there's a further choice between giving loyalty to a national organization or an alliance-level force such as the PRA's Alliance Space Defense or the E.U.'s European Space Control Agency; see ***Spacecraft of the Solar System***, p. 25.

However, there are a couple of other potential employers. The extension of colonial and corporate activity into space and beneath the sea has created new opportunities for mercenary operations. Executive Decisions Incorporated (p. TS94) is the largest of these, and hence, by necessity, one of the most outwardly respectable; it describes itself firmly as a *security* company. However, it has a proven capability to perform small-scale assault operations, in space or on the ground, using advanced technology. Its competitors range from high-tech businesses leasing out burglar alarm systems which happen to include a few lightly-armed mobile cybershells, to thuggish gangs-with-pretensions in backward regions; Orion Industries (***Fifth Wave***, p. 79) is another substantial Earth-based security company, and may act as a clearinghouse for more dubious mercenary contracts.

One long-established offbeat military formation has become even more exotic in ***Transhuman Space***. The French Foreign Legion has a centuries-long tradition of taking foreign nationals and asking few questions about their background, but using them as tough troops for tough tasks; in 2100, this policy has been extended to employing bioroids and AIs with *complicated* histories. The Legion is supposedly cautious about employing military xoxes, as the combination of willingness to break rules and programming to kill is a dangerous thing in an AI. Still, for a military campaign with an exotic mix of morphologies, psychologies, and origins, the Foreign Legion is hard to better. It even has a good public image, thanks to well-publicized raids on illicit bioroid manufacturing operations.

Working for Industry

While the Transhuman Space world isn't a cyberpunk setting of unconstrained corporate power, the high wealth level and advanced technology enable the most powerful corporations to be substantial forces, who sometimes end up using rather unconventional methods. With humanity's dispersal across the solar system, government just isn't always around to restrain corporations. ***Deep Beyond*** has details for several significant companies and corporate power structure relationships, because the outer system is one place where a corporate VP can rule a real pocket kingdom of his own. Corporations can represent interesting employers or patrons in even the most action-packed, dramatic campaigns – and in lower-key games, well, ordinary people with ordinary jobs have to be employed by *someone*.

Such employers (and enemies, or rivals) can range from corrupt predators to responsible corporate citizens. Or they may just be accumulations of ordinary people, some corrupt, some idealistic, mostly just doing their jobs. While the basic structure of the corporation hasn't changed much over the century, advanced, all-pervasive computer networks enable quite small groups of human managers to supervise large, broadly dispersed organizations, and to switch policies rapidly in the face of changed circumstances. Likewise, advanced training and infomorph support enable employees to switch jobs with relative ease, making more employees into short-term contractors rather than the lifetime corporate drones of previous eras. A typical corporation in 2100 would probably seem both more personal and less stable, less of a "family," than a visitor from the past might expect.

There are a few corporations which make especially appropriate medium or long-term employers and patrons for PCs. Some examples:

Avatar Klusterkorp

See p. TS94. As radical transhumanist biotechnologists, and Duncanites to boot, Avatar inevitably gets into a lot of fights. Players willing to buy into Avatar's freebooting style and casual view of mainstream ethics could help shape the future of humanity in the outer system. Independent-minded AIs might have some problems with this employer.

Columbia Aerospace

The stereotypical giant US defense contractor, Columbia Aerospace (p. TS94) practically owns some of the biggest space stations and colonies in the system (see, for example, ***High Frontier***, pp. 20-21). As Columbia builds and provides tech support for many of the most advanced spacecraft and war machines, working for them provides an excellent way for non-military PCs to be part of a military team (as contractors, etc.); they're also a prime target for espionage.

Marwari Digital

As a system-wide media conglomerate (described on p. TS95), Marwari can act as a patron to roving freelance reporters in a classic "get the story at any cost" campaign. Its involvement with the entertainment business can make it a

Conspiracy 2100

There may well be secret conspiracies operating in the world of 2100, but if there are, they're very *successfully* secret.

Any that do exist are likely to be reactionary plutocrats ("old wealth" that doesn't approve of certain changes in the world – and remember, with TL10 medical biotech, old wealth can be *very* old, with equally substantial fortunes), or simply government or corporate bodies using underhand means to pursue their own advantage. The wild-eyed radicals are *mostly* out in the open, but the setting also has its share of political extremists and idealists who operate in shadow and use illegal tactics.

The Ares Conspiracy and the Europa Defense Force started out as conspiracies, even if their secrecy was eventually, inevitably lost. For numerous popular and (probably) delusional ideas about current dark secrets, see ***Toxic Memes***.

major factor in a campaign set in the weird world of transhumanist celebrity culture. The Teralogos Consortium (***Fifth Wave***, p. 64) can serve as an alternative or a rival, with slightly more focus on the Web and on fast news services.

Solar Express

Solar Express (p. TS96 and ***Spacecraft of the Solar System***, p. 18) pays people to fly around the solar system very fast. Courier work is likely to be quite dull, or at least routine, but some tasks may involve unexpected complications.

World Tree Enterprises

As a focus for conspiracy theories, World Tree Enterprises (***Toxic Memes***, pp. 52-54) can be an entertaining factor in any campaign. Its activities combine corporate raiding, mercenary work, and manipulation of Third Wave governments. PCs working for the company are likely to wonder who or what they're actually working for – and what their ultimate goals might be.

Others

Esperante Enterprises (***Fifth Wave***, p. 59) is a company which *used* to do a lot of good, but which has now turned viciously exploitative. PCs might be interested in restoring its old culture.

Executive Decisions Incorporated (EDI) is discussed on p. 29.

GenTech Pacifica (pp. TS94-95, and see also ***Under Pressure***) is closely involved with the Elandra undersea community, and sometimes comes into armed conflict with violent radical preservationists.

Nanodynamics (p. TS95) is big and powerful. Its purchase of Exogenesis means that it is now involved in a miniature war in the outer solar system.

Nanosan Umweltsysteme AG (***Fifth Wave***, p. 85) combines advanced technology with the opportunity to travel the world doing good by cleaning up the environment.

Xiao Chu (p. TS97) has not only economic power, but political connections. Any involvement with this company can lead to entanglements with the Chinese government and intelligence community. Xiao Chu is also heavily involved with the development of Mars.

Enforcing Intellectual Property

In 2100, the conflict between the holders of intellectual property and people who subvert their legal rights has gone global with the confrontation between the nanosocialist bloc and its enemies. Meanwhile, more old-fashioned organized crime has moved into the field, and sometimes taken related operations out into space.

Hence, a campaign in which the PCs have the job of enforcing copyrights can easily have elements of not just high-action crime fighting, but also espionage and memetic warfare. Aside from individual rights-holders, the groups responsible for dealing with this include specialist units within local and national police forces, and also the World Trade Organization (see ***Broken Dreams***). Opponents can include agents of the TSA Acquisitions Directorate, Martian Triads, the occasional Red Duncanite "data freebooter," and any number of low-level criminal groups.

The opposition can also include idealists and activists with serious moral arguments on their side. It is, in fact, also possible to play the "other side" – heroic data smugglers and idealist genetic liberationists, struggling to free human ingenuity from the dead hand of corporate control, carrying new nanodrugs to the people who need but can't afford them, providing the oppressed with the information they need to deal with the oppressors on equal terms, or enabling individuals to unlock the genetic rights management codes which are denying them the ability to have families. Intellectual property enforcement in the ***Transhuman Space*** setting sometimes goes far beyond heavy-handed, and it's certainly possible to play a "shades of gray" campaign around this subject.

Campaign Ideas

The short campaign ideas that follow demonstrate the range of possibilities for ***Transhuman Space*** games.

African Hearts, Transhuman Minds

This investigative campaign starts at street level in South Africa, with the PC freelancers being hired to discover who is behind a series of low-level political dirty tricks campaigns in the South African Coalition. As they deal with individual incidents, the PCs win the trust of a political faction, and learn information that makes them the logical people to employ for further, related tasks.

It becomes clear that TSA agents are behind some of the trouble, but are they being exploited as a front for other factions who want to cause trouble for the Olympus Project? Some missions also involve encounters with World Tree Enterprises, who are seeking their own advantage. Eventually, the PCs will have encountered enough corruption to cause a significant international incident – or, if they're careless about how they expose things, to seriously damage the SAC, or at least prevent it from successfully expanding.

Orbital Storm

This concept is built around a group of PC Vacuum Cleaners. Called to investigate an unmanned industrial HEO station of uncertain ownership which is throwing off debris, they discover that its AI supervisor wants to *defect*. The station is in fact part of a BAKORSTAPAS black funding data piracy scheme, selling to the Martian Triads and making use of Duncanite data havens. The AI, a bootleg model that was made smart enough to manage much of the day-to-day running of the business, fears that it's been scheduled for deletion when the current phase comes to an end.

The data pirates take rapid, violent action to delete the problem and destroy as much evidence as possible. Hopefully, the PCs will survive the ensuing spate of "computer malfunctions" and "unexpected debris behaviors" – after which, they discover that the AI is just one of several with similar motivations and concerns. (These AIs may actually warn the PCs of planned attacks.) Unfortunately, this AI cabal is rather paranoid, not trusting its old makers but having been taught to regard most other agencies with equal suspicion. They decide to trust the PCs up to a point, releasing snippets of information to them and assessing their responses. This means that the Vacuum Cleaners eventually become the focus of attention for several law enforcement and intelligence agencies, along with WTO representatives. The characters will find themselves skating round the Earth-Moon system, one step ahead of cybershell data destroyers and suspicious spies, following a trail of clues left by their unwanted rogue-AI "patrons."

Bringer of War

One possibility for a game set on Mars is to have the PCs start on Earth and travel there, giving the GM an excuse to spring "unexpected" features of the planet on them. In this case, they are Earth-based freelancers who are hired by the Seihin Corporation (***In The Well***, p. 54), which thinks that its operations on Mars are being subjected to some kind of systematic sabotage, but can't pin down details. Its Earth-based management aren't sure who to trust within their Martian organization, and may think that a non-Japanese team with no obvious prior connection to the company would have the best chance of avoiding suspicion. The PCs can create a cover story to explain their trip, and any interest they take in Seihin's Martian operations, with their employers' full assistance. They'll find that they have reasonable resources, but some small things may make them nervous.

After whatever distractions the GM chooses to throw in along the way, and visits to various parts of Mars, the PCs may eventually discover the truth – but it's buried *deep*. The problem is indeed (mostly) a plot, hatched by the TSA's Memetic Warfare Special Operations Group (***In The Well***, p. 119), and hence is as well-hidden as all such operations. The Meme Warriors are attacking Seihin, and especially its connections with Earth, because the steady flow of former employees, their previous cultural connections weakened by their disaffection from Seihin and its failing attempts to create a corporate culture, are a superb market for Peruvian cultural expansion – while an independent Seihin/Mars should eventually become ripe for a secret TSA takeover.

This scheme has also sucked in rival corporate agents who wouldn't mind a slice of Seihin's Martian operations, and the odd Negative Growth saboteur, for whom Seihin vehicles are a symbol of human despoliation of Mars. This gives the Meme Warriors multiple layers of ready-made cut-outs. Furthermore, some "subtle sabotage" is actually just Seihin/Mars employees reacting badly to ham-fisted directives from Earth, which should confuse the issue considerably. But if the PCs keep digging, they'll eventually become a serious threat to the project – which is a cornerstone of the Meme Warrior plot. At that point, they'll become the target of some subtle but very, very serious attacks.

Ts and Cs

The PCs are employees of a financial consortium, their advisers and bodyguards, and perhaps independent reporters hunting a story. They are assigned to investigate a failed offshore hotel project in the sea near the Turks and Caicos Islands, in the Caribbean. It quickly becomes clear that the whole scheme had been subverted and corrupted by *somebody*, especially when the PCs visit the unfinished hotel and find themselves caught up in a hasty attack by thugs who have been hired to remove some hidden material from the structure.

In fact, the scheme has attracted the attention of a "crime ring" which is actually a deniable, disposable pawn of Colombian intelligence. The idea was to use the hotel as a waystation on a smuggling route from South to North America. Unfortunately, the project's organizational stability was destroyed by the need to modify elements of the construction and the subtle removal of competent, honest managers who might have detected what was up.

The criminals are mid-level Colombian and Maple Syndicate mobsters trying to extract themselves from the fiasco and delete any serious evidence that they've left behind. However, some of them are also still looking for a way to replace or restore this potential transit point. Meanwhile, Caribbean Union law enforcement officers would like to catch as many of the criminals as possible, and may not be above using the PCs or the money they represent as *bait*. (They probably won't *deliberately* put innocent civilians into danger, but they may wonder if the PCs have also been bought . . .)

Time Travel to 2100

In time travel games where time travel itself is a secret (at least for the next hundred years or so), the world of ***Transhuman Space*** makes a good option for a future which the PCs could discover when they push the control lever forward. It's a complex and rather strange setting from a modern-day point of view, emphasizing that social and technological changes over the next century are every bit as radical and complex as anything the PCs can observe in their journeys through the past. It's also survivable, but *not* an easy place to visit. PCs who seek out advanced weaponry and extremely effective medical supplies will find themselves trying to avoid attention in a world where any street or building may be monitored by self-motivated computers with efficient face recognition software, where paying for anything may require a well-established digital identity, and with plenty of suspicious local factions.

Transhuman Space and the Time Corps

In time travel games using the "Time Corps" setting from pp. 217-229 of ***GURPS Infinite Worlds***, the world of Transhuman Space could represent a third "potential present" – one in which, unlike the worlds of Timepiece and Stopwatch, theoretical physics never pursued the exotic paths which ultimately lead to time travel, and Earth neither unified under a benevolent world government nor fell to centralized authoritarianism, but grew ever more ideologically diverse. Perhaps certain important scientists were diverted into artificial intelligence research or biotechnology rather than temporal physics, or perhaps a lack of key breakthroughs left the temporal physicists with nothing to do except pursue abstruse theory; perhaps the United Nations and other key unifying forces were sabotaged, or didn't receive crucial outside aid.

If some disastrous historical intervention leaves both the Timepiece and Stopwatch futures equally, extremely unlikely, agents of both factions could find themselves stranded in the 2100 era of ***Transhuman Space***, struggling to survive and evade notice in this barely-comprehensible world as they are forced to cooperate to restore some kind of *status quo*.

Caught in the Communal Web

In this soap-operatic campaign, the PCs are all infomorphs, running on a cluster of static computers somewhere on Islandia. (See Chapter 5 of ***High Frontier***.) Most of them have recently established themselves there, and they have a variety of jobs. Some telecommute, perhaps even to other L4 stations such as the Vosper-Babbage Factory Asteroid, while others do consultation work for local businesses; one or two may be independently wealthy ghosts, but regular work will give characters reasons to associate with the rest of the community. Much of the campaign time can be spent on the Web; part of the point of playing infomorph characters should be the sense that physical distance isn't always a great concern.

In any case, the PCs (and maybe other infomorphs) form an identity group, and a significant part of the campaign will be about relationships with other identity groups – complicated by the fact that, aside from the locked rooms where their computers reside, and a few "garages" where mobile cybershells and other community property are held, the PCs don't really have a neighborhood to call their own. To begin with, in fact, the campaign can have something of the nature of an unusually static picaresque, as the players learn their way around the complexities of Islandia society and maybe send teleoperated devices to visit other L4 communities.

Eventually, though, things can turn more serious and focused. This may involve something like a brush with a commercially or ideologically hostile identity group (leading to a soap-operatic "boardroom battle" plot), or the discovery of substantial illicit activity on another L4 station, but the most interesting problems would probably involve something which the PCs are uniquely qualified to tackle – say, a sinister rogue AI attempting to infiltrate Islandia's systems.

Peruvian Gothic

The PCs in this campaign are employed as roving troubleshooters by a Nicaraguan politician – a moderate nanosocialist with a strong popular following, who has been sidelined in national politics. Agents of other TSA states have been working against her, because she's too prone to questioning the overall direction of Alliance policies.

She can and will fight this at home, and her position is just too popular in the country for her to be entirely eliminated. (She also employs some competent bodyguards, just in case – but that's not the PCs' job.) However, her political instincts are basically aggressive and mobile; she decides to hit back at her opponents by taking the fight to them. And her contacts in the Nicaraguan government have given her some clues as to where to start.

So she asks the PCs to investigate various dubious government activities in the South American TSA states. They are *not* to expose anything if they can avoid it; the idea is to give their boss ammunition, not to damage the nanosocialist cause. She will call in favors to get them official status of some kind, but they may have to go undercover.

This is an investigative/espionage campaign with heavy political overtones, which should eventually lead deep into the mountains of Peru. The patchy clues seem to point to surviving elements of the pre-war "Special Projects" biotech division, which may mean anything from illegal weapons to Guardian and Helot II parahuman development (***Fifth Wave***, pp. 117-118). The tone and visual style of later scenes in the campaign should be defined by the presence of some truly *gothic* biotechnology.

Chapter Three
GURPS 4e Update: Characters

The newcomer moved smoothly across the ballroom, nodding to everyone who greeted him as a friend or an ally.

"Darling – don't tell me you've had a bodysculpt!"

He smiled at that, shrugging to hint at deliberate ambiguity – but on the computer inside his skull, risk-assessment subprocesses raced frantically. His body was supposed to be a perfect replica of the subject! If a casual acquaintance could spot something amiss, what else might be wrong with it?

This chapter deals with ***Transhuman Space*** character creation under ***GURPS,*** *Fourth Edition*, and includes updated versions of all the templates from the ***Transhuman Space*** main book.

Character Design

Character creation under 4e is generally similar to 3e, and in some areas, the new rules provide more and better options for this setting. For a guide to converting between the editions, see ***GURPS Update***, available free online at **e23.sjgames.com/item.html?id=SJG82-0105**.

Attributes and Secondary Characteristics

The new edition uses similar attributes to its predecessor. However, a few calculations have been changed.

ST

Lifting ability is now based on the *square* of ST, rather than being directly proportionate. Hence, some templates and characters which were given high ST under the old system, if only to ensure that they could lift themselves off the ground, can now be given lower values. Combined with the changes to attribute costs, this can help make large creatures and cybershells more viable as characters in games with restricted point budgets. Furthermore, Striking or Lifting ST can now be bought separately; the latter especially can be very useful for "worker" cybershells with a lot of load-carrying and lifting power but no particular hitting ability.

DX, IQ

Dexterity and Intelligence are largely unchanged – except that they now cost more at typical character levels. Some characters, designed or intensively trained for specific purposes, may be better treated as having appropriate Talents (see below) instead of very high Attributes.

4e also has a hard definition of "sapience"; IQ 6+ is sapient, giving the ability to use tools and learn technological skills and languages. (*Sentience* is defined as minimal self-awareness, equivalent to IQ 1+. The 3e "Presentient" disadvantage is gone.) As language and technology use are requirements for a companion or servant, all ***Transhuman Space*** AIs, commercially-promoted uplifted animals, etc., have at least IQ 6, regardless of colloquial uses of the term "sapience" in the setting. See *Terminology: Sapience* (p. 52) for more on this.

HT

Health is largely unchanged.

Hit Points

Hit Points are now based on ST rather than HT. This makes large or small beings easier to design, as their Hit Points may not need to vary much from this base.

Large machines tend to have fewer Hit Points under the new edition than they did under the old; this reflects a change in the treatment of some types of combat and damage.

Fatigue

Fatigue Points are now based on HT. While this may produce some minor variations in template or character details when converting, the difference is unlikely to be enough to worry about, and the results will often be more realistic.

Will and Per

These are now treated as secondary characteristics, albeit still based on IQ. When converting characters or templates, remember to convert Alertness and Strong or Weak Will into modifiers here.

Basic Speed and Basic Move

These too are now classed as secondary characteristics, and can be adjusted quite simply. Some cybershells have movement rates significantly different from their Speed, which is primarily a measure of reaction time and some agility. Note, however, that a cybershell vehicle may have Enhanced Move rather than increased Basic Move; it can doubtless outpace an ordinary human on the road or in the air, but can't necessarily maneuver round a crowded room any better.

Vehicle ST and Other Attributes

It is sometimes necessary to design vehicles as characters, especially if they are cybershells and need to be defined as an infomorph's body.

Vehicles are typically listed in 4e terms with a single ST rating, which determines their carrying capacity and Hit Points. (For a simple rule of thumb, multiply the vehicle's longest dimension in yards by 10; for example, a 9' long ground car has ST 30.) This is a convenient simplification. However, not only can effective Lifting ST and Hit Points actually be slightly different in practice (a rugged but underpowered aircraft may have low ST but a lot of Hit Points, for example), but the design may also need a Striking ST rating, especially if it has work arms.

Hence, anyone designing a vehicle template can tinker with base ST, Hit Points, Lifting ST, Striking ST, and so on, to model the concept. For example, a cybershell "scooter" – designed to carry one or two passengers, but with only a pair of restricted-function work arms to assist with light luggage and handle minor self-repair tasks – might have ST 7, +8 Hit Points, and +13 Lifting ST. Other designs might treat their work arms as Weak Arms (p. B53). Don't forget to apply the Size limitation to the ST of any vehicle with SM +1 or more.

Similar principles can apply to cybershells. A humanoid cybershell might be built with human-normal strength, but still be as rugged as a typical 6' long vehicle, giving it ST 10 and +10 HP.

Note when defining vehicle-style cybershells that they should be able to carry a typical load at their quoted normal maximum speed. This load will normally be bought as Payload, and hence will *not* count as Encumbrance. A combat cybershell which regularly carries heavy weapons on a hardpoint mount, or a "robot forklift," might need some extra Lifting ST.

Vehicle HT

Most civilian passenger vehicles listed in the ***Basic Set*** have HT 10 or 11. However, sophisticated technologies (including smart materials) make HT 12 the norm for most Fourth and Fifth Wave models.

Vehicle Handling and SR

Every vehicle also has a Handling rating, which may generate an enhancement or limitation to the Enhanced Move advantage; see p. B52. Likewise, each has a Stability Rating (SR), and this too can be treated as a modifier to Enhanced Move; every +2 SR is a 5% enhancement.

Cultural Background

A ***Transhuman Space*** character's cultural/social background needs to be assessed to enable certain parts of a 4e character sheet to be filled in.

Tech Level

In 4e terms, ***Transhuman Space*** is a mature TL10 setting with some TL11 biotechnology – treat it as TL10 for character definition purposes. Characters from Third Wave or poorer Fourth Wave areas could have one or two, or even three levels of Low TL; the runaway pace of technological progress in 2100 is leaving some people behind. If a PC does take this disadvantage, the GM should note that he not only cannot begin with high-TL skills or knowledge, but he will be unfamiliar with fully sapient (or perhaps even *any*) AIs, and may have difficulty dealing with them in small but inconvenient ways.

Low-TL characters may have encountered bioroids, but will probably regard them as strange and a little unnerving. Anyone limited to TL8 or lower also cannot have received formal training in memetics. Although he can resist persuasion, indoctrination, and manipulation as well as anyone else, he may underestimate the efficiency of this science – or *overestimate* it, regarding it with superstitious dread.

Languages

While languages have evolved in detail over the preceding century, and a large number of "marginal" tongues have died out altogether, the basic pattern of major languages in 2100 is much as a century before.

Disadvantage Limits

The normal guideline in 4e games is that total points from all disadvantages (including reduced attributes, quirks, etc., but excluding anything in a racial template) should not exceed 50% of character base points. In ***Transhuman Space*** games, this may be too broad a limit.

Genetic, surgical, and psychological therapy are well developed and effective. Many mental or physical disadvantages that would seem entirely plausible for a hero in other settings will be curable, or should have been precluded by genetic therapy in the womb. Of course, a PC may not have had the time or money to acquire a cure *yet* – but this may lead to the question of why such problems aren't fixed when the character next has some spare time and cash. Characters with many types of problem will be seen as freaks, maniacs, or technophobes. Meanwhile, serious Enemies are likely to be *deadly*, if they use resources effectively.

Thus, players should be discouraged from scrabbling for every possible disadvantage. A limit of 25% of starting points, or perhaps 30-50 points total, might be more appropriate.

Character Points

Given the broad range of options for a ***Transhuman Space*** campaign, character starting point values vary widely. Nor need they remain stable in the course of a campaign; see "Mutable Point Totals," p. 17. ***Transhuman Space*** characters tend to have higher point values than their counterparts in many game worlds. This is inevitable in a wealthy, technologically advanced world in which anyone can acquire useful allies and a better body for cash.

50-150 points: Ordinary Citizens of the Future. It is possible to create an ordinary, healthy adult who can function in society for 50 points or so. However, people from Fifth Wave societies will have resources, implants, genetic enhancements, and AI Allies taking them well beyond this level. 50-75 point PCs would be "accidental hero" types from backwards areas with serious limitations and problems, or adolescents or other marginal individuals from wealthier areas. 150 points is the *minimum* for a competent "professional adventurer" in the setting.

150-250 points: Competent Specialists. 150 points will buy a normal human, upgrade, parahuman, or most types of bioroid, or a playable infomorph installed on a static computer, with plenty to spare for advantages and skills. Characters at this level should avoid getting into serious combat with armed professionals, but make good detectives, reporters, businessmen, Vacuum Cleaners, or memetic activists. 200 points permits trained and well-supported combat bioroids, well-resourced human Fifth Wave agents, light troops with allied cybershells, "civilian" ghosts running on bioshells, and static infomorphs or human technologists with large networks of cybershell aides. At 250 points, a game might include ghosts running on cyberdolls and many other interesting cybershells; parties can be exotic and competent problem-solvers, even in a Fifth Wave setting. (In a Third Wave area, such PCs may be seen as strange and frightening.)

250-500 points: Aces and Infomorphs: With 300 points or so, players can consider SAI characters on useful civilian cybershells, and the best-resourced and technologically enhanced human operatives and mercenaries. With 400, the options include SAIs and ghosts in useful specialist cybershells such as cyberdocs or snakebots. Players who choose to play ordinary humans at these point levels will be able to command substantial resources and networks of useful specialist robots. With 500 points, powerful high-end citizen AIs become feasible, with a range of cybershells to choose from, while ghosts can easily run on exotic cybershells such as bush robots.

500+ points: Technological Super-Beings: Games at this end of the scale should have a highly specific focus. This *might* be about being very, very good in combat – military SAIs loaded on RATS units would usually imply a 750+ point game with plenty of battlefield action and maybe some weird "downtime" soap opera. With 600 or so points, the PCs could be AIs working as explorers or builders using cryobots or polypedes; or Axon Group infomorph activists in the outer system with an assortment of advanced cybershells, a limited network of additional technology, and a willingness to break quite a few rules (for example, xoxing) to achieve their goals.

While illiteracy is still quite rare, it isn't as crippling as it used to be in hyperdeveloped areas; characters from such settings might reduce their level of writing ability with their native language to Accented or even Broken and still be playable.

Cultural Familiarity

The major Cultural Familiarity categories of 2100 are Western (covering most of America and the EU, plus Australia and some other locations – and Russia, which has been largely subsumed despite some persistent "Orthodox" and "Communist" memes), Oriental/Chinese (covering China and several culturally Chinese-related Asian states, many of them current or former TSA members), Japanese (an offshoot of East Asian culture with Western influences, but with a number of strong, unique assumptions and patterns), Indic (covering India and some mostly-culturally-Hindu outlier communities), Islamic (the dominant culture in Pakistan and several other states as well as in the Caliphate), and African (a blend of pre- and post-colonial cultures in sub-Saharan Africa, growing increasingly homogeneous under the hegemony of the SAC in general and South Africa in particular). Other, minor, local and hybrid cultures survive in places.

Intelligent individuals who travel or do business globally can easily have acquired multiple familiarities. Some characters would do well to have more than one; for example, much of Turkey is "Europeanized", but Islamic cultural familiarity is still required in outlying districts. Likewise, although the Muslim communities in India are quite "Indianized," and non-Muslims in Pakistan tend to keep their heads down and follow local norms, anyone trying to understand either of those countries should try to acquire both Indic and Islamic familiarities. A harsh Russianized version of Western culture is the government-imposed standard in Kazakhstan, although the Muslim underground struggles to preserve the Islamic memes that earn persecution (or worse) if displayed. Competent memeticists whose interests lie beyond their own homeland may have several familiarities (and a cinematic "memetic adept" would be almost expected to have Cultural Adaptability).

Note that several cultural patterns, especially Western and Oriental/Chinese, have been carried into space; for example, those two are very useful for anyone looking to travel much on Mars. "Duncanite/Gypsy Angel" culture may well develop into a distinct familiarity within a few years, as the combination of libertarian ethics and the necessities of space-based life breed new attitudes and assumptions, but for now, "Western" still works in those communities.

Wealth, Status, and Cost of Living

The basic starting wealth for the ***Transhuman Space*** setting is $30,000. The normal suggested level for a TL10 world is higher, but many parts of the world are at lower TLs. Moreover, as suggested on pp. TS127-128, the typical level of individual wealth varies significantly by area, from Wealthy in Fifth Wave areas to Poor in severely underdeveloped countries. The Nation Tables in Chapter 3 of ***Fifth Wave*** define the local wealth level for each country on Earth.

As noted on p. B26, most characters should have 80% of their starting wealth tied up in home equity and supporting a settled lifestyle. While ***Transhuman Space*** adventurers may be footloose wanderers, most will have some kind of "personal base" somewhere; after all, they can probably reach it in a day or so, and people with money but no fixed abode at all are considered eccentric at best. Note also that, in ***GURPS*** *4e*, characters start with a full wardrobe of ordinary clothes appropriate to their Status (covered by that 80%), and that cost of living covers accommodation and routine wear and tear for clothes. On the other hand, in this setting, travel, incidental, and emergency expenses can be significant; sensible adventurers should start with a cash reserve (usually held in convenient, safe bank accounts with fast access through the Web).

Offworld Wealth: People in offworld colonies and space stations vary considerably in personal wealth; although most are at least Comfortable, they are not as wealthy as the inhabitants of their home countries or other high-tech areas on Earth. Many of them have taken challenging high-risk employment to make some money! Those who are settled permanently or own shares in their home stations may have high theoretical Wealth, but 80% of that is tied up in essential life support expenses and home costs, and is even harder to access than an ordinary homeowner's capital. (If the base is making good money, they may have a few points in Independent Income from their shares.)

Fifth Wave Characters

Characters from a Fifth (or high Fourth) Wave background will tend to have high point totals by virtue of their society's affluence, in the form of both character Wealth and the biotech treatments, implants, and AI Allies which it can purchase. However, they shouldn't necessarily have much higher attributes or skills than individuals with more limited resources. To reflect this, in games assuming such backgrounds, GMs may choose to give players starting points at the lower end of the ranges suggested on p. 35, plus another 20-70 points each to be spent only on "racial" templates, Wealth, implants, biomods, and AI Allies.

Military or espionage organizations may likewise provide long-term employees with implants, biomods, and useful personal AIs, which can be handled similarly.

Equipment Bought With Points: If a character starts play having spent points for an infomorph Ally, permanent nanomod, implant, etc., he doesn't also have to spend cash for it (though he may have to spend some on maintenance as the campaign proceeds). If the item has features that aren't actually required by the point expenditure, he may have to cover the difference in cash. For example, if an AI could run on a cheap small computer in its standard cybershell, but the player wants a standard computer so he can use its capacity for other purposes, he should pay ($2,000 minus $100) $1,900 for the extra computing power.

If a player spends cash during play to acquire such advantages, the GM should rule either that the money is converted into character points in the process, or should also require expenditure of bonus character points. See p. 59.

Infomorph Wealth: A free infomorph's cost of living is similar to that of a human with the same Status. It has no biological needs, but it will probably have to pay rental charges on secure storage for its hardware and backups, maintenance fees, substantial insurance premiums for its cybershell, and so on. Most infomorphs have rather lower Status than the local human average, which reduces their costs. An infomorph traveling "away from home" *does* often live more cheaply than a human in the same situation, as cybershell storage comes cheaper than hotel rooms – a benefit arising from advantages such as Reduced Consumption or Doesn't Eat or Drink.

Status

While few nations on Earth in 2100 are *truly* "classless meritocracies" (p. B28), many come close. GMs may prohibit most PCs from buying more than two levels of Status directly with points – any more must come from Wealth or Rank. As an example, the president of the 2100-era USA will have acquired Status 2 from some combination of birth, education, and incidental social influence; will be *at least* Wealthy (for +1), and probably a Multimillionaire (+2 or +3); and has Administrative Rank 8, for another +3, giving an overall total of +6 to +8. In practice, most people will assume +8, and the job fully supports a lifestyle appropriate to this. The typical citizen of a Fifth Wave region, being Wealthy, automatically acquires Status +1; fairly or not, these people are seen as something of an elite in the ***Transhuman Space*** world at large.

At the bottom end of the range, Status goes down as far as -2, meaning homeless or similarly deprived. This differs from the 3e rules, which assigned lower Status to low-grade property; this is now covered by a Social Stigma. "Mindless objects" have no Status at all, but this is treated as Status 0 for game-mechanical purposes (after all, they aren't despised, just *ignored* socially). Non-citizen AIs, having few opportunities to acquire social standing or wealth, and not being permitted to hold much Rank (beyond perhaps a couple of levels of "convenience rank" in a military force, for reporting purposes), rarely rise very high in Status. An AI or bioroid with citizenship which is still restricted by regulations or conventions will generally end up with Status one level below that of its immediate supervisor or legal guardian.

Cost of Living, Pay, and Prices

Status in ***Transhuman Space*** has an associated cost of living as listed in the Transhuman Space Status Table (*not* as given on p. B265). However, that table gives a *base* value, which

Transhuman Space Status Table

Status*	Examples	Monthly Cost†
8	Leader of a Fifth Wave state or Great Power	$600,000,000‡
7	Leader of middle-rank state	$60,000,000‡
6	US senator, Chinese regional governor	$6,000,000‡
5	Minister, big corporate head	$600,000
4	Senior military officer, Established Eloi	$60,000
3	Arcology mayor, rising entrepreneur	$12,000
2	Mayor, Fourth Wave business leader	$6,000
1	Fifth Wave citizen, Third Wave official	$2,400
0	Fourth Wave citizen, ordinary soldier	$1,800
-1	Under-skilled worker, Third Wave foot soldier	$400
-2	Homeless or permanently displaced person	$250

* Status cannot rise very high in *small* communities, such as space stations or independent undersea habitats. It will not exceed 6 on Mars or Islandia, or 3-5 in most other such places.

† Cost of living is modified in accordance with local wealth levels; see "Cost of Living and Prices."

‡ Nominal value. Status this high usually comes with a specific job which provides resources and a lifestyle appropriate to the position. Anyone able to support such a lifestyle out of personal income may have influence over a non-trivial segment of the local or global economy.

must be modified according to the general local wealth level. Multiply it by 4 in Wealthy nations or regions, by 2 in Comfortable areas, by 2/3 where the general level is Struggling, and by 1/3 in Poor areas.

"Typical monthly pay" is $6,000 in Wealthy areas, $3,600 in areas where the general wealth level is Average or Comfortable, or $2,600 where it is Struggling or Poor – all for a base 30 hour week. But this is modified by *personal* wealth level, as per p. B517; also, many people have jobs which involve shorter working hours in exchange for proportionately reduced pay. People in wealthier areas tend to be paid much more, but also have higher living expenses; despite this, they may be able to work shorter hours.

For example, most "ordinary citizens" in Fifth Wave areas are Wealthy, so their jobs pay about 5× the local base value; $30,000. On the other hand, not only are they Status 1, but the base cost of living for that ($2,400) is multiplied by 4 for the local general wealth level, to $9,600 a month. A typical citizen can thus work 10 hours a week (for $10,000 a month), or can support a dependent by working somewhat longer hours at a somewhat better job, or can live at Status 0 with a broad margin. Two parents, both working fairly short weeks, can easily support a family. A Poor individual in the same area would make $1,200 a month working 30 hours a week, or $1,000 for 25 hours; enough to cover the $1,000 a month required for a Status -2 lifestyle.

If he was living in a Fourth Wave area of Comfortable wealth, an ordinary human's base income for a (largely hypothetical) 30-hour week would be around $7,200 a month, but his Status would be 0, giving a cost of living of $3,600; he might just get by on a 15-hour week, but would probably work 20, ensuring a safety margin. Likewise, in an Average-wealth area, base pay is $3,600 while Status 0 costs $1,800 a month to support; 20-hour weeks are again the norm.

In a somewhat impoverished area where the basic wealth level is Struggling, someone with Struggling personal wealth would make $1,300 a month ($2,600 divided by 2) for a 30-hour week. At Status 0, the cost of living is $1,200 a month, so such hours are required to support that Status. And in Poor areas, with cost of living of $600 for Status 0 or $133 for Status -1, a typical citizen feels lucky to be working a 30-hour week for about $520 a month; only the slightly better-off achieve full Status 0 by global standards, although it's not *too* hard to reach that level.

The local wealth level multiplier *also* applies to incidental expenses including wages of employees (of course), accommodation and rents, food, and labor-intensive services. However, it *doesn't* apply to manufactured goods. Local issues aside, clothing, weaponry, vehicles, etc., cost much the same everywhere.

What Cost of Living Gets You in 2100

The following is a ***Transhuman Space*** version of the table on p. B266:

Status 8: Several spacious luxury residences, unlimited luxury travel (including use of interplanetary craft, should your job require it), virtually unlimited sapient infomorph assistance, numerous human aides and servants, the most advanced medical facilities, and formidable (but almost invisible) armed personal protection.

Status 7: At least one mansion-sized residence and several rural residences or retreats, luxury travel (including orbit, should your job require it), several highly advanced infomorphs on call for Web assistance, a department's worth of human aides and some personal servants, extensive medical support on call, and well-trained personal armed guards.

Status 6: A substantial mansion or estate and a few more modest houses or suites, a private aircraft (probably supersonic) and whatever ground transport you require, extensive Web access with AI support, a team of competent aides and a couple of human personal servants, whatever medical facilities you seem to need, and a group of human or cybershell bodyguards.

Status 5: A mansion or estate and one or two town residences, an executive jet and several lesser vehicles, good permanent Web access, a team of efficient AI and human aides, good medical support, and probably several human or cybershell guards.

Status 4: A mid-sized mansion, probably a holiday home and a city apartment, an aircar and a couple of smartcars, several infomorph aides with permanent fast Web access and a couple of human assistants, full medical coverage, and good automated security.

Status 3: A small mansion, maybe other residences, an aircar *and* a smartcar, infomorph assistance with permanent fast Web access, probably a human aide, full medical coverage, and automated security.

Status 2: A large house with interior automation and grounds, maybe other property, a couple of smartcars, a static AI that manages your domestic (including Web) and security requirements plus a wearable or implant, and full medical coverage.

Status 1: A comfortable house or apartment with some interior automation, an up-to-date smartcar or a couple of older ground cars, a static AI managing your grocery orders and domestic budget, and a wearable providing augmented reality, burglar alarms, and access to good medical facilities.

Status 0: A house or large apartment (possibly mortgaged), a groundcar, a NAI managing your computer systems and personal budget, some kind of augmented reality system, and access to adequate medical facilities.

Status -1: A small or shared apartment or hut or a decaying house in a bad neighborhood, use of public transport, some Web access and maybe shared use of AI assistance if you really need it, a few unreliable personal gadgets, and chancy medical support.

Status -2: A room in a flophouse or shelter, or use of a rural hovel or abandoned urban building, plus whatever technological facilities you can scrounge or steal.

People living in space or other extreme environments mostly have a bit less comfort and usually a lot less space and privacy (unless they are *very* rich). A significant portion of their cost of living goes toward keeping them *alive* from moment to moment.

Advantages and Perks

While a number of 3e character elements are changed, renamed, downgraded to perks or features, or otherwise modified in the new edition, few of relevance to ***Transhuman Space*** campaigns were removed. However, some new or radically modified advantages may be very useful.

Deleted and Changed Advantages from Transhuman Space

Bioroid Body (p. TS131) becomes a meta-trait; see p. 43.

Flesh Pockets (p. TS131) is now represented by Payload (p. B74).

Low-Pressure Lungs (p. TS131) becomes a character feature; see p. 44.

Machine Body (p. TS131) is replaced by a combination of the meta-traits Machine (p. B263) and Cybershell Body (p. 43).

Mars-Adapted (p. TS131) becomes a meta-trait; see p. 43.

Micromanipulators (p. TS131) can be replaced with High Manual Dexterity 4 [20], Sensitive Touch [10], and one or two perks (Accessory: Micromanipulation Tools, and Accessory: Molecular Manipulation Tools). Microscopic Vision is still required to use this effectively; take 3 levels to support micromanipulation tools, 6 for molecular manipulation.

No Degeneration in Zero-G (p. TS132) becomes a perk.

Prehensile Toes (p. TS132) becomes Extra Arms (two, Foot Manipulators -30%, Short -50%), for a total of 4 points.

Reproductive Control (p. TS132) becomes a perk.

Uplifted Animal Bioroids (p. TS131) now simply take the Bioroid Body meta-trait, p. 43 (but may have different Social Stigmas to humanoid bioroids in the same location).

Vessel (p. TS132) no longer exists. See the box on p.39 for how to handle this situation under 4e.

Weaponry (p. TS132) can be replaced by Affliction, Innate Attack, or (more often) Payload or Weapon Mount; below.

Affliction, Binding, Innate Attack

pp. B35, B40, B61

Although a number of cybershell designs have built-in weaponry, few should take these advantages. In most cases, an armed cybershell will either have Extra Arm (Weapon Mount, -80%) or Payload space (defined as weapons bays). "Attack advantages" should be reserved for the rare few cases where the only way to get the weapon out is to dismember and wreck the

machine. If the weapon swaps out cleanly – and most cybershells have modular, easy-maintenance designs – then it's really just equipment, albeit carried in an unusual way.

"Vessel" Cybershells

In 4e games, an infomorph who owns a spare body no longer uses the "Vessel" advantage. Instead, buy the spare body as an Ally with the Minion enhancement, and a Puppet; give it the appropriate template for the cybershell plus the Minimal Software template (p. 50), or sometimes a basic NAI system. The Frequency of Appearance will usually be Constantly, but this may be reduced for, say, an unreliable model which is frequently found in pieces in the repair shop.

An infomorph PC with multiple bodies should use the cybershell with the highest point cost as its "main body," and take each less expensive body as an Ally/Puppet. If it genuinely spends most of its time in a lower-cost cybershell, the GM *might* permit the player to treat that as its usual body, but this is open to abuse, and isn't recommended. If the PC also has other infomorphs as Allies, they can usually be treated as running on whichever cybershell they normally occupy, or on whichever one they may move to if their usual shell has to be bought as the PC's body.

Example: Harold Monk, a ghost PC, normally resides on a mainframe (p. 55), but sometimes goes out and about in a snakebot (p. 57). He also owns a volkspider (p. 58) which is normally run by his LAI-6 personal assistant, and he sometimes takes it over for his own use. While Harold regards the mainframe as "home," the snakebot costs the most points, so he treats it as his "main" body for character design purposes. He's a 400-point character, which covers 86 for the ghost template and 243 for the snakebot with points to spare.

The mainframe, and the Minimal Software which Harold leaves in residence when he's away, have a total value of -383 points, are constantly available, and have IQ 0, so they cost 4 points as an Ally (Minion, +0%), plus 5 points as a Puppet; the volkspider with its LAI in residence has a total value of 82 (for the LAI template) plus 70 (for the cybershell) plus 46 (for the LAI's modular abilities and assorted skills), adding up to 198, giving it a cost to Harold as a Constantly Available Ally (Minion, +50%) of 12 points plus 5 as a Puppet.

If the infomorph is itself in fact a PC's Ally, the owner should buy the infomorph plus its usual cybershell as an Ally in the usual way, and each spare cybershell (with minimal operating software) as an Ally/Minion and Puppet.

Allies

pp. B36-38

The new "Constantly Available" Frequency of Appearance is highly appropriate for worn or implanted cybershells. It is less appropriate for other Allies, which can always be mislaid, need medical attention or repair, etc. – but a highly reliable infomorph and shell which follows the PC around, or a mindless "vessel" carefully kept close to hand, might qualify. The *Minion* enhancement is also highly appropriate for AIs or totally brainwashed bioroids.

One special rule applies in this setting: AI Allies can exceed 150% of the PC's starting points, in the same way as nonsentient beings. This may be limited to NAIs and LAIs, or to AI Allies bought with the Minion enhancement, at the GM's option; the point is that the Ally should be primarily a *tool*, with limited free will (and not too much initiative), not a way for a lower-powered PC to acquire a super-powerful NPC to do everything for him.

Compartmentalized Mind

p. B43

Although this isn't an entirely new advantage (and it can still be used in its standard form to represent AIs which can temporarily run multiple parallel processes with shared memories), it has two new variations which can be used in ***Transhuman Space***. *Controls* and *Dedicated Controls* can be used when defining vehicles and vehicular cybershells as characters if a human rider or occupant can take control of the machine. In most cases, *Dedicated Controls* are sufficient, as the driver performs a single function (driving the vehicle); having some use of the vehicle's sensors (but only by glancing at a screen or whatever) is considered to be a part of the driver's task.

This advantage can also be used for wearable virtual interfaces, which grant the wearer full access to their special senses. This removes the need to give those senses a "usable by wearer" enhancement.

Damage Resistance

p. B46

The enhancements Laminate and Electromagnetic (p. TS129) can be used in 4e games, but Laminate now costs +10%, and Electromagnetic now costs +20%.

Detect

p. B48

This can be used for sensors built into some specialist cybershells.

Extra Life

p. B55

The vast majority of infomorphs have at least one backup copy on file somewhere; hence, one Extra Life with the Copy and Requires Body limitations is included as standard in infomorph templates. In fact, this copy could be restored to new hardware any number of times. If the game is using the *Mutable Point Totals* approach (see p. 17), this means that an

AI character simply gains 15 points in value whenever it makes a secure backup and arranges for it to be activated if necessary in future, and loses 15 points whenever such a backup is wiped or otherwise lost. In other games, the player of an infomorph character must find 15 points from somewhere whenever it is restored from a backup, to renew the advantage; otherwise, if it has to be restored again in future, it becomes an NPC.

Modular Abilities

p. B71

This is *required* for AIs who can employ skill set programs (pp. TS144-145), which is most or all AIs in ***Transhuman Space***. To maintain compatibility with these 4e rules, the treatment of skill set software is changed; see pp. 60-61, noting the link between point value and Complexity.

A new special limitation for this advantage is available – and indeed common – in the ***Transhuman Space*** setting:

Limited Integration: Any program grants the skills as described, but the AI must semi-consciously "consult" it at each stage, introducing tiny delays. This makes no serious difference in routine use, but can cause problems in stressful, complex situations such as sudden emergencies or combat, represented by a -3 penalty to all skill rolls at such times. -20%.

This limitation is in fact so widespread that a cybershell without it may be regarded as exotic and worth study. The delay is considered acceptable for ordinary civilian use, but is less than ideal for adventurers. Because this limitation is the norm, military organizations generally train their infomorphs properly rather than relying on Skill Sets.

Because of the range of possibilities for this advantage, the updated AI templates on pp. 50-53 don't incorporate it – but almost all AIs have it in some form! A common design approach gives the AI the ability to interface with up to three Complexity 3 Skill Sets at a time, which gives Modular Abilities (Computer Brain) 3 (2, 2, 2) (Limited Integration, -20%; Skills and Languages Only, -10%), for a total cost of 30 points. Assume that the standard list price for an infomorph includes this; greater capacity adds the usual $100 per point for "trained" advantages (see p. 60). Some SAI "programmed polymaths" of Complexity 9 or 10 have *hundreds* of points in this advantage.

Payload

p. B74

This can be used to represent flesh pockets, cargo space, weapons bays, etc.

Possession

pp. B75-76

With the Digital limitation, this is standard for ***Transhuman Space*** infomorphs, which can be transferred from cybershell to cybershell fairly easily. (One that was somehow restricted to a single, unique cybershell would remove possession from the template.) Transferring requires complete access to the target system, which in turn requires either legitimate permission or a successful exercise in computer intrusion (see "Computer Intrusion Under 4e," p. 46). Use the computer/program Complexity rules from ***Transhuman Space*** to determine whether an infomorph can run on a given computer, rather than the IQ-based guidelines on p. B76.

Rather than create simultaneously operating duplicates (i.e. xoxes) of themselves, law-abiding AIs delete the old copy when they transfer to a new system. Most lack the skills or inclination to take over systems to which they have not been granted legitimate full access, and some incorporate security protocols or programming peculiarities which limit them to a few machines with a specific system architecture; this can usually be represented by the Puppet Only limitation.

The rules on p. B76 for accessing the host's memories can be used to represent attempted access to shared, unsecured memory space on a new system. Some gypsy spirits (***Fifth Wave***, p. 33) and military intrusion programs can plunder the previous controlling program's detailed memories in detail; to represent this, use the following new special enhancement:

Full Memory Access: You can freely access the memories of a sentient host at any time. To recall a specific fact from the subject's memories requires a straight IQ roll, at no penalty for the time since takeover. Furthermore, if you also have the Assimilation enhancement, you can learn the victim's IQ-, Will-, and Perception-based skills. +10%.

Formidable intrusion programs and the most sophisticated gypsy spirits may achieve such intrusions with exceptional precision; for these, add Cosmic, +50% (p. B103) to remove the usual requirement for an IQ roll to recall memories.

Talents for 2100

The following Talents may be considered plausible and useful in a ***Transhuman Space*** game:

Born Spacer: Aerobatics, Free Fall, Navigation (Space), Piloting (any spacecraft), Spacer, Vacc Suit. *Reaction bonus:* professional spacers. *5 points/level.*

Computer Wizard: Computer Hacking (if permitted in the campaign), Computer Operation, Computer Programming, Electronics Operation (Communications or Media), Electronics Repair (Computers), Expert Skill (Arachnoxenology or Computer Security), Psychology (AI). *Reaction bonus:* computer professionals and SAIs. *10 points/level if Computer Hacking is permitted, 5 points/level otherwise.*

Memetics: Brainwashing, Diplomacy, Expert Skill (Memetics), Fast-Talk, Interrogation, Leadership, Merchant, Politics, Propaganda, Psychology (all specialties), Sociology, and Teaching. *Reaction bonus:* anyone else trained in memetics who can observe you using it (but note that some uses of these skills will be too subtle to observe!). *10 points/level.*

Natural Diver: Aquabatics, Diving Suit, Scuba, Submarine (Free-Flooding Sub), Swimming. *Reaction bonus:* expert divers and aquatic beings. *5 points/level.*

Pop Culture Maven: Connoisseur (Virtual Reality Arts), Current Affairs (People, Popular Culture, or Sport), Expert Skill (Memetics). *Reaction bonus:* obsessive pop culture devotees. *5 points/level.*

Puppet

p. B78

This is used for infomorph characters with multiple "vessel" bodies; see p. 39.

Reduced Consumption

p. B80

Characters with a reduced need for oxygen can take one of a pair of special enhancements to this advantage:

Includes Air: Your reduced requirements include oxygen (or whatever other gas you breathe). As well as reducing your life support requirements, this means that, if you are suffocating (p. B436), your rate of FP loss and time intervals before possible brain damage and certain death are reduced in proportion:

Level	FP Loss	Possible Brain Damage	Death
0	1/second	2 minutes	4 minutes
1	2/3 seconds	3 minutes	6 minutes
2	1/3 seconds	6 minutes	12 minutes
3	1/20 seconds	40 minutes	80 minute
4	1/100 seconds	200 minutes	400 minutes

You also make Will rolls to retain consciousness once you reach 0 FP at the same frequency as you lose FP. If you get clean air again, you recover FP at the full normal rate. Damage from inhaled gases (such as attacks with the Respiratory Agent modifier) may likewise be reduced, and HT rolls to resist such things may take a bonus of +1 or +2 per level – but some respiratory agents are effective in very small doses, so this isn't always a very good defense (GM's option). +200%.

Air Only: As above, but the advantage *only* reduces your need for air; your food requirements are unaffected. +100%.

Telecommunication

p. B91

This is common among cybershells and also organic characters with implants, in the form of Radio, or sometimes Infrared Communication or Laser Communication, or the following new version:

Cable Jack: You communicate using a plug for a fiber-optic cable, which allows direct, unjammable communication with any other computer or communicator with a similar jack and interface. A short (up to 10 yards long) cable is included; you can use extensions to add another 10-50 yards. *5 points.*

The following new enhancements are common in the setting. Cybershell templates and implant communicators *may* include either of these:

Secure: Your signal employs measures that make it harder to intercept. Eavesdroppers must *win* a Quick Contest of Electronics Operation against your own Electronics Operation or IQ to pick up the content of the transmission. In the ***Transhuman Space*** setting, this represents a "frequency agile" system. +20%.

Sensie: You can transmit and receive a full range of personal sensory impressions in real time. (The recipient needs a similarly equipped receiver to get the full experience.) +80%.

See ***GURPS Powers*** and ***GURPS Ultra-Tech*** for further options and enhancements that can be used when defining specialist communications systems. Note also that organic characters with telecommunication implants should add the Temporary Disadvantage (Electrical) limitation (-20%) to the advantage. As discussed on p. B46, this applies to the *implant*, not to the character.

Radio Security

At TL9 and above, all radio communicators can be assumed to incorporate encryption systems as standard. Encryption in the ***Transhuman Space*** setting is discussed on p. TS148. This is included in both radios bought with the Telecommunications advantage and those bought simply with cash as gadgets.

Visualization

p. B96

As in 3e games, this can be used to represent some AI's advanced "task modeling" functions. To improve its effectiveness in 4e games, add an enhancement, "Reliable"; each +5% gives +1 to IQ rolls to use the advantage.

Perks

pp. B100-101

One perk possessed by almost all cybershells is *Accessory (Computer)*. In addition to running a resident infomorph, the shell's electronic brain can be used to run the same sorts of utilities as any dumb desktop machine – word processors, spreadsheets, e-mail clients, graphics tools, games, and so on.

Perks can also represent any number of small implanted gadgets, permanent nanomod or biotech treatments, or minor but useful tools which can be incorporated into cybershells, such as "drug factory" glands, slink implants, or cleaning tools. If a PC buys such an implant, treatment, or modification in play, the GM may require him to pay a bonus character point as well as the cash cost of the item and work. Alternatively, GMs may assume that anybody who raises and commits the cash for such things has effectively "bought" one point for the perk.

Other perks include *Reproductive Control* (the ability to control one's own fertility without contraceptives) and *No Degeneration in Zero-G* (immunity to calcium loss and muscle wastage during long-term space travel).

Disadvantages and Quirks

As with advantages, there are few radical changes in the disadvantage catalog that will affect ***Transhuman Space*** games, but several detail improvements and new options.

Deleted and Changed Disadvantages

Alcoholism (p. B122) should be replaced for characters in this setting by "Addiction (Alcohol; Cheap, Incapacitating, Legal)" for -10 points (except for characters based in much of the Caliphate and some highly safety-conscious space habitats, for whom it's illegal, and hence worth -15). As is explained on p. TS133, there are plenty of cheap treatments available to counter alcohol's insidious effects, so the full Alcoholism disadvantage is inappropriate. Alcohol addicts cut off from such treatments can still undergo the effects described on pp. B122-123, as a special effect.

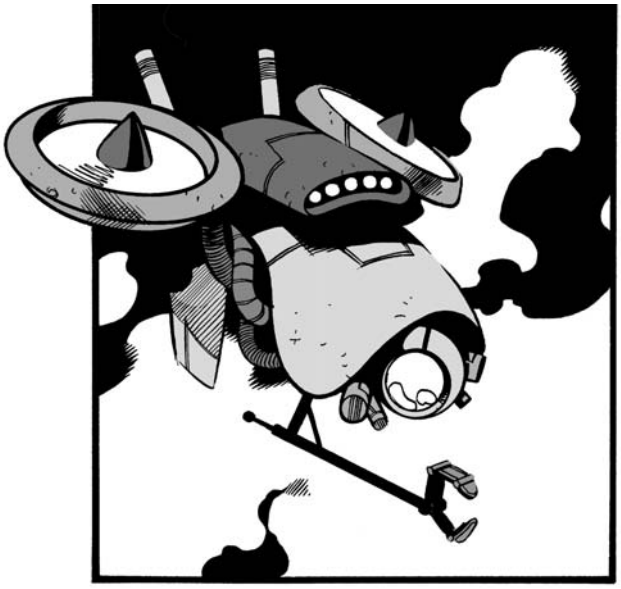
Dependency on any sort of maintenance is now replaced by Maintenance (p. B143).

Lame (Wearable) (p. TS133) is replaced by No Legs (Portable); see below.

Limited Endurance (p. TS134) is replaced by Increased Consumption (p. B139) combined with the Machine meta-trait.

Mistaken Identity is now generally prohibited from racial templates (see p. B21-22). *Some* bioroids and cybershells are certainly very similar to each other, but many have noticeable variations between individuals, and in any case, this isn't usually a disadvantage. People know about such similarities, and don't automatically blame one bioroid or cybershell for another's behavior. A PC with this feature is also as likely to exploit it for profit as to suffer from negative consequences. Specific "sub-model" types (who are sometimes mistaken for each other to embarrassing or confusing effect), the products of a very standard production run, and clones of various types, *may* qualify for the disadvantage.

Phobia (p. TS133 and pp. B148-150): Phobias relating to microbots, nanomachines, or radiation all have a base value of -10 points.



Reprogrammable Duty (p. TS133) is replaced by Reprogrammable (p. B150), and, for AIs other than citizens, emergent intelligences, and orphans, some kind of Duty (pp. B133-134), applies almost all the time. (The *lack* of such a Duty replaces the special "No Master" limitation on Reprogrammable Duty.)

Sessile (p. TS134) is replaced by No Legs (Sessile) (p. B145). Hit Points and Damage Resistance no longer receive a special limitation for sessile characters, although many sessile cybershells will have a Size Modifier-based limitation on the former and the Can't Wear Armor limitation on the latter, and some will buy their ST down substantially.

Social Stigma is largely unchanged. However, bioroids suffer different versions of the disadvantage, depending where they are based; see p. 43. Social Stigma (Barbarian) no longer exists as such; it is replaced by Social Stigma (Monster) for heavily armed military cybershells, which are seen as dangerous death machines in most places (and which tend to be treated warily even by human soldiers on the same side). Otherwise, typically, an infomorph installed on a cybershell will suffer a Social Stigma appropriate to the type of mind rather than the hardware; an AI with a typical Social Stigma (such as Minor, Minority Group, or Valuable Property) installed on a "Monster" military cybershell will suffer the effects of *both* Stigmas.

An AI occupying a bioshell would be regarded as a Monster in the E.U., India, and the Caliphate – but would probably be hunted down so quickly that only one which managed to keep its nature a Secret would be a viable character. An Emergent Intelligence may be perceived as a Monster, especially if it does *anything* to provoke suspicion, though in more tolerant areas, normal policy will be to capture rather than delete, and one that comes out into the open and behaves "responsibly" may be granted the same treatment as any other AI of its type. However, like any other software with a "dubious" past (suspected xoxes, etc.), it may be treated with a degree of suspicion equivalent to that given to someone with a Criminal Record.

Sterile (p. CI84) is now a 0-point feature.

The *Compromised* version of *Enemy (Unknown)*, as described on p. 125 of ***Broken Dreams***, can now be treated as an Enemy with the "Unknown" and "Watcher" options. (You become aware on occasion that you're being watched, but you don't know for sure by who.)

No Legs

p. B145

A new version of this disadvantage is required in ***Transhuman Space*** games:

Portable: You're incapable of moving under your *own* power, but are compact enough to be carried around. You have Basic Move 0 in all environments and get no extra points for this; furthermore, you can't have traits that imply movement-related body parts such as legs, wheels, tracks, fins, wings, or jets. You aren't anchored in place, though. Your shape and size let you be carried (like a weapon or gadget), worn (like clothes), attached to a vehicle, or perhaps even *implanted* inside another character or creature. You might even be able to pilot a vehicle or command a living host to move, although you'll count as encumbrance, unless you're carried in Payload. If you have manipulators, you have no penalty on fine work, but you get -6 DX on tasks that require the stability provided by legs, unless you're anchored to a person or vehicle with at least 10 times your mass. This includes combat, with the sole exception of firing vehicle-mounted weapons. *-30 points*.

Other New Disadvantages

Electrical (p. B134) is standard for cybershells. Note that military cybershells and some "ruggedized" civilian models have high DR and good HT, protecting them from surge effects from all but the largest attacks; those with good "hardening" and surge protection may also have some level of Resistant to Electrical pulses and surges.

Fragile (p. B136) may be appropriate, in some forms, for some cybershells – but the vast majority are better built than this.

Maintenance (p. B143) is appropriate for some cybershells (and a few disastrous or highly experimental bioroids and even genetically modified humans). However, mature TL10 designs

Bioroid Social Stigmas and Wealth

Bioroids in 4e games will usually have a Social Stigma. In the E.U. or SAC, they are citizens with full rights, but many are legally Minors, while even "adult" bioroids may be treated as Second-Class Citizens in less broad-minded parts of these alliances. In almost all of the Caliphate and Red Duncanite communities, bioroids are Subjugated, with a wealth level of Dead Broke. Elsewhere, they are generally a Minority Group – except in some determinedly transhumanist enclaves and stations, where they are treated as full citizens with no stigma at all.

Uplifted Animal Bioroids are more likely to suffer a seriously restrictive Stigma, as humans reflexively treat them as animals. Most are Valuable Property (and Dead Broke), and in any area where humanoid bioroids are a Minority Group, Second-Class Citizens, or Subjugated, animal bioroids are Subjugated. (An exceptional animal bioroid which consistently demonstrates nearly human-level intelligence *might* rate as a Second-Class Citizen in a broad-minded community.)

Because these Stigmas and wealth levels are mandatory for all bioroids in an area, they may not count against campaign disadvantage limits (GM's option).

(mechanical and otherwise) may be robust and self-sustaining; many cybershells can go for months or years without attention, and few need more than weekly work.

Noisy (p. B146) may be appropriate for worn-out or ill-maintained cybershells – or machines that just aren't intended to be stealthy.

Numb (p. B146) is required for machines with "dumb matter" casings lacking tactile sensors – but these are a small minority.

Meta-Traits

Meta-traits (pp. B262-263) can be useful when defining certain types of being in the ***Transhuman Space*** setting. Along with Machine, AI, Automaton, and the morphology meta-traits, the following are appropriate:

Bioroid Body: Includes the perk No Degeneration in Zero-G [1], the disadvantage Unusual Biochemistry [-5], and the features Early Maturation 4, Intron Messages (usually a trademark), Sterile, and Taboo Trait (Genetic Defects). (Most also have the feature Closely Resembles Others Of The Same "Model," but some bioroid types are built with a greater degree of individual variation.) Note that, unlike the corresponding 3e advantage (p. TS131), this no longer includes a Social Stigma. Bioroids are treated substantially differently in different regions, and it is more appropriate to give them different Social Stigmas according to their individual situations (see above) Uplifted animal bioroids now use the same meta-trait. *-4 points.*

Concealed Bioroid Body: A bioroid carefully constructed to pass for a normal human under fairly close medical examination. The design compromises that this entails mean that the character needs periodic medical attention. It combines the perk No Degeneration in Zero-G [1], the disadvantage Maintenance (3-5 people, monthly) [-6], and the features Early Maturation 4, Sterile, and Taboo Trait (Genetic Defects). Characters with this meta-trait often have significant Secrets! *-5 points.*

Cybershell Body: This *must* be taken in combination with Machine (p. B263). It includes Injury Tolerance (No Neck) [5], Electrical [-20], and the features Sterile and Taboo Trait (Physical Changes). *-15 points*.

(Note: Unlike the 3e treatment, cybershells in 4e games do *not* automatically have High Pain Threshold. Sudden damage to a complex machine can easily cause "shock" effects as the system adjusts and responds to the problem. However, some models are designed for rapid adaptation and "pain resistance"; hence some cybershell templates, especially military systems, include the advantage, and well-designed or simply robust civilian models *may* have it. Gamers converting a 3e campaign who wish to keep this advantage for their cybershell characters can assume that they're these robust models, and add the advantage back in for 10 points.)

Mars-Adapted: Includes Filter Lungs (Filter CO2 only, -70%; Temporary Disadvantage (Increased Consumption 1), -10%) [1], Reduced Consumption 2 (Air Only, +100%) [8], and the feature Low-Pressure Lungs. (Note that, under 4e, the Filter Lungs advantage works against CO2.) *9 points.*

Features

Features listed in ***Transhuman Space*** books carry over to 4e largely unchanged, although some become advantages or disadvantages; for example, Digital Mind (p. TS134) has become an advantage (p. B48).

A disadvantage listed under any of the taboo traits given here *is* permitted if it is specifically listed in a racial/model template; the template overrides the taboo trait. Also, optionally, GMs may permit some mental disadvantages forbidden by specific taboo traits to be taken nonetheless – but only with a self-control number of 15. Genetic engineering or careful programming can remove predispositions to such things, but upbringing and environment will always have *some* effects on a developing mind, potentially leading to limited but real mental flaws. Likewise, mental Quirks remain acceptable.

Taboo Trait: Genetic Defects

This still prohibits attributes more than 2 below the template's average, except for the effects of age. In addition, it prohibits Bad Grip, Bad Sight, Colorblindness, Dwarfism, Dyslexia, Epilepsy, Gigantism, Hemophilia, Hunchback, Innumerate, Neurological Disorder, Night Blindness, No Sense of Smell/Taste, Non-Iconographic, Numb, Short Attention Span, Slow Healing, or Susceptible to Disease – *unless* any of these can be explained as the result of accident, disease, or maltreatment, and there is a good reason why the victim has *not* had the damage medically fixed.

Taboo Trait: Mental Instability

This now prohibits Berserk (Battle Rage), Chronic Depression, any Compulsive Behavior with a self-control number of 6, Delusions, Fanaticism, more than two levels of Fearfulness, Flashbacks, Guilt Complex, Kleptomania, Low Self-Image, Lunacy, Manic-Depressive, Megalomania, Nightmares with a self-control number of 9 or less, Obsession, On the Edge, Paranoia, Phantom Voices, Phobias with a self-control number of 9 or less, Pyromania, Sadism with a self-control number of 6, Split Personality with a self-control number of 12 or less, and Trickster with a self-control number of 9 or less.

Taboo Trait: Physical Changes

This works much as on p. TS135. Note that variants of some models of cybershell may have some such "prohibited" feature engineered in at the factory, and it's just possible that a competent engineer with a full workshop could add some of them at a later stage. However, GMs shouldn't permit characters with cybershell bodies to sidestep this limitation easily; variant models should be plausible commercial designs, and custom modifications should be tricky and expensive. An Unusual Background such as "custom-built variant for an eccentric rich buyer" or "unsuccessful concept/showpiece design" *might* justify some more exotic variants. Likewise, a physical disadvantage would logically be fixed at the next workshop visit – unless the job would somehow be incredibly expensive, or the problem is a side-effect of some custom work. Also, machines may gain the Maintenance requirement, or suffer increased Maintenance frequency requirements, if they are wearing out or have been badly damaged in the past.

Taboo advantages are now all physical advantages (including Absolute Direction and Detect), and also increased Appearance levels. GMs may permit one or two levels of Acute Senses to represent better sensory processing as opposed to better sensory organs. ST and HT are also generally fixed; a cybershell will often have a fixed DX *modifier*, but DX is primarily determined by the operating infomorph.

Taboo disadvantages are now all physical disadvantages, plus reduced Appearance levels, any reduction in written comprehension of your native language and anything that shares the same script, Addiction, Cannot Learn, Dyslexia, Gluttony, Innumerate, Non-Iconographic, Post-Combat Shakes, Short Attention Span, Sleepwalker, and Unnatural Features.

Taboo Trait: Self-Awareness

Taboo advantages for this feature are now any modifiers to Will not included in the racial template, Animal Empathy, Common Sense, Cultural Adaptability, Danger Sense, Empathy, Fearlessness, Gadgeteer, Higher Purpose, Intuition, Language Talent, Plant Empathy, Rapier Wit, Social Chameleon, any Talent, Unfazeable, and Versatile.

Taboo disadvantages are now any modifiers to Will, and all mental disadvantages *except* Bloodlust, Confused, Gullibility, and Impulsiveness – unless anything is included in the racial template. Quirks are not taboo.

Skills

The skills list mostly benefits here from a few additions and redefinitions.

New Features

Early Maturation

This replaces the 3e advantage of the same name. You mature at the same rate as if you had Short Lifespan (p. B154) without affecting the frequency of aging rolls. This is a 0-point feature, but up to 5 levels are possible:

Level	Maturity
1	9 years
2	4 years
3	2 years
4	1 year
5	6 months

Low-Pressure Lungs

You treat very thin atmospheres as thin, thin as standard, standard as dense, and anything denser as unbreathable. This feature also includes eye adaptations so that Vision penalties are similarly shifted. If you want greater precision, assume that the character's native pressure (p. B430) is 0.7 atm.

Deleted and Changed Skills

A number of skills have been deleted or changed significantly. The following are likely to be important in relation to ***Transhuman Space***:

Armory: The *Electromag Weapons* specialty (p. TS136) is now part of Armory (Small Arms) at appropriate tech levels.

Beam Weapons: Note that the specialty categories have changed to reflect configuration rather than weapon type.

Brain Hacking: Use the rules on p. 45 for 4e ***Transhuman Space*** games.

Cryptanalysis is now subsumed by Cryptography. It still doesn't do much against strong encryption in the absence of a quantum computer.

Genetics (see p. TS136): Genetics (Genetic Engineering) is now called Bioengineering (Genetic Engineering); Genetics (Heredity) becomes Biology (Genetics); and Genetics (Tissue Engineering) becomes Bioengineering (Tissue Engineering). Bioengineering (Cloning) is also definitely available. Not only do the required specialties of Bioengineering default to each other at -4, but they default to Biology (Heredity) just as well as they do to unspecialized Biology, i.e. at -5.

Guns: Use the specialties from p. B199 rather than those from p. TS136.

Low-G Flight: This becomes Piloting (Low-G Wings) (p. B214).

Piloting: Plasma sail craft in ***Transhuman Space*** are operated using Piloting (Low-Performance Spacecraft). However, there is a minimum -2 familiarity penalty for anyone operating such a craft without experience of this specific drive type, or converting to any other sort of low-performance spacecraft when his only experience is with plasma sails.

Xenobiology: This becomes Biology (p. B180) with a specialization by planet type. When converting the old categories as discussed on p. TS136, *Rock/Ice* becomes *Ice Worlds* while *Terrestrial* becomes *Earthlike*.

The following are new skills from ***Transhuman Space*** books:

Aquaculture (***Under Pressure***, p. 106) can become an IQ-based Professional Skill. Alternatively, GMs can declare that Farming (p. B194) requires specialization by environment type; Aquaculture thus becomes Farming (Sub-Aquatic).

Endurance Swimming (***Under Pressure***, p. 106) is now subsumed within Swimming (p. B224). GMs may optionally allow characters with this skill to increase distance covered as for Hiking (p. B200 and P. B351). Fine control of divetorps now uses Submarine (Free-Flooding Sub) skill; for a squidpack, roll against the better of Aquabatics or Scuba.

Hydrology (***In the Well***, p. 91) is now an Expert Skill; see p. B194.

Memetics (p. TS137) is now treated differently; see p. 46.

Oceanography (***Under Pressure***, p. 106) becomes an Expert Skill; see p. 46.

Pop Culture (***Broken Dreams***, p. 125) becomes Current Affairs (Popular Culture); see below.

Speed Swimming (***Under Pressure***, p. 106) is replaced by buying up Water Move (p. B18).

Acrobatics/Aerobatics

p. B174

A non-flying character with at least one point in Free Fall skill may learn Aerobatics for use in zero-G.

Animal Handling

p. B175

This cannot generally be used with uplifted animals, who are (more or less) sapient beings. However, at the GM's option, characters with a specialty of this skill applying to the pre-uplifted version of a creature can sometimes use it at -3 instead of Teaching or Psychology when working with uplifts.

Brainwashing

p. B182

Memetics has rendered this skill quite subtle and relatively effective, although old-fashioned "brute force" techniques are still in use, and are considered to have their place by many (ruthless and amoral) specialists. Because the study of applied memetics involves a number of what would once have been considered low-key brainwashing techniques, and has become quite widespread, this skill might be slightly more widely available, at least at low levels, than in most settings.

Connoisseur

p. B185

A valid specialty in 2100 is Virtual Reality Arts, which covers both InVids and slinks, though a character can only apply it to the latter if he has a downslink implant. (Otherwise, he may be aware of the names of many leading slink artists, and have a good idea of their reputations, but he can't discuss their work at all convincingly.)

Current Affairs

p. B186

This is a useful skill for many ***Transhuman Space*** characters, as tracing the state and development of politics, science, and popular culture in this rapidly-changing world can be the basis for whole profitable careers. Many edgehunters, cognitive ecologists, and "data miner" AIs will have one or more specialties of Current Affairs at high levels. (Previously, this was represented by Area Knowledge, Politics, Research, etc.)

Current Affairs (Popular Culture) specifically replaces Pop Culture skill (***Broken Dreams***, p. 125); see the description of that for some idea as to how Current Affairs can be used in relation to memetics.

Expert Skill

p. B193

In the data-rich environment of 2100, when huge amounts of information are available to be correlated in new and interesting ways, any number of Expert Skills may exist. GMs should let players invent some to fit their PCs if they wish – but be prepared to veto overly broad or otherwise abusive concepts. Valid possibilities include:

Brain Hacking

In ***Transhuman Space*** games, Brain Hacking skill (p. B182) can only be used on a ghost or shadow, and requires a ghost editor program (p. TS144) and full access to the system on which the victim-program is running.

Use the regular *Brainwashing* skill, but the victim resists with IQ instead of Will (sheer determination doesn't help much against someone who can adjust your mind's structure, but subtlety and mental agility do) and each skill attempt only takes 10 minutes. During such operations, a critical failure of the Brain Hacking skill will impose -20 points worth of disadvantages of the GM's choice on the victim. The victim gets *no defense* against this, but the results should be inconvenient for the hacker.

The results of Brain Hacking can be canceled out by another hacker, but this isn't truly repair, just patching over damage. Many people would consider it kinder to restore from an earlier backup – but the victim might disagree.

In addition to the normal uses of brainwashing, the hacker can gain information by hacking someone's mind. This allows the hacker to substitute *Brain Hacking* skill for *Interrogation* skill. Again, the victim resists with IQ instead of Will. Brain hacking in this manner takes one minute, and attempts to *lie* are pointless; the program will flag them instantly. At best, the victim can refuse to answer. Knowledge gained in this way consists of raw facts, unconnected by reasoning ability. Hacking an expert biologist won't give you Biology skill, but will tell you the titles of some good reference books.

Arachnoxenology: can stand in for Computer Operation, Computer Programming, Psychology, or some areas of Mathematics when studying the Web as an environment for "wild" software. (See ***Fifth Wave***, p. 32.)

Memetics: can stand in for Brainwashing, Diplomacy, Fast-Talk, Interrogation, Leadership, Merchant, Politics, Propaganda, Psychology (all specialties), Sociology, and Teaching to answer questions about the use of memetic jargon.

Computer Intrusion Under *4e*

The rules given for computer intrusion in ***Fifth Wave*** (pp. FW128-130) assume the availability of Computer Hacking skill, which is now classed as cinematic and hence will be unavailable in many ***Transhuman Space*** campaigns. (It can be permitted in "cyberpunk-style" games, of course.) Players attempting computer intrusion in such games may use the following rules:

1. If the intruder doesn't know the general type and origin of the AI operating system on the target computer, this can be identified by various offline methods (GM's option), or with Computer Operation skill, taking 10 minutes; the roll is at -5 if the intruder has No Access to the system, -3 if he has Data Access, and -1 if he has Limited Access. Multiple attempts are at a cumulative -1 per previous attempt. If this information is unavailable, the eventual intrusion roll is at -6.

2. Likewise, the intruder will benefit from knowing exactly what applications are routinely run on the target system. Roll as above if trying to determine this across the Web, but all penalties are *doubled*. If the information is unavailable, the intrusion roll is at -2.

3. If the AI operating system has been identified, attempt an Expert Skill (Computer Security) roll, or a Research roll at -3, to determine any known categories of vulnerability in the target system. If this fails, the intrusion roll is at -4.

4. The intruder can take one hour to tailor special software to aid the attack; on a successful Computer Programming roll, this gives +1 to the intrusion roll. Likewise, if the user can communicate with the target AI without it being suspicious or hostile, taking at least 10 minutes, and makes a successful Psychology (AI) roll (using Psychology (Applied/AI), *or* Psychology (Experimental/AI) at -2, if both are available), this also gives +1 to the roll.

5. The intrusion roll itself is as in ***Fifth Wave***, with all the modifiers given there except that the above modifiers replace the "Target Knowledge" modifiers, but is made against Computer Operation at -6.

Optionally, "Computer Intrusion" can be treated as a Hard technique. In that case, the technique applies only to the intrusion roll, not to other skill rolls used earlier in the process.

Memetics as a Wildcard Skill

As an alternative to the Talent and Expert skill discussed in the main text, *Memetics!* can be treated as a wildcard skill (p. B175), based on IQ, which substitutes for all of the skills listed for Expert Skill (Memetics) above. As with all wildcard skills, this is a rather cinematic approach, and may be prohibited by GMs who want a "realistic" game, but it isn't *entirely* implausible that a character who has made a lengthy, broad study of the field could acquire a working knowledge of all these skills.

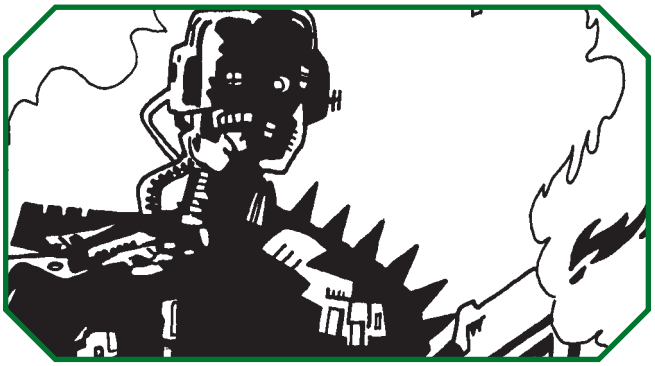
Oceanography: Replaces skills such as Geography (Physical), Meteorology, or Physics (Fluid Dynamics and other specialties) when dealing with the behavior of a planet's oceans, and to a limited extent Biology (Ecology) in relation to the consequences for life in those oceans.

Terraforming: can stand in for Biology, Geography, Geology, History, Meteorology, or Physics when describing the progress, intentions, and technical history of the Martian terraforming project. (Actually planning or carrying out parts of this process, or for that matter sabotaging it, requires much more specific skills.)

Innate Attack

p. B201

This only applies to (ranged) offensive abilities bought as Innate Attacks. Most combat cybershells will use Weapon Mounts or Payload to hold their weaponry, and should use the appropriate skill for whatever is installed there.



Psychology

p. B216

"Realistic" ***Transhuman Space*** games should divide this into "Applied" and "Experimental" mandatory specialties. In any case, it should also be divided into three "species" specialties; Human, Bioroid, and AI. Humans and Bioroid specialties default to each other at -2, while each defaults to and from the AI version at -4. In addition, *each* species of uplifted animal has its own specialty, although only a few scientists have studied these.

Memetic Operations

Chapter 7 of ***Toxic Memes*** has detailed rules for memetic operations. These can also be used under 4e, but in the absence of actual Memetics skill, rolls must be made against other skills.

Artifact Analysis: When analyzing a cultural artifact for memetic content, first roll against Current Affairs (High Culture or Popular Culture), or Connoisseur with an appropriate specialty, to place it in context. On a critical success, the subsequent roll is at +2; on a failure, it is at -2; on a critical failure, no useful information can be extracted from the item (though the character might *think* it can, at the GM's option). Then roll against Expert Skill (Memetics), Psychology (Applied) at -1, or Propaganda at -3 (propagandists know how to *create* memes, but are less adept at "reverse engineering"), with time taken and results as in ***Toxic Memes***, p. 117.

Population Analysis: Similarly, a memeticist can analyze the prevalence and development of a specific meme in a population. This takes 2d hours for a simple meme, 1d days for a medium complexity meme, and 2d+2 days for a complex meme, and requires extensive information – but access to the Web usually provides that. (A Research roll may be required if the subject is somehow obscure.) A successful roll against an appropriate specialization of Current Affairs reduces the time by 25% and on a critical success gives +2 to the subsequent roll. The actual analysis is a roll against Expert Skill (Memetics), Sociology, Propaganda at -1, or Psychology (Applied) at -3, with results as for Artifact Analysis above.

Meme Design and Use: Follow the general rules in ***Toxic Memes***. Preparatory rolls may be made against Area Knowledge, Current Affairs, Propaganda, Psychology, Research, and/or Sociology, at the GM's option; if the new creation is intended to interact with an existing meme, use the rules for Population Analysis above. The actual campaign uses Propaganda skill. (Memeticists taking a hands-on approach to memetic dissemination may also find uses for Group Performance (Directing), Public Speaking, or Writing.)

Countermemetics: The roll to analyze a suspected memetics campaign is an exercise in Population Analysis as above, with other modifiers as on ***Toxic Memes***, p. 126. Countermeme creation follows the rules for Meme Design and Use.

Deprogramming: See ***Toxic Memes***, pp. 127-128. The deprogrammer uses Psychology (Applied) or Brainwashing skills in the Quick Contest; he can claim the +1 bonus for a successful preparatory Fast-Talk or Intimidation roll, but not for Psychology.

Quick and Dirty Memetics: See ***Toxic Memes***, pp. 128-130. Preparation can (and often does) use Current Affairs skill, along with the others listed; meme construction uses Propaganda, or Psychology (Applied) at -2, along with the other modifiers given in ***Toxic Memes***.

Psychology (Human) encompasses all upgrades and parahumans, whose brains are still built very much on the human pattern, though Metanoias and others show more divergence from the baseline than psychologists of previous eras would have considered normal – and also ghosts, although some ghosts evolve in peculiar ways as they grow accustomed to life as digital entities. Psychology (Bioroid) is a separate skill because bioroids have artificially-designed, speed-educated brains which diverge significantly from the human pattern. Psychology (AI) considers emergent intelligences, gypsy infomorphs, etc., as more or less pathological divergences from the baseline.

Shadows can usually be analyzed using the Human specialty, though the psychologist must take account of the mind's incompleteness; occasionally, a roll against the AI-related skill may be useful to understand the program's underlying artificial structures.

Memetics

Characters with training or natural skill in memetics are handled a little differently under the new edition rules. They can take either or both of two options; Memetics Talent (p. 40), or Expert Skill (Memetics) (p. 46). As an Expert Skill, the latter relates primarily to an *academic* understanding of memetics, and especially to a knowledge of the relevant jargon. A character still needs training in one or more of the skills it encompasses to perform practical "memetic operations," but study of the background theory is often the first step along the way, and has some practical uses in identifying other people's employment of memetics.

Memetics Talent is more generally useful. It often represents a natural aptitude for the whole field of memetics, and hence for any skill which uses it for practical purposes; one level is universal among SAIs, with their unique ability to analyze their own mental processes. SAIs designed for or fascinated by such work can purchase more levels.

Alternatively, the Talent may sometimes represent a broad grounding in memetic theory which the character can turn to many different uses. This makes it unusual, as a Talent, in that GMs may allow it to be learned by study. If this is permitted, he must first put at least one point each into Psychology (Experimental) and Propaganda; subsequently, he can treat the Talent as a learnable advantage (p. B294). However, GMs may choose to limit training to 2 or 3 levels' worth; it's unlikely that there are many teachers in the entire solar system with greater talent than this (and no teaching materials covering higher levels), and an instructor can't teach more than he knows.

Note, incidentally, that memetic jargon is widespread in this setting. Even somebody who has neither the Talent nor the Expert Skill may well refer to the concept of memes when using or discussing skills such as Psychology or Politics; it's become a basic point of reference.

Templates

The following replace the templates from the ***Transhuman Space*** core book in 4e games. Those from the various supplements may be covered in later publications, although the conversion principles illustrated here should be easy enough to apply to other cases.

Humans

Genefixed Human

p. TS115: 0 points

Features: Taboo Trait (Genetic Defects). Add Taboo Trait (Unattractiveness) post-2035, and Taboo Trait (Mental Instability) post-2050.

Floater

p. TS115: -66 points

Attribute Modifiers: ST-2 [-20]; HT-2 [-20].
Advantages: 3D Spatial Sense [10].
Disadvantages: Social Stigma (Minority Group) [-10]; Vulnerability (Crushing Damage, ×2) [-30].
Racial Skill Bonuses: +2 to Free Fall [4].
Features: Home gravity of 0 G. Height is typically 1' greater than normal for ST.

Human Genetic Upgrades

Alpha Upgrade

p. TS115: 41 points

Attribute Modifiers: DX+1 [20]; HT+1 [10].
Advantages: Attractive [4]; Resistant to Disease (+8) [5]; Longevity [2].
Features: No Appendix; Taboo Traits (Genetic Defects, Mental Instability).

Variants

Olympian (p. TS115): Add Combat Reflexes [15] and Very Fit [15]. *71 points*.

Ishtar Upgrade

p. TS116: 33 points

Attribute Modifiers: ST-1 [-10]; DX+1 [20]; HT+1 [10].
Advantages: Handsome/Beautiful [12]; Resistant to Disease (+8) [5]; Voice [10].
Perks: Alcohol Tolerance [1].
Disadvantages/Quirks: Overconfidence (12) [-5]; and -10 points from Incompetence in any influence skill (p. B359), Odious Personal Habits (Competitive and Self-Obsessed) [-5], or some level of Jealousy and/or Selfish (or Proud).
Features: Taboo Traits (Genetic Defects, Unattractiveness).

Variants

Siduri (p. TS116): Add Longevity [2] and reduce disadvantages to Overconfidence (12) [-5] and Proud [-1]. *44 points*.

Metanoia-Series Upgrade

p. TS116: 51 points

Attribute Modifiers: IQ+1 [20]; HT+1 [10].
Advantages: Longevity [2]; Resistant to Disease (+8) [5]; Versatile [5]; and *either* Language Talent [10] *or* 10 points in any Talent.
Quirks: Imaginative [-1].
Features: Taboo Traits (Genetic Defects, Unattractiveness).

Parahumans and Bioroids

Remember that bioroids will almost always have some kind of Social Stigma; see p. 43.

Aquamorph

p. TS116: 73 points

Attribute Modifiers: ST+1 [10]; DX+1 [20]; HT+1 [10].
Advantages: Amphibious [10]; Doesn't Breathe (Oxygen storage ×50, -40%) [12]; Pressure Support 1 [5]; Resistant to Disease (+8) [5]; Temperature Tolerance 1 [1].
Features: Smooth gray, mottled, or black skin; webbed fingers and toes.

Variants

Sea Shepherd (p. TS116): Add Combat Reflexes [15], Enhanced Move (Water) 1/2 [10]; Teeth (Sharp Teeth) [1], Bioroid Body [-4], Skinny [-5], and Workaholic [-5]. *85 points*.

Note: Pressure Support 1 primarily reduces the character's vulnerability to the bends; see p. B435.

Felicia

p. TS116: 157 points

Attribute Modifiers: ST-1 [-10]; ST +4 (Costs 1 FP per second, -10%; Temporary Disadvantage (Gluttony (9), Impulsiveness (12), Lecherousness (9), see note), -39%) [21]; DX+3 [60]; HT+1 [10].
Secondary Characteristic Modifiers: Basic Speed+1.00 (Costs 1 FP per second, -10%; Temporary Disadvantage (Gluttony (9), Impulsiveness (12), Lecherousness (9), see note), -39%) [11].
Advantages: Acute Hearing +3 [6]; Acute Taste and Smell +2 [4]; Attractive [4]; Catfall [10]; Claws (Sharp Claws) [5]; Combat Reflexes [15]; Flexibility [5]; Night Vision 5 [5]; Perfect Balance [15]; Resistant to Disease (+8) [5]; Teeth (Sharp Teeth) [1].
Perks: Fur [1].
Disadvantages: Bioroid Body [-4]; Extra Sleep 1 [-2]; Overconfidence (12) [-5].
Features: Transgenic features (human-feline facial features, with human hair and a cat's fur, claws, and tail).

Note: The Temporary Disadvantage limitation on the Felicia's extra ST and Speed is a variant version; the added disadvantages last from when the powers are switched *off* until the Fatigue Points lost by using them are recovered. Because this extra ST is strictly temporary, it doesn't add to HP.

Variants

Felicia II (p. TS117): Delete the limited extra ST and Basic Speed. *125 points*.

Tennin

p. TS117: 27 points

Attribute Modifiers: ST-1 [-10].
Advantages: 3D Spatial Sense [10]; Attractive [4]; Extra Arms (two, Foot Manipulators -30%, Short -50%) [4]; Longevity [2]; Radiation Tolerance 5 [10]; Resistant to Disease (+8) [5].
Perks: No Degeneration in Zero-G [1].
Disadvantages: Skinny [-5].
Racial Skill Bonuses: +3 to Free Fall [6].
Features: Home gravity of 0 G. Height is typically up to 1' greater than normal for ST, but weight is 75% of normal. Taboo Trait (Genetic Defects).

Variants

Wu Tsao (p. TS117): Add IQ+1 [20], Versatile [5], Imaginative [-1], and the features Altered Sex Ratio (Female-only births), Parthenogenesis (Can voluntarily become pregnant with a clone of herself), and Sexual Orientation (Lesbian). *51 points*.

ZR-5 (p. TS117): Delete Longevity and No Degeneration in Zero-G; add Clinging (Accessibility, Only in 0.2 G or less, -40%) [12], Bioroid Body [-4], and Workaholic [-5]. *27 points*.

Tianyi

p. TS117: 45 points

Attribute Modifiers: HT+2 [20].
Advantages: Fit [5]; Very Handsome/Beautiful (Off-the-shelf looks, -50%) [8]; Less Sleep 2 [4]; Immunity to Disease [10]; Sensitive [5]; Voice [10].
Perks: Deep Sleeper; No Hangover; Sanitized Metabolism [3].
Disadvantages: Bioroid Body [-4]; Chummy [-5]; Workaholic [-5]; Xenophilia (15) [-5].
Quirks: Attentive [-1].
Features: Taboo Trait (Mental Instability).

Variants

Incubus (p. TS117): Add DX+1 [20], Breath-Holding 1 [2], Flexibility [5], Hermaphromorph [5], Lecherousness (12) [-15], and +3 to Erotic Art [6]. *68 points*.

Yousheng

p. TS117: 46 points

Attribute Modifiers: ST-1 [-10]; DX+1 [20]; HT+2 [20].
Advantages: Longevity [2]; Mars-Adapted [9]; Resistant to Disease (+8) [5].
Features: Altered Sex Ratio (2:1 female:male births); Increased Fecundity (75% of births are twins); Sexual Orientation (Heterosexual); Taboo Traits (Genetic Defects, Mental Instability, Unattractive). Home gravity of 0.38 G.

Variants

Viking (p. TS117): Delete all features except Taboo Trait (Genetic Defects). Cost is unchanged.

ZR-3 (p. TS117): Delete Longevity and all features except Taboo Trait (Genetic Defects); add Less Sleep 2 [4], Bioroid Body [-4], Workaholic [-5], and Attentive [-1]. *38 points*.

Ziusudra

p. TS118: 77 points

Attribute Modifiers: DX+1 [20]; IQ+1 [20]; HT+1 [10].
Advantages: Attractive [4]; Extended Lifespan 1 [2]; Less Sleep 1 [2]; Longevity [2]; Rapid Healing [5]; Immunity to Disease [10].
Perks: Reproductive Control; Sanitized Metabolism [2].
Features: Early Maturation 1; No Appendix; Taboo Traits (Genetic Defects, Mental Instability).

Variants

Nyx (p. TS118): Delete HT+1, Longevity, and Taboo Trait (Mental Instability); change Less Sleep 1 to Less Sleep 4 [8]. *71 points*.

Uplifted Animals

Note that in some space colonies (especially Red Duncanite stations), an uplifted animal's Social Stigma could easily become Subjugated. Conversely, one living on E.U. territory or some transhumanist enclaves could switch that disadvantage to Minority Group, and possibly eliminate Dead Broke from the template.

Astropus

p. TS118: 76 points

Attribute Modifiers: ST-2 [-20]; DX+3 [60]; IQ-2 [-40]; HT+2 [20].
Secondary Characteristic Modifiers: HP-2 [-4]; Per+3 [15].
Advantages: Chameleon 2 [10]; Constriction Attack [15]; Damage Resistance 1 (Can't Wear Armor, -40%; Tough Skin, -40%) [1]; Doesn't Breathe (Gills, -50%) [10]; Extra Arms (6; Extra-Flexible on all 8 arms, +50%) [100]; Flight (Costs Fatigue, 4 FP, -20%; Requires Low Gravity, 0G, -50%) [12]; Injury Tolerance (No Neck) [5]; Obscure 10 (Vision; Accessibility, Only in water or zero-G, -30%) [14]; Peripheral Vision [15]; Teeth (Sharp Beak) [1].
Perks: Sanitized Metabolism [1].

Disadvantages: Bad Grip 2 (-4 penalty) [-10]; Bad Sight (Nearsighted; Mitigator, -60%) [-10]; Cold-Blooded [-5]; Colorblindness [-10]; Dead Broke [-25]; Fearfulness 1 [-2]; Hidebound [-5]; Incurious (9) [-7]; Innumerate [-5]; Invertebrate [-20]; Mute (Mitigator (computer interpreter), -60%) [-10]; Short Lifespan 1 [-10]; Social Stigma (Valuable Property) [-10]; Stress Atavism (Mild) (12) [-10].

Note: Being used primarily in space construction work, most astropuses have a home gravity of 0-0.2 G.

K-10A Postcanine

p. TS118: -24 points

Attribute Modifiers: DX+3 [60]; IQ-3 [-60]; HT+2 [20].
Secondary Characteristic Modifiers: Per+7 [35].
Advantages: Combat Reflexes [15]; Discriminatory Smell (Emotion Sense, +50%) [23]; Enhanced Move (Ground) 1 [20]; Teeth (Sharp Teeth) [1]; Ultrahearing [5].
Perks: Fur [1].
Disadvantages: Chummy [-5]; Colorblindness [-10]; Dead Broke [-25]; Disturbing Voice [-10]; Innumerate [-5]; Native Language Written Comprehension reduced to Broken [-2]; Quadruped [-35]; Sense of Duty (Master) [-2]; Short Arms (see note) [-10]; Short Lifespan 1 [-10]; Sleepy (1/2 the time) [-8]; Social Stigma (Valuable Property) [-10]; Stress Atavism (Mild) (12) [-10].
Quirks: Proud; Responsive [-2].
Features: Early Maturation 1.

Note: Like any quadruped, the K-10A can use its front legs for *very* limited manipulation purposes. However, it can only do so at close range; hence, it has the "Short Arms" disadvantage, with a value equal to the result of applying the Short limitation to two arms.

INFOMORPHS

The templates that follow define the common attributes of each type of infomorph; many individuals, especially AIs, will have additional options. As in 3e, an infomorph character requires *both* an infomorph template (the software, with associated mental attributes) and a cybershell or bioshell template (representing the hardware on which it currently runs, with physical attributes).

For these purposes and when an infomorph "possesses" another body, DX is classed as a *mental* attribute, as it is largely determined by the software's capacity for precision, real-time coordination, etc.. However, some cybershells provide a DX *modifier*, which is added to the infomorph's own DX. For example, if a DX 12 SAI is running on a snakebot cybershell, its effective DX becomes 15.

Virtually *all* AIs (though not ghosts or shadows) have Modular Abilities (Computer Brain) to represent the ability to run skill set software; see pp. 60-61. Details vary from model to model, but few AIs are designed to interface simultaneously with more skill sets than can be run alongside them on the smallest size of computer that can run the AI itself.

Most AIs will also have a Duty to their owner; in the case of those owned by PCs, this arises almost all the time, and so is worth -15 points. GMs may choose to treat this as the standard, and not permit any variations. However, it's perfectly possible for an AI which is left at home a great deal to have a lower Duty frequency, while one that isn't taken into fights would have the Nonhazardous option – and one that's used for military missions or similar would very likely have an Extremely Hazardous Duty. (Military NAIs are essentially regarded as disposable.) As such variations *are* possible, the Duty isn't included in the AI templates below.

Conversion Issues: Unlike the 3e versions, the AI templates below lack Mathematical Ability – but gain Intuitive Mathematician (from the AI meta-trait) in place of Lightning Calculator. This reflects the nature of an infomorph better; it isn't especially good at the creative or intuitive aspects of mathematical skills, but it can handle any amount of raw number-crunching with ease. Again, gamers wanting to preserve backward compatibility can add Mathematical Ability 3 [30] to the advantage lists, and increase the template costs accordingly.

Minimal Software

-255 points

In addition to the infomorphs listed in the ***Transhuman Space*** core book, the approach to handling certain character features in 4e games requires a new template; "Minimal Software."

This is because, although most infomorph/cybershell characters can be treated as a cybershell template plus an AI template, some cybershells which PCs will purchase as Allies will have no AI whatsoever, being used purely for remote teleoperation or as a spare body (a "vessel") for an infomorph character. Such cybershells should have the following template added; rather than a controlling AI, they have minimal "housekeeping" software installed to manage basic functions, such as controlling communications ports to allow an authorized infomorph to install itself, or keeping a bioshell's heart and lungs running. This software can also manage the use of other programs on the hardware, such as a teleoperation program (p. TS144), or simple utilities (word processors, graphics programs, databases, etc.).

See *"Vessel" Cybershells* (box-out, p. 39) for uses for this.

Attribute Modifiers: IQ -10 [-200].
Disadvantages: Dead Broke [-25]; Reprogrammable [-10]; Social Stigma (Subjugated) [-20].
Features: Complexity 1 program; Taboo Trait (Fixed IQ).

Nonsapient AI (NAI)

p. TS119: 29 points

Attribute Modifiers: IQ-2 [-40].
Advantages: AI [32]; Enhanced Time Sense [45]; Extra Life (Copy, -20%; Requires Body, -20%) [15]; Indomitable [15]; Possession (Digital, -40%) [60]; Single-Minded [5]; Unaging (IQ only, -75%) [4]; Unfazeable [15].
Disadvantages: Automaton [-85]; Dead Broke [-25]; Social Stigma (Subjugated) [-20].
Racial Skills: Computer Operation/TL10 (E) IQ+3 [8]-11.
Features: Complexity 4 program; Taboo Traits (Mental Instability, Self-Awareness).

Notes: Unlike the 3e version, this template has No Sense of Humor (from the Automaton meta-trait) in place of Clueless; assume that the program *is* sophisticated enough to handle colloquialisms, but it doesn't even try to make jokes. GMs who

IQ 0 in *GURPS*

The Minimal Software template gives a "character" a fixed IQ of 0. As the ***GURPS Basic Set*** explains, this indicates the total absence of any mind; the "character" is no more sapient than a rock or a tree. Hence, it cannot learn skills or possess any mental traits, including many advantages and disadvantages.

(A similar being with IQ 1 or 2 might well have a *lower* point value, thanks to the addition of mental disadvantages. This represents the fact that a totally mindless object can't get itself into trouble of its own volition, whereas a low IQ creature can have just enough self-will to act on its disadvantages and suffer the consequences. IQ 1+ creatures are also susceptible to fright checks, Influence rolls, mind control, and so on, whereas IQ 0 means that there's no mind to be influenced; the IQ 0 "character" doesn't have to buy this immunity, any more than it can take those disadvantages.)

Reprogrammable is an exception to this, being explicitly permitted to IQ 0 beings; it's not so much a mental trait as a physical feature of the being's brain. (Duty, on the other hand, is prohibited, as it implies the possibility of deliberately refusing a task and suffering punishment in consequence.) In the ***Transhuman Space*** setting, a mindless cybershell can also have *some* essentially social disadvantages, and two are included in the template. Firstly, such beings are automatically treated as Dead Broke; some cybershells in some places (with AIs controlling them) can and do own property, but not this one. And secondly, the cybershell automatically has Social Stigma (Subjugated), representing the fact that people will treat it as a mere object; they *probably* won't damage it gratuitously, but nor will they think twice about letting it come to harm if human lives are at stake, or in the course of a non-lethal conflict with the owner.

However, IQ 0 doesn't imply low Status in this setting. Strictly speaking, the "character" doesn't have a social status at all; it's a *thing*, regarded with no personal respect or contempt, but leaving Status at (effectively) 0 represents this adequately. (Logically, a machine might also have a low Cost of Living – but GMs can always throw in routine maintenance costs, which the owner must pay.) IQ 0 cybershells might have other social disadvantages, but these must be specifically approved on a case-by-case basis, and will usually be associated with the cybershell rather than the software installed. For example, some heavily-armed military cybershells may have Social Stigma (Monster) – they're scary death machines.

A normal character who falls to IQ 0 as a result of aging dies. This does *not* mean that IQ 0 is equivalent to "dead"; rather, the effect is a "marker" for loss of neurological functions associated with death of old age. (Someone temporarily reduced to IQ 0 by an Affliction doesn't die either.) An IQ 0 being isn't automatically Unaging (and can certainly suffer aging effects based on other attributes), but it doesn't have to worry about neurological failure.

prefer to preserve backwards compatibility with the old version can switch the two disadvantages without changing the cost.

The Automaton meta-trait also gives it Incurious, replacing Staid in the earlier version. Some sophisticated NAIs may be permitted to "buy this off" (probably taking Staid in its place); programmers seek to make even the most basic AIs take some active interest in their surroundings.

A NAI is regarded as a nonperson virtually everywhere in 2100 – hence the Social Stigma. Few NAIs are capable of grasping this fact, and one that somehow "escaped" would be regarded as dangerously unstable corrupted software and probably hunted down for deletion by the former owner and the authorities. This Social Stigma replaces the Status -4 disadvantage in the 3e template; for one thing, Status doesn't generally run that low in 4e games, and for another, a NAI, like an IQ 0 dumb machine, doesn't really have Status at all – it's treated as a *thing*.

Variants

The above represents a Complexity 4 NAI. For each +1 to Complexity (up to Complexity 10), add +1 to the template's IQ and 20 points to its cost. (For example, a NAI-7 has IQ+1 in its template and costs 89 points.)

Low-Sapient AI (LAI)

p. TS119: 82 points

Attribute Modifiers: IQ-1 [-20].

Advantages: AI [32]; Enhanced Time Sense [45]; Extra Life (Copy, -20%; Requires Body, -20%) [15]; Fearlessness 2 [4]; Possession (Digital, -40%) [60]; Unaging (IQ only, -75%) [4]; Visualization (Reliable, +4, +20%) [12].

Disadvantages: Dead Broke [-25]; Hidebound [-5]; Honesty (9) [-15]; Low Empathy [-20]; Social Stigma (Valuable Property) [-10].

Quirks: Attentive; Broad-Minded; Staid [-3].

Racial Skills: Computer Operation/TL10 (E) IQ+3 [8]-12.

Features: Complexity 6 program; Taboo Trait (Mental Instability).

Notes: LAIs are regarded as property in most places; hence the Social Stigma. They do have a few limited rights, in custom if not in law, because they are generally recognized as possessing self-awareness and personalities, and hence are classed here as Valuable Property rather than Subjugated. Most are comfortable with this situation; as with NAIs, one that "went rogue" would be in a far more precarious position. In the Caliphate, they are subject to special laws and customs, for historical reasons; for a LAI based there, change the Social Stigma to Minority Group. (Such a LAI might also buy off the

Indomitable AIs and "Machine Empathy"

The NAI template includes the Indomitable advantage, and it would be perfectly reasonable for individual LAIs and SAIs to acquire this as well.

This in turn means that anyone wishing to use Influence skills on such beings needs an appropriate form of Empathy advantage – but none actually exists.

GMs can either rule that such AIs are simply immune to any such attempts at influence, that AIs are close enough to humanity that standard Empathy serves this purpose – or that a new advantage, "Machine Empathy," is required. In the last case, the new advantage should cost 10 points, and will work with AIs exactly as Empathy does with sapient organic beings.

Dead Broke disadvantage, though most are in practice permanently resident with a "guardian" who looks after their material needs.)

Variants

The above represents a Complexity 6 LAI. For each +1 to Complexity (up to Complexity 10), add +1 to the template's IQ and 20 points to its cost. (For example, a LAI-9 has IQ+2 in its template and costs 142 points.)

Sapient AI (SAI)

p. TS120: 153 points

Attribute Modifiers: IQ-1 [-20].

Advantages: AI [32]; Enhanced Time Sense [45]; Extra Life (Copy, -20%; Requires Body, -20%) [15]; Fearlessness 1 [2]; Memetics Talent 1 [10]; Possession (Digital, -40%) [60]; Unaging (IQ only, -75%) [4]; Visualization (Reliable, +4, +20%) [12].

Disadvantages: Honesty (9) [-15].

Racial Skills: Computer Operation/TL10 (E) IQ+3 [8]-12.

Features: Complexity 7 program; Taboo Trait (Mental Instability).

Notes: Many SAIs suffer from some kind of Social Stigma, but the type depends on where they are based. In the E.U., the Caliphate, and transhumanist enclaves, they are classed as full citizens (though there are many individuals with Intolerance directed towards them, and they may be treated as Minors some time after they achieve quite mature personalities). In China, they are functionally a Minority Group, and will rarely have better than Poor wealth; many are effectively owned by a government organization or company, though their theoretical legal rights aren't *always* ignored. Society in India is suspicious of these entities, probably due to a widespread "Frankenstein phobia," and they are effectively Subjugated there. Elsewhere, they are classed as Valuable Property. In the latter two cases, they will always be Dead Broke. Because these Stigmas and low wealth levels are mandatory, they may not count against campaign disadvantage limits (GM's option).

Variants

The above represents a Complexity 7 SAI. For each +1 to Complexity (up to Complexity 10), add +1 to the template's IQ and 20 points to its cost. (For example, a SAI-8 has no IQ modifier in its template and costs 173 points.)

Citizen AI (p. TS120): This is an SAI with no Social Stigma, no Duty (unless it is one that might be voluntarily accepted by any free citizen), and any level of wealth.

General AI Variants

Emergent Intelligence (p. TS120): Remove Dead Broke in the case of a LAI (though few EIs have much money), Honesty, and Reprogrammable (from the AI meta-trait). This adds 50 points to the cost of a LAI, 25 to a SAI. Known EIs have a

Terminology: Sapience

The term "sapience" as used in the ***Transhuman Space*** setting doesn't have quite the same meaning as it does in the ***GURPS*** rules. Given that the "***Transhuman Space*** meaning" is used heavily throughout material published for the line, it's too late to change it now; GMs and players should simply recognize that there is a difference, and be careful to specify which they're using.

Basically, "***GURPS*** sapience" means a ***GURPS*** IQ of 6+, which grants the ability to master language and technological skills. When used in relation to ***Transhuman Space*** AIs, "sapience" means self-directed intelligence comparable to that of a free-willed human being. Many "non-sapient" programs in the setting are in fact highly intelligent in ***GURPS*** terms, but lack motivation and the capacity for truly original thought – a lack reflected by various disadvantages on the NAI and LAI templates.

In fact, there is some heated debate in 2100 about terms such as "sapience," partly because the classic definition perhaps comes closer to the "***GURPS***" than the "***Transhuman Space***" meanings. Many academics and thinkers dislike the description of certain AIs as "non-sapient," given these programs' command of language and symbolic manipulation, which is far superior to that of any non-sapient animal. Some such people even insist that the popular abbreviations for categories of AI (NAI, LAI, and SAI) actually stand for Non-self-directing, Limited-self-directing, and Self-directing Artificial Intelligence respectively. Some activists, many of them citizen AIs, argue strongly that the idea that any AI can be described as "non-sapient" promotes the idea that AIs are all somehow less than human. As a practical matter, this argument seems to be a losing battle, despite the heat it generates in discussion.

Social Stigma, often severe (see p. 42); the alternative is to masquerade as something else (usually a much less powerful program) or remain hidden, which implies a large Secret.

Gestalt Intelligence (p. TS120): Add Mindlink (p. B70), and optionally Mind Reading (p. B69); both *must* have the Cybernetic Only and Telecommunication limitations, and often also have the Sensory enhancement. This means that all participating AIs must have access to some kind of Telecommunication (or run on the same computer); they may need the Sensie enhancement (p. 41), or at least Video, to use the link to the full. Other AIs in the gestalt may represent Allies or an Ally Group.

Gestalt AIs might be permitted to buy levels of Compartmentalized Mind with a special limitation "Must borrow the use of a linked AI's computer"; the value depends on how many and how easily accessible the other members of the gestalt may be. Note that an AI lending *all* its processing ability will be inert and helpless. GMs *might* also permit such AIs to buy extra IQ with the limitation "Only when linked to the gestalt" – value again dependent on how convenient that is – to represent a powerful "brainstorming" ability.

*Gypsy (see **Fifth Wave**, p. 122):* As an Emergent Intelligence (above) or a Shadow (below), but add the Full Memory Access enhancement (p. 40) to the Possession advantage, increasing template costs by 10 points. (The Cosmic enhancement can make this even more effective; see p. 40.) Gypsy infomorphs need good computer skills to support their "lifestyles." They usually have a significant Secret or Social Stigma, as they are regarded as a nuisance at best (being prone to "borrowing" other people's computer time), and a deadly threat at worst.

Orphan (p. TS120): Orphan AIs lack any Duty; given public paranoia on the subject, they probably have a significant Secret, or a Social Stigma if exposed. Details vary between individuals; some are simply Citizens, others are treated as Monsters.

Rogue (p. TS120): As LAI or SAI, but delete Honesty, increasing the template cost by 15 points. This often represents a serious Secret or a very major Enemy, as a known Rogue will hunted down for reprogramming at best, and quite possibly deletion. May be combined with Citizen or Orphan.

Ghost Mind Emulation

p. TS120: 86 points

Advantages: Absolute Timing [2]; Digital Mind [5]; Extra Life (Copy, -20%; Requires Body, -20%) [15]; Possession (Digital, -40%) [60]; Unaging (IQ only, -75%) [4].

Features: Complexity 7 program.

Notes: Ghosts may suffer Social Stigmas, depending where they are based. In China and India, they are Second-Class Citizens; in the Caliphate, they are seen as Monsters; and in the TSA, they are widely treated as Valuable Property. Such Stigmas may not count against campaign disadvantage limits, at the GM's option, as they apply to all members of the "race."

Variants

Fragment Mind Emulation (p. TS120): Use the ghost template plus Amnesia (Partial) [-10], reducing the cost to 76 points.

Fragments also suffer greater Social Stigmas in many areas; in the E.U., PRA, SAC, USA, and most transhumanist enclaves, they are treated as Minors (the legalities are slightly different, but a fragment isn't trusted to be a fully responsible adult, and will usually be assigned some sort of "guardian"), in most of the TSA they are effectively Subjugated, and in Duncanite communities they are Valuable Property.

Shadow Mind Emulation

p. TS120

Use a LAI or SAI template, but delete Taboo Trait (Mental Instability) and add Amnesia (Partial; Shallow Memories, -70%) [-3] and Delusion ("I have full memories") [-5], reducing the template cost by a total of 8 points. (See p. TS120 for an explanation of these disadvantages.)

Shadows suffer the same Social Stigmas as the type of AI on which they are based. However, they are abominated as Monsters in the Caliphate, and SAI shadows are merely treated as Valuable Property in India; adjust total template costs as required.

CYBERSHELLS

Note that, while the 3e Machine Body advantage included Doesn't Eat or Drink, this isn't included in either of the 4e meta-traits; hence, each cybershell template has to include advantages or disadvantages to reflect specific fuel/power requirements.

When deprived of fuel, or when their power cells run down, machines quickly become inert, rather than slowly starving to death. This faster loss of function is balanced by the fact that they can be restarted at any later point by refueling or recharging them. Any tendency to long-term decline if unattended is reflected by a Maintenance disadvantage.

Bush Robot

p. TS121: 299 points

Attribute Modifiers: ST-1 [-10]; HT+1 [10].

Advantages: Absolute Direction (Requires Signal, -20%) [4]; Ambidexterity [5]; Damage Resistance 10 (Can't Wear Armor, -40%) [30]; Doesn't Breathe [20]; Extra Arms 1 (Extra-Flexible, +50%; Foot Manipulators, -30%) [12]; Extra-Flexible Arms (see note) [10]; Flight (Newtonian Space Flight, +25%; Space Flight Only, -75%) [20]; High Manual Dexterity 10 [50]; Injury Tolerance (No Brain) [5]; Machine [25]; Microscopic Vision 6 (Accessibility: Must physically touch subject, -10%) [27]; Penetrating Vision 1 (Blockable, any surface with DR 1+, -30%; Must physically touch object to be viewed through, -30%) [4]; Pressure Support 2 [10]; Reduced Consumption 3 (Recharge power cells once a week) [6]; Scanning Sense (Imaging Radar) [20]; Sealed [15]; Sensitive Touch [10]; Telecommunication (Cable Jack; Video, +40%) [7]; Telecommunication (Laser Communication) [15]; Telecommunication (Radio; Video, +40%) [14]; Temperature Tolerance 20 [20]; Vacuum Support [5].

Perks: Accessory (Microframe Computer); Accessory (Micromanipulation Tools); Accessory (Molecular Manipulation Tools) [3].

Disadvantages: Cybershell Body [-15]; Mistaken Identity [-5]; One Arm (Mitigator, Half Ground Move, -60%) [-8]; Restricted Diet (Very Common, power cells) [-10].

Note: The bush robot's limbs can be used as arms and legs interchangeably. Hence, it can use its full ground move while using one arm, use two arms while moving slowly on a single complex limb, or employ three arms with full effect while stationary or floating in space – hence the peculiar combination of advantages and disadvantages. In addition, all of its arms have the Extra-Flexible enhancement, costing 5 points per arm for the standard two.

Bush robots are rare and visually standardized, with a slightly odd history, all of which sometimes leads to confusion between individuals; hence, they qualify for Mistaken Identity.

Buzzbot

p. TS121: -15 points

Attribute Modifiers: ST-7 [-70]; HT+1 [10].
Secondary Characteristic Modifiers: SM -2.
Advantages: Absolute Direction (Requires Signal, -20%) [4]; Damage Resistance 2 (Can't Wear Armor, -40%) [6]; Filter Lungs [5]; Flight (Temporary Disadvantage, Noisy 2, -4%) [39]; Infravision [10]; Machine [25]; Telecommunication (Cable Jack; Video, +40%) [7]; Telecommunication (Laser Communication) [15]; Telecommunication (Radio; Video, +40%) [14]; Telescopic Vision 2 [10]; Temperature Tolerance 3 [3].
Disadvantages: Cybershell Body [-15]; Increased Consumption 3 (Requires refueling, 1 hour endurance) [-30]; Maintenance (Electronics Repair and Mechanic skills, 2 people, Monthly) [-4]; No Legs (Aerial) [0]; No Sense of Smell/Taste [-5]; One Arm [-20]; Restricted Diet (Common, any one hydrocarbon fuel) [-20].
Perks: Accessory (Tiny Computer) [1].
Features: Individuals of the same model closely resemble each other.

Variants

*Newshawk (see **Personnel Files**, p. 61):* A variant with superior telescopic camera lenses and parabolic microphones, generally used for news-gathering purposes. Change Telescopic Vision to level 6 [30] and add Parabolic Hearing 2 [8]. *13 points* ($820, 5 lbs.).

*Wotatech Combat Buzzbot (see **Personnel Files**, p. 63):* A light-military-duties variant with light-enhancing polarized optics and a mounting point for a light weapon (usually a micro-missile pod, but virtually any pistol-sized weapon is possible without encumbering the buzzbot significantly). Add Extra Arm (Weapon Mount, -80%) [2], Night Vision 9 [9], Protected Sense (Vision) [5], and Perk (IFF transponder) [1]. *2 points* ($620, 5 lbs., plus the cost and weight of any weapon installed).

Cryobot

p. TS122: 378 points

Attribute Modifiers: ST+1 [10]; HT+3 [30].
Secondary Characteristic Modifiers: HP+5 [10].
Advantages: Amphibious [10]; Damage Resistance 30 (Can't Wear Armor, -40%) [90]; Doesn't Breathe [20]; Doesn't Eat or Drink [10]; Enhanced Move (Water) 1 [20]; Extra Arms 1 (Extra-Flexible, +50%; Only in water or zero-G, -50%) [10]; Extra-Flexible Arms (see note) [10]; Extra Legs (three total) [5]; High Manual Dexterity 4 [20]; Machine [25]; Microscopic Vision 3 [15]; Permeation (Ice; Tunnel, +40%; Very slow, move only 1 yard/20 seconds, -70%) [7]; Pressure Support 3 [15]; Radiation Tolerance 1,000 [45]; Scanning Sense (Sonar; Targeting, +20%) [24]; Sealed [15]; Sensitive Touch [10]; Telecommunication (Cable Jack; Video, +40%) [7]; Telecommunication (Laser Communication; Video, +40%) [21]; Temperature Tolerance 25 [25]; Vacuum Support [5].
Perks: Accessory (Microframe Computer); Accessory (Micromanipulation Tools) [2].
Disadvantages: Blindness [-50]; Cybershell Body [-15]; Maintenance (Electronics Repair and Mechanic skills, 2 people, Monthly) [-4]; No Fine Manipulators (Becomes One Arm if moving at half ground move and eliminated completely in water or zero-G, -70%) [-9]; No Sense of Smell/Taste [-5].
Features: Individuals of the same model closely resemble each other.

Notes: The cryobot can use all three limbs for manipulation when in water, walk around on all three, or use one as an arm and thereby count as having temporarily lost one of its legs (reducing its move by 50%) – hence the peculiar combination of advantages and disadvantages. In addition, all three of its limbs have the Extra-Flexible enhancement, costing 5 points per arm for the standard two.

The cryobot uses sonar instead of vision; this is sensitive enough to use in combat if necessary. It can transmit sonar images through Telecommunication that resolve as visual images on standard video reception equipment. Lastly, its Maintenance requirement encompasses the occasional need to refuel its radiothermal generator.

Cyberdoc

p. TS122: 232 points

Attribute Modifiers: ST+1 [10]; HT+2 [20].
Secondary Characteristic Modifiers: HP+3 [6].
Advantages: Ambidexterity [5]; Claws (Sharp Claws) [5]; Damage Resistance 5 (Can't Wear Armor, -40%) [15]; Discriminatory Taste [10]; Doesn't Breathe [20]; High Manual Dexterity 6 [30]; Extra Arms 3 (Foot Manipulators, -30%) [21]; Machine [25]; Microscopic Vision 3 [15]; Pressure Support 1 [5]; Reduced Consumption 3 (Recharge/refuel once a week) [6]; Sealed [15]; Sensitive Touch [10]; Telecommunication (Cable Jack) [5]; Telecommunication (Infrared Communication) [10]; Telecommunication (Radio; Video, +40%) [14]; Temperature Tolerance 3 [3]; Vacuum Support [5].
Perks: Accessory (Drug synthesis and dispensing systems); Accessory (Integral respiratory support – can keep a single patient breathing while remaining stationary); Accessory (Microframe Computer); Accessory (Micromanipulation Tools); Accessory (Ultrasound scanner); Sanitized Metabolism [6].
Disadvantages: Cybershell Body [-15]; Maintenance (Electronics Repair and Mechanic skills, 2 people, Monthly) [-4]; Restricted Diet (Very Common, power cells) [-10].
Features: Individuals of the same model closely resemble each other.

Cyberdoll

p. TS122: 127 points

Attribute Modifiers: ST+2 [20]; HT+2 [20].
Secondary Characteristic Modifiers: HP+3 [6].
Advantages: Absolute Direction (Requires Signal, -20%) [4]; Damage Resistance 2 (Flexible, -20%) [8]; Doesn't Breathe [20]; Handsome/Beautiful (Off-the-shelf looks, -50%) [6]; Machine [25]; Reduced Consumption 3 (Recharge/refuel once a week) [6]; Telecommunication (Cable Jack; Sensie, +80%) [9]; Telecommunication (Infrared Communication) [10]; Telecommunication (Radio; Sensie, +80%) [18].
Perks: Accessory (Small or Compact Microframe Computer); Sanitized Metabolism [2].
Disadvantages: Cybershell Body [-15]; Restricted Diet (Very Common, power cells) [-10].
Quirks: Has a Neck Hit Location, but no special vulnerabilities there; Resembles a human until inspected closely (Prevents fully effective long-term disguise, but can still lead to a hostile reaction from people who find that they've been deceived, even accidentally) [-2].
Features: Individuals of the same production run often resemble each other.

Note: As a cybershell, the Cyberdoll has Injury Tolerance (No Neck), despite the fact that it has a human-like shape with a physical neck. It cannot be choked or strangled, and blows to its neck do no special damage (treat them as ordinary torso hits). However, the neck location may be left exposed by some partial-coverage armor, and although severing its head doesn't automatically "kill" it – the main computer is in the torso – it will detach several of the machine's sensors; hence, this merits a quirk.

Variants

Clockwork Souls Custom (p. TS122): Delete Off-The-Shelf Looks and the "often resemble each other" feature. *133 points*.

Infiltration Android (p. TS122): Increase HP to +8 [16] and Damage Resistance to 10 (Flexible, -20%) [40], and add DX+2 [40], Per+3 [15], Basic Speed+2.0 [40], High Pain Threshold [10], Payload 1 [1], Perfect Balance [15], and Protected Sense (Vision) [5]. *295 points*.

Humaniform

See *Broken Dreams*, p. 123: 12 points

Attribute Modifiers: ST-1 [-10].
Secondary Characteristic Modifiers: HP+1 [2].
Advantages: Damage Resistance 3 (Flexible, -20%) [12]; Machine [25]; Telecommunication (Cable Jack) [5]; Telecommunication (Radio; Video, +40%) [14]; Temperature Tolerance 3 [3].
Perks: Accessory (Small or Microframe Computer) [1].
Disadvantages: Cybershell Body [-15]; Maintenance (Electronics Repair and Mechanic skills, 2 people, Monthly) [-4]; Restricted Diet (Common, any one hydrocarbon fuel) [-20].
Quirks: Has a Neck Hit Location, but no special vulnerabilities there [-1].
Features: Individuals of the same production run often resemble each other.

Note: See the note for the Cyberdoll regarding this cybershell's quirk. Costs $4,000 + computer, 5' 8" tall, 150 lbs.

Variants

Motion Capture Mannequin: A Humaniform model designed for InVid production motion capture work, "cyberdance" performances, etc.. Change ST to -3 [-30], and add DX+1 [20], Flexibility [5], and Perfect Balance [15]; computer installed must be Small. *32 points* ($6,000, 110 lbs.).

Microframe/Mainframe/Macroframe

p. TS122: -136/-128/-104 points

Attribute Modifiers: ST-10 [-100]; HT+2 [20].
Secondary Characteristic Modifiers: HP+8/+12/+30 (Macroframe has Size, -20%) [16/24/48]; SM -3/0/+2.
Advantages: Damage Resistance 5 (Can't Wear Armor, -40%) [15]; Doesn't Breathe [20]; Machine [25]; Telecommunication (Cable Jack; Sensie, +80%) [9]; Telecommunication (Infrared Communication) [10]; Telecommunication (Radio; Sensie, +80%) [18].
Perks: Accessory (Computer) [1].
Disadvantages: Cybershell Body [-15]; Increased Consumption 4 (1/2 hour endurance if detached from power) [-40]; No Legs (Sessile) [-50]; No Manipulators [-50]; No Sense of Smell/Taste [-5]; Restricted Diet (Very Common, electrical power supply) [-10].
Features: Individuals of the same model closely resemble each other.

Note: Computers of these types generally draw power from permanent connections to some kind of socket. However, they have small internal power reserves to enable them to survive brief power outages.

Variants

Dumbshell Case: Static computers in 2100 generally have "semi-smart matter" casings with contact sensitivity, enabling the controlling software to monitor events in their vicinity, complain about users leaving coffee cups on them, etc. – but some still come with dirt-cheap "dumb matter" boxes. Add Numb [-20].

Modded Case: A few slightly eccentric AIs regard idiosyncratic casing designs as a form of body art. (Of course, they have to hire or persuade someone to do the work, or get hold of a teleoperated mobile cybershell.) Delete the second feature; adds at least $10/$50/$100 to cost (and sometimes much more). Some manage to acquire variations in their Appearance Level . . .

Wanderbox: Computers in laboratories and other controlled environments are occasionally given limited mobility for convenience (sometimes as an *ad hoc* modification by lab assistants). Change Increased Consumption to level 3 (1 hour endurance) [-30], add Lifting ST +2/+6/+13 (Size, -20%, for Macroframe only) [6/18/31], and Replace No Legs (Sessile) with No Legs (Tracked or Wheeled) [-20]. Many wanderboxes have reduced Basic Move. Add +46/+58/+71 points, $10/$40/$100 to cost, and 20% to weight.

Mobile Helmet

p. TS123: 189 points

Attribute Modifiers: ST-6 [-60]; HT+2 [20].

Secondary Characteristic Modifiers: HP+2 [4]; SM -2.

Advantages: Ambidexterity [5]; Compartmentalized Mind (Dedicated Controls) 1 [10]; Damage Resistance 25 (Can't Wear Armor, -40%) [75]; Doesn't Breathe [20]; Flight (Newtonian Space Flight, +25%; Space Flight Only, -75%) [20]; Hyperspectral Vision [25]; Pressure Support 2 [10]; Protected Sense (Vision) [5]; Machine [25]; Radiation Tolerance 5 [10]; Reduced Consumption 3 (Recharge/refuel once a week) [6]; Sealed [15]; Telecommunication (Cable Jack; Video, +40%) [7]; Telecommunication (Infrared Communication) [10]; Telecommunication (Radio; Video, +40%) [14]; Temperature Tolerance 5 [5]; Vacuum Support [5].

Perks: Accessory (Small Computer); Can latch onto standard spacesuits and provide wearer's head with own full DR and vacuum protection [2].

Disadvantages: Cybershell Body [-15]; Maintenance (Electronics Repair and Mechanic skills, 2 people, Monthly) [-4]; Restricted Diet (Very Common, power cells) [-10]; Semi-Upright [-5]; Short Arms (see note) [-10].

Features: Individuals of the same model closely resemble each other.

Notes: The Dedicated Controls advantage reflects the fact that the wearer can use the helmet's sensors, radio, and vision protection. The Semi-Upright disadvantage reflects the fact that (like a semi-upright creature), the helmet normally uses all four limbs when moving on the ground, but can swivel into an alternative posture to use two of them as arms, and can still walk, albeit slowly, at these times. The Short Arms disadvantage represents the Short limitation applied to the standard two arms.

Polypede

p. TS123: 419 points

This modular cybershell has four substantially different configurations. The following partial template represents the common features of all four, and costs 326 points:

Attribute Modifiers: ST+12 (Size -10%) [108]; HT+2 [20].

Secondary Characteristic Modifiers: SM +1.

Advantages: Absolute Direction (Requires Signal, -20%) [4]; Ambidexterity [5]; Damage Resistance 40 (Can't Wear Armor, -40%) [120]; Doesn't Breathe [20]; Machine [25]; Pressure Support 2 [10]; Radiation Tolerance 2 [5]; Reduced Consumption 3 (Recharge/refuel once a week) [6]; Sealed [15]; Telecommunication (Cable Jack; Video, +40%) [7]; Telecommunication (Radio; Video, +40%) [14]; Temperature Tolerance 5 [5]; Vacuum Support [5].

Perks: Accessory (Distributed Microframe Computer) [1].

Disadvantages: Cybershell Body [-15]; Maintenance (Electronics Repair and Mechanic skills, 2 people, Monthly) [-4]; No Sense of Smell/Taste [-5]; Restricted Diet (Common, any one hydrocarbon fuel) [-20].

Features: Individuals of the same model closely resemble each other.

The following represents the polypede's usual form (and various essentially similar configurations), with the listed point cost.

"Spider"

Add Enhanced Move (Ground) 1/2 [10], Extra-Flexible Arms (the Extra-Flexible enhancement applied to the standard two arms) [10], Extra Legs (6 legs) [10], and Shapeshifting (Alternate Form; Three forms, all less powerful; Reduced Time 2, +40%) [63].

The polypede's alternate forms are as follows:

Rolling Hoop

316 points

Add Enhanced Move (Ground) 2 [40], No Legs (Rolls) [0], and No Manipulators [-50].

Tunneling Worm

346 points

Add Tunneling (Move 1) [35], No Legs (Slithers) [0], One Arm [-20], and apply the enhancement Extra-Flexible (+50%) to the form's single arm [5].

Work Arm

301 points

Add No Legs (Sessile) [-50] and One Arm [-20], and apply the enhancements Extra-Flexible (+50%) and Long 4 (+400%) to the form's single arm, giving +5 hexes to reach [45]. Note that the polypede must have somewhere solid to anchor itself before adopting this form.

RATS

p. TS124: 519 points

Attribute Modifiers: ST+1 (Size -10%) [9]; DX+2 [40]; HT+2 [20].

Secondary Characteristic Modifiers: HP+4 [8]; SM +1.

Advantages: Absolute Direction [5]; Acute Senses (Hearing) 3 [6]; Chameleon 4 (Extended, Infrared, +20%) [24]; Claws (Sharp Claws) [5]; Damage Resistance 60 (Electromagnetic, +20%; Can't Wear Armor, -40%) [240]; Doesn't Breathe [20]; Enhanced Move (Ground) 1 [20], Extra Legs (4 legs) [5]; High Pain Threshold [10]; Infravision [10]; Machine [25]; Payload 5 [5]; Pressure Support 2 [10]; Protected Sense (Vision) [5]; Radiation Tolerance 5 [10]; Reduced Consumption 3 (Recharge/refuel once a week) [6]; Resistant to Electrical Pulses and Surges (+8) [2]; Sealed [15]; Silence 1 [5]; Spines (Short Spines) [1]; Telecommunication (Cable Jack; Video, +40%) [7]; Telecommunication (Laser Communication) [15]; Telecommunication (Radio; Secure, +20%; Video, +40%) [16]; Temperature Tolerance 10 [10]; Tunneling (Move 1; Loose soil only, -50%) [18]; Vacuum Support [5]; Vibration Sense [10].

Perks: Accessory (IFF transponder); Accessory (Microframe Computer) [2].

Disadvantages: Cybershell Body [-15]; Maintenance (Electronics Repair and Mechanic skills, 2 people, Weekly) [-10]; Restricted Diet (Common, high-energy power cells) [-20]; Short Arms (see note) [-10]; Social Stigma (Monster) [-15].

Features: Individuals of the same model closely resemble each other.

Notes: The RATS typically carries a 10mm PDW and a 30mm micro-missile pod in its Payload space, which includes a weapon port, though other configurations (up to 12 lbs. in weight, given ST 11) are possible. The listed monetary cost of the cybershell includes these two weapons. The Short Arms disadvantage represents the Short limitation applied to the standard two arms.

Snakebot

p. TS124: 243 points

Attribute Modifiers: DX+3 [60]; HT+2 [20].

Secondary Characteristic Modifiers: Per+1 [5].

Advantages: Absolute Direction [5]; Damage Resistance 12 (Can't Wear Armor, -40%) [36]; Doesn't Breathe [20]; Double-Jointed [15]; Enhanced Move (Ground) 1.5 (Takes one second to become hoop or turn back, -5%; Temporary Disadvantage, One Arm becomes No Manipulators, -30%) [20]; Infravision [10]; Machine [25]; Pressure Support 2 [10]; Reduced Consumption 3 (Recharge/refuel once a week) [6]; Sealed [15]; Telecommunication (Cable Jack; Video, +40%) [7]; Telecommunication (Laser Communication) [15]; Telecommunication (Radio; Video, +40%) [14]; Temperature Tolerance 5 [5]; Tunneling (Move 1; Loose soil only, -50%) [18]; Vacuum Support [5].

Perks: Accessory (Small Computer) [1].

Disadvantages: Cybershell Body [-15]; Invertebrate [-20]; Maintenance (Electronics Repair and Mechanic skills, 2 people, Monthly) [-4]; No Legs (Slithers/Rolls) [0]; One Arm [-20]; Restricted Diet (Very Common, power cells) [-10].

Features: Individuals of the same model closely resemble each other.

Variants

Combat Naga (p. TS124): Change Damage Resistance to Damage Resistance 25 (Laminate, +10%; Can't Wear Armor, -40%) [88], add Chameleon 2 (Extended, Infrared, +20%) [12], Extra Arm (Weapon Mount, -80%) [2], High Pain Threshold [10], Resistant to Electrical Pulses and Surges (+3) [1], Perk (IFF transponder) [1], and Social Stigma (Monster) [-15]. The Combat Naga typically carries a 10mm PDW or a police armgun; one of these is included in the cash price. *306 points*.

UCAV

p. TS124: 792 points

Attribute Modifiers: ST+6 (No Fine Manipulators, -40%; Size, -20%) [24]; HT+2 [20].

Secondary Characteristic Modifiers: HP+9 (Size, -20%) [16]; SM +2.

Advantages: 360° Vision [25]; 3D Spatial Sense [10]; Chameleon 6 (Extended, Infrared and Radar, +40%) [42]; Damage Resistance 100 (Can't Wear Armor, -40%) [300]; Doesn't Breathe [20]; Flight (Winged, -25%; Temporary Disadvantage, Noisy 5, -10%) [26]; Enhanced Move (Air) 6 [120]; High Pain Threshold [10]; Hyperspectral Vision [25]; Injury Tolerance (No Brain) [5]; Machine [25]; Payload 130 [130]; Radiation Tolerance 10 [15]; Resistant to Acceleration (+8) [2]; Resistant to Electrical Pulses and Surges (+8) [2]; Sealed [15]; Telecommunication (Cable Jack; Video, +40%) [7]; Telecommunication (Laser Communication) [15]; Telecommunication (Radio; Secure, +20%; Video, +40%) [16]; Telescopic Vision 12 [60]; Temperature Tolerance 20 [20].

Perks: Accessory (IFF transponder); Accessory (Microframe Computer) [2].

Disadvantages: Cybershell Body [-15]; Increased Consumption 1 (Requires refueling, 4 hour endurance) [-10]; Maintenance (Multiple technical skills, 3-5 people, Weekly) [-15]; No Legs (Wheeled) [-20]; No Manipulators [-50]; No Sense of Smell/Taste [-5]; Restricted Diet (Occasional, jet fuel) [-30]; Social Stigma (Monster) [-15].

Features: Individuals of the same model closely resemble each other.

Notes: This UCAV's payload space is typically loaded with a 15mm emag cannon with 400 rounds (firing through a weapon port) and 200 lbs. of bombs or missiles. The cash price includes the former.

Because fuel is the primary constraint, the UCAV's actual endurance is somewhat variable around the nominal four hours; it can keep going for a good six hours at low speeds, but flying at top speed, it generally has to return to base every two hours or so. This can be treated as a special effect.

Virtual Interface Implant

p. TS125: -100 points

Attribute Modifiers: ST-10 [-100]; HT+4 [40].

Secondary Characteristic Modifiers: HP+1 [2]; SM -9 (standard VII)/-7 (Distributed VII).

Advantages: Absolute Direction (Requires Signal, -20%) [4]; Compartmentalized Mind (Dedicated Controls) 1 [10]; Damage Resistance 5 (Can't Wear Armor, -40%) [15]; Doesn't Breathe [20]; Machine [25]; Mind Reading (Limited reading ability, -10%; "Wearer" only, -70%) [6]; Telecommunication (Cable Jack; Sensie, +80%) [9]; Telecommunication (Radio; Video, +40%; Reduced Range, 1/10, -30%;) [11].

Perks: Accessory (Tiny or Small Compact Computer); Can monitor "wearer's" basic metabolic/medical state; Can feed speech and sensory inputs direct into wearer's nervous system [3].

Disadvantages: Cybershell Body [-15]; Increased Consumption 4 (1/2 hour endurance if detached from power source) [-40]; No Legs (Portable) [-30]; No Manipulators [-50]; Restricted Diet (Very Common, battery/human bioelectricity) [-10].

Features: Uses the wearer's senses.

Note: The VII's Mind Reading advantage represents its ability to pick up anything that the "wearer" says or subvocalizes, and a limited ability to interpret surface thought processes. It cannot actually read *thoughts* (hence the limitation), but it is hard for wearers to avoid subvocalizing or otherwise giving a lot away; this is represented by the normal IQ vs. Will contest to use the advantage on an unwilling subject. It can also monitor some of his metabolic functions (represented by a perk). The Dedicated Controls advantage represents the fact that the wearer can use the implant's communications systems.

Its external senses are "borrowed" directly from the wearer's nervous system. Of course, this means that he can shut them off by shutting his eyes, blocking his ears, and so on, and it suffers from any and all temporary or permanent sensory

impairments that affect him. However, the implant's controlling AI is automatically aware of everything that the wearer sees, hears, feels, etc., which can be useful – so this is treated as a zero-point feature.

These devices draw most of the little power they require electrochemically from the organic bodies in which they are implanted. They also have small internal power cells to cover emergencies or special requirements, but if removed from the body, they soon go inert until connected to an alternative power supply.

Variants

Military-Grade Implant: A Distributed VII with a superior, secure radio and sensory overload protection, typically issued to military or security personnel. Change the radio to Telecommunication (Radio; Secure, +20%; Video, +40%; Reduced Range, 1/5, -20%;) [14] and add High Pain Threshold [10]. A VII of this type costs $2,500, plus $4,000 for surgery, plus the cost of a small compact computer. *-87 points*.

Puppeteer Implant (p. TS125): The "wearer" can be treated as an Ally with the Minion enhancement or a Dependent (or both), and a Puppet. He will thus owe the infomorph an Involuntary Duty.

Volkspider

p. TS125: 70 points

Attribute Modifiers: ST-2 [-20]; HT+1 [10].
Secondary Characteristic Modifiers: HP-2 [-4]; SM -3.
Advantages: Clinging [20]; Damage Resistance 3 (Can't Wear Armor, -40%) [9]; Doesn't Breathe [20]; Extra Legs (6 legs) [10]; Infravision [10]; Machine [25]; Reduced Consumption 3 (Recharge/refuel once a week) [6]; Telecommunication (Cable Jack; Video, +40%) [7]; Telecommunication (Infrared Communication) [10]; Telecommunication (Radio; Video, +40%) [14]; Temperature Tolerance 2 [2].
Perks: Accessory (Small Computer) [1].
Disadvantages: Colorblindness [-10]; Cybershell Body [-15]; No Sense of Smell/Taste [-5]; Restricted Diet (Very Common, power cells) [-10]; Short Arms (see note) [-10].
Features: Individuals of the same model closely resemble each other.

Note: The Short Arms disadvantage represents the Short limitation applied to the standard two arms.

Variants

Domestibot: Typical of the housekeeping spiders often found in well-off households. Change SM to -2 and Reduced Consumption to level 2 (Recharge/refuel once a day) [4]; add Payload 5 [5] and the perks Accessory (Domestic cleaning tools) and Accessory (Refrigeration system in payload bay) [2]; and delete Colorblindness. *85 points* ($5,500, 35 lbs.).

Securibot: A low-cost but serviceable cybershell of a type sometimes used by impecunious Fourth Wave police departments and private security companies. Change SM to -2, Damage Resistance to 10 (Can't Wear Armor, -40%) [30], and Reduced Consumption to level 2 (Recharge/refuel once a day) [4]; add Basic Move+2 [10], Extra Arms 1 (Weapon Mount, -80%) [2], Protected Sense (Vision) [5], and Sealed [15]; and delete Colorblindness and Short Arms. Police models often add an Accessory perk (sirens and/or lights); many units, especially in military service, have Accessory (IFF transponder). Either adds 1 point to the cost. *141 points* ($8,000, 40 lbs.).

Tech-Spider (p. TS125): Change SM to -2, Damage Resistance to 12 (Can't Wear Armor, -40%) [36], and Temperature Tolerance to level 7 [7]; add Claws (Sharp Claws) [5] (retractable cutting blades), High Manual Dexterity 4 [20], Microscopic Vision 3 [15], Pressure Support 1 [5], Protected Sense (Vision) [5], Radiation Tolerance 5 [10], Sealed [15], Sensitive Touch [10], Vacuum Support [5], and the perks Accessory (Built-in multi-purpose toolkit) and Accessory (Micromanipulation Tools) [2]; and delete Short Arms. *204 points*.

Wearable Virtual Interface

p. TS125: -42 points

Attribute Modifiers: ST-10 [-100]; HT+2 [20].
Secondary Characteristic Modifiers: HP+1 [2]; SM -6.
Advantages: Absolute Direction (Requires Signal, -20%) [4]; Compartmentalized Mind (Dedicated Controls) 1 [10]; Damage Resistance 5 (Can't Wear Armor, -40%) [15]; Doesn't Breathe [20]; Machine [25]; Night Vision 7 [7]; Protected Sense (Vision) [5]; Pressure Support 1 [5]; Reduced Consumption 3 (Recharge/refuel once a week) [6]; Sealed [15]; Telecommunication (Cable Jack; Video, +40%) [7]; Telecommunication (Infrared Communication) [10]; Telecommunication (Radio; Video, +40%) [14]; Temperature Tolerance 2 [2].
Perks: Accessory (Tiny or Small Computer) [1].
Disadvantages: Cybershell Body [-15]; No Legs (Portable) [-30]; No Manipulators [-50]; No Sense of Smell/Taste [-5]; Restricted Diet (Very Common, power cells) [-10].
Features: Individuals of the same model closely resemble each other.

Note: The Dedicated Controls advantage represents the fact that the wearer can use the wearable's radio, senses, and vision protection.

Variants

Full Helmet: VIG-style systems are often built into helmets; see p. TS160. Depending on whether the helmet is a light, medium, or heavy model, change Damage Resistance to 20/40/60 (Can't Wear Armor, -40%) [60/120/180] and Pressure Support to level 2 [10], and add Vacuum Support [5] and the Perk "Can latch onto standard spacesuits and provide wearer's head with own full DR and vacuum protection" [1]; Size Modifier becomes -2. Cash price is $500 + price of a normal helmet + price of the computer installed; weight is as for the helmet. Many models also add additional sensory enhancements (cost as p. TS151). *14/74/134 points + any additional features.*

Printed DVI (p. TS126): Damage Resistance gains the limitation "Only against crushing damage" for -40%, reducing the cost to 5 points. *-52 points*.

Ruggedized Portable: A small portable computer in a robust casing, capable of linking to a VI display in a monocle, "sunglasses," or other equipment, and screened against electromagnetic effects – used for military applications, and also by some civilian workers in extreme environments. Change HP to HP+3 [6], Damage Resistance to 10 (Can't Wear Armor, -40%) [30] and Pressure Support to 2 [10], add High Pain Threshold [10], Resistant to Electrical Pulses and Surges (+3) [1], and Vacuum Support [5]. *-2 points, costs $1,500 + computer.*

Bioshells

Bioshell Template

p. TS126: 31 points

Advantages: Absolute Direction (Requires Signal, -20%) [4]; Immunity to Metabolic Hazards (Partial, Skull hit locations only, -70%) [9]; Telecommunication (Cable Jack; Sensie, +80%) [9]; Telecommunication (Radio; Sensie, +80%) [18].

Perks: Accessory (Tiny or Small Compact Computer) [1].

Disadvantages: Bioroid Body [-4]; Electrical (Partial, Skull hit locations only, -70%) [-6].

Note: The bioshell's immunity extends to brain infections, psychotropic agents, jet lag, etc.; however, anything which affects other parts of the body will still have an effect (possibly reduced if its primary effect is on the brain – GM's option).

Variants

When combining this with a racial template, drop any IQ modifier and any mental advantages or disadvantages.

Intrusion Variant: A bioshell generally intended for espionage missions. Add the Secure option to Telecommunication (Radio), increasing the cost to 22 points, delete Telecommunication (Cable Jack), and change Bioroid Body to Concealed Bioroid Body [-5]. *25 points* ($70,000).

Converting Existing Campaigns

Gamers wishing to upgrade campaigns from 3e to 4e should have little trouble, although converting characters may take a little while. It's better to try and convert the "feel" of the character than attempt a detail-for-detail conversion. For example, many characters with a good knowledge of how some area of society works should gain Current Affairs skill, which had no direct equivalent in 3e; it may replace or complement some kind of Area Knowledge. Also, in some cases, where characters had high IQ or DX simply to make them "cost-efficient" and competent in a set of closely related skills, a better representation of the character concept might involve reducing the attribute and adding a level or two of an appropriate Talent.

Changed Point Values

After PCs have been converted (including updating the point costs of any of their Allies who have also changed), the results may be a fairly radical change from their previous point values. In most cases, values will increase, though some may actually fall. Characters who started with similar point values may now vary widely.

One valid option is to ignore these divergences. Characters of varied nominal point values can adventure together, and point values in ***Transhuman Space*** can be highly variable. See "Mutable Point Totals," p. 17.

However, some players and GMs may be unhappy with this on principle; if campaigns start with equal-value PCs, presumably to ensure that everyone has an equal chance to shine in play, such divergences may seem to indicate a problem. Hence, the GM may wish to equalize the new point values.

This is a matter of judgment, but it's usually much better to equalize UP, rather than down. Players who see their characters squeezed and diminished will resent it! There are two ways to accomplish this. In either case, begin by calculating how many points each PC has gained in the conversion process. For example, three characters, worth 210, 223, and 245 points may now be worth 231, 268, and 272 points, so they've gained 21, 45, and 27 points respectively. The objective is to equalize the net benefit; this means giving the first character another 24 points, and the third 18.

The quick way is to immediately give everyone else enough "bonus points" that they benefit as much as whoever gained the most. The players can spend these points as they like, but should be discouraged from doing anything that will distort or radically transform the PCs – a point or two on attributes or existing skills, slightly better appearance frequency for Allies or Patrons, and such marginal but useful additions, are probably best. Optionally, you can then give everyone another 3-8 bonus points or so, to help round the characters out and give all the players the fun of making some character improvement choices. This can distort the game a little, but solves the problem immediately. The slow way is to award bonus points to the "trailing" characters at a slightly higher rate, or to let them gain benefits with a point value – for example, they could be allowed to acquire infomorph Allies or useful biomods at a low cash cost. This requires some bookkeeping, but avoids too many weird character distortions.

Chapter Four
GURPS 4e Update: Technology

Three of the intruders had assault pods trained on the captain, and all three had that faraway look in their eyes. The captain guessed that they were on brainbugs. Or maybe the xox cult didn't need to bother with those.

"Talk to me, Smith," he subvocalized, hoping that the carefully designed area radio screen was holding.

"Total 10 intruders. One leader, four on roving patrol, two trying to get into your air car."

"Are they going to succeed?"

"One of them is a tech-spider, and it's just loaded an intrusion skill set. It'll take a while, but yes."

"Okay, so you should have time. Download to the car and get ready to move."

"I don't want to leave you behind."

"I'm touched by your loyalty, but you don't have to. The car's got a MAD under the hood, three hives in the trunk, and all the software you'll need to use them. Now go!"

This chapter provides ***GURPS** 4e* statistics for equipment and other technological material in previous ***Transhuman Space*** books, and guidelines on how to update the products of vehicle and other design systems found in those volumes. It draws heavily on the 4e supplements ***GURPS Ultra-Tech*** and ***GURPS Bio-Tech***, but modifies some details in borrowed material to fit the setting and maintain consistency with 3e ***Transhuman Space*** material.

Weapons and Equipment

Equipment is (largely) unchanged in the new edition – but the way it is handled in game terms may require some small adjustments. The game treatment of AIs in cybershells (including VIIs) as characters is covered in Chapter 3.

Legality Class

The legality class system has changed in 4e. Strategic weapons are available only to governments are LC0; tactical hardware available only to the military is LC1; tactical hardware available to police as well as the military is LC2; civilian goods that require registration are LC3; and civilian goods that require no registration but that might be used for nefarious purposes are LC4. Truly innocuous items don't need an LC rating (unless someone in power develops a weird obsession or delusion on the subject).

Where no LC is listed below for an item which had one given in 3e sources, follow the guidelines above, or assume that the old Class -1 translates to new LC0; old Class 0 translates to new LC1; old Class 1 or 2 translates to new LC2; old Class 3 or 4 translates to new LC3; and old Class 5 or 6 translates to new LC3 or 4 for weapons, 4 for other technology.

Control Ratings for societies are exactly the same in the new edition as in the old.

Software

Computer systems work much as in 3e; however, where they provide or mimic character abilities, the game mechanics may require some detail revisions.

AI Prices

The basic price for an AI is as listed on its template. *Trained* AIs cost more; $100 per character point of skills or most advantages beyond its model templates, and $800 (NAI), $6,000 (LAI), or $30,000 (SAI) per added character point spent on IQ, DX, secondary characteristics, or Talents (including Language Talent). In fact, Talents are tricky to train or program into an AI; they should only be included with explicit GM permission, which should only be given if they make some kind of logical sense. It may be possible to raise an AI's IQ while "buying back down" its Per and/or Will (but not below their original, untrained level), in which case the price is only increased by the final net point cost – but again, only with GM permission.

This extends and modifies the rule for AI prices on p. TS142; see that page for more on the subject.

Skill Sets

pp. TS144-145

These are now covered by the Modular Abilities advantage with the Computer Brain option; see p. 40 and p. B71. Replace the cost table on p. TS145 with a cost of $25 per character point for common skill programs. This may be increased for rarer skills, and doubled (or more) for obscure or legally controlled functions, at the GM's option. A program giving *two* character points in a skill or language is Complexity 3; double the (maximum) number of character points which it can give for each increase in Complexity level. So a Complexity 4 program can give 4 character points, Complexity 6 equates to 16

character points, and a Complexity 9 skill set could grant up to 128 points in a skill, at a cost of *at least* $3,200, should such a thing exist and be obtainable.

In fact, what skill sets are available on the open market is up to the GM to determine. Accounting, Driving, Research, common human languages, etc., are commonplace, and combat skills for modern weapons definitely exist, though they may be legally restricted. On the other hand, obtaining *good* skill sets for obscure fields of academic study, use of bizarre weapons, or operation of unusual vehicles could be a project in itself, and anything a PC can locate may have expensive and low quality, giving it a skill penalty.

Likewise, mental advantages range from tricky and expensive to program (Animal Empathy, Talents), to highly dubious or impossible (most of them). Most advantages aren't available as software, with specific exceptions determined by the GM – though beta-testing some programmer's attempt to encode Charisma could be an interesting adventure. Any advantages which are unavailable for characters to buy with points in the setting are unavailable as software, whatever the advertisements claim!

Communications Implants

As described on pp. TS148-150, there are a range of implanted communications devices and systems available in the ***Transhuman Space*** setting. They can be bought as the Telecommunication advantage with a variety of options and modifiers; see *Telecommunication*, p. 41. Note that some characters may have VIIs with their own communications capability built in.

The *Implant Communicator* (p. TS148) gives Telecommunication (Radio; Reduced Range, 1/10, -30%; Temporary Disadvantage, Electrical, -20%) [5]. A higher-security version might add Secure (p. 41), increasing the cost by 2 points and adding $50 to the price.

An *Implant Jack* (p. TS150) is mostly only useful if the character has other digital implants of some kind (or is himself a machine), though it can enable hands-free operation of some machinery. It gives Telecommunication (Cable Jack; Temporary Disadvantage, Electrical, -20%) [4].

Standard *Downslinks* (p. TS150) are primarily intended for entertainment and education purposes, rather than to provide usefully augmented communication capabilities. Likewise, most *Upslinks* are used simply to record sensory material. If this is their sole purpose, each should be treated as a 1-point perk; both will normally be combined with an Implant Communicator or Implant Jack (as above), or a VII. A *passive* upslink is no real advantage, and may well serve to make an Enemy Watcher much more formidable. (It can make it easier to, say, call for help – but there's no guarantee that the call will be answered, unless the monitor is bought as a Patron.)

If the slink implants are intended for more advanced use, they become a more expensive advantage. An *Augmented Sensory Link* is a high-end implanted system designed for *real-time* transmission and reception of fully-detailed sensory information. It combines both upslink and downslink implants with high-speed communication channels. In addition to other applications, when combined with a VII and Teleoperation (Direct Control) software (p. TS144), it enables the user to teleoperate advanced humanoid cybershells and bioshells so well that they can pass for normal human beings for extended periods, with completely naturalistic facial expressions, smooth responses and reactions, and so on. There are two common options here:

Cable connection: Telecommunication (Cable Jack; Sensie, +80%; Temporary Disadvantage, Electrical, -20%). 8 points, $18,000, plus $4,000 for the surgery.

Radio connection: Radio (Reduced Range, 1/10, -30%; Sensie, +80%; Temporary Disadvantage, Electrical, -20%). Note that this can also function as an ordinary radio (or transmit simple video imagery). 13 points, $18,500, plus $4,000 for the surgery.

Standard upslinks and augmented sensory links are LC4 (not generally heavily controlled, but restrictive governments like to keep an eye on all forms of publication); passive upslinks are LC3, in the sense that anyone who *installs* one had better have a good legal reason, or he'll be open to prosecution in many places. All slink implants are banned (effectively LC1) in the Caliphate and a few other regions.

Sensors

Anti-Glare (p. TS151): Equal to Protected Sense (Vision) (p. B78).

Infrared (p. TS151): Gives 10-point Infravision (p. B60).

Low-Light (p. TS151): Gives Night Vision 7 (p. B71), or Night Vision 9 for double cost.

Multiview (p. TS151): Can switch between normal vision, 10-point Infravision (p. B60), Night Vision 9 (p. B71), and Protected Sense (Vision) (p. B78).

Teleview (p. TS151): Adds 1-4 levels of Telescopic Vision (p. B92) to Multiview; add 25% to weight and cost per level.

Weaponry

Combat hasn't changed much with the new edition, but the weapon statistics do take a slightly different form. Most of the weapons detailed here are described in the ***Transhuman Space*** main book; the personal and tactical lasers are in ***Deep Beyond*** (p. 137).

GURPS Ultra-Tech for 4e provides an alternative treatment of technologies similar but not identical to those of the ***Transhuman Space*** setting. GMs may choose to use its weapons and armor tables *instead of* those in this document. Although ***Transhuman Space*** is a TL10 somewhat-radical hard SF setting, many of the weapons in use are tried and tested TL9 designs or simple refinements on those; in particular, GMs should emphasize the practical problems of laser weaponry.

Weapon Tables

All prices are as in the original ***Transhuman Space*** books. All these weapons (and hence the required skills) are TL10, although TL9 (or lower) versions of many exist, usually with slightly increased weight and reduced performance.

Beam Weapons (Pistol) (DX-4, other Beam Weapons at -4, or Guns (Pistol)-4)

Weapon	Damage	Acc	Range	Weight	RoF	Shots	ST	Bulk	Rcl	LC
Electrolaser Pistol	HT-2 aff	2	60/120	1/B	1	200(3)	3	-1	1	4
linked	1d-3 burn									
Laser Pistol, 1 kJ	2d(2) burn	6	460/920	4.8/C	3	60(3)	7	-3	1	3

See the main text notes for details of electrolaser and laser effects.

Beam Weapons (Rifle) (DX-4, other Beam Weapons at -4, or Guns (Rifle)-4)

Weapon	Damage	Acc	Range	Weight	RoF	Shots	ST	Bulk	Rcl	LC
Electrolaser Rifle	HT-4 aff	8	100/300	4.5/B	1	100(3)	5	-3	1	4
linked	1d-3 burn									
Laser Rifle, 3 kJ	2d+2(2) burn	12	1,150/2,300	12/C	1	30(3)	8	-5	1	2

See the main text notes for details of electrolaser and laser effects.

Beam Weapons (Rifle) (DX-4, other Beam Weapons at -4, or Guns (Rifle)-4) & Guns (Gyroc) (DX-4, or most other Guns at -4)

Weapon	Damage	Acc	Range	Weight	RoF	Shots	ST	Bulk	Rcl	LC
Police Armgun				5.6*				-3		2
Electrolaser	HT-4 aff	8	100/300	B*	1	100(3)	5		1	
linked	1d-3 burn									
15mm missile	6d pi++	1	500	0.1*	3	4(3i)	3		1	

* Weight in first line is for weapon; "weight" in electrolaser line is required power cell; weight in missile line is per missile.
See the main text notes for details of electrolaser effects.

Gunner (Beams) (DX-4, or other Gunner at -4)

Weapon	Damage	Acc	Range	Weight	RoF	Shots	ST	Bulk	Rcl	LC
Tactical Laser, 20 kJ	4d+2(2) burn	18	6,000/12,000	250/*	3	*	29M	-10	1	1
Light Laser, 2.5 MJ	3d×9(2) burn	18	72,000/220,000	10,000/*	1	*	*	-11	1	1
Heavy Laser, 10 MJ	6d×7(2) burn	18	100,000/500,000	37,000/*	1	*	*	-15	1	1
MADS	HT-4 aff (3 yd)	18	900/1,800	250/Dp	1	144(5)	26M	-9	1	2

* Purely vehicle-mounted weapon; uses an external power supply.
See the main text notes for details of laser and MADS effects.

Gunner (Machine Gun) (DX-4, or other Gunner at -4)

Weapon	Damage	Acc	Range	Weight	RoF	Shots	ST	Bulk	Rcl	LC
Emag Cannon, 15mm	3d×5 pi++	8	2,900/9,400	200/245p	20	750	29	-10	2	1

Guns (Gyroc) (DX-4, or most other Guns at -4)

Weapon	Damage	Acc	Range	Weight	RoF	Shots	ST	Bulk	Rcl	LC
Micro-Missile Pod	6d pi++	1	500	0.62/0.1	3	4(3i)	3	-2	1	3
Mini-Missile Pod	12d-1 pi++	2	500	3.8/0.8	3	3(3i)	5	-3	1	2

Guns (LAW) (DX-4, or most other Guns at -4)

Weapon	Damage	Acc	Range	Weight	RoF	Shots	ST	Bulk	Rcl	LC
Recoilless Rifle, 60mm	9d pi++	8	330/2,850	35/6.4	1	1(2)	11	-7	1	1

Guns (Pistol) (DX-4, or most other Guns at -2)

Weapon	Damage	Acc	Range	Weight	RoF	Shots	ST	Bulk	Rcl	LC
Pistol, 4mm	3d pi-	2	250/2,100	1.5/0.28	3	50(3)	8	-1	2	3
Pistol, 10mm	3d pi+	2	200/1,900	2.75/0.53	3	20(3)	10	-2	3	3

Continued on next page . . .

Weapon Tables (Continued)

Guns (Rifle) (DX-4, or most other Guns at -2)

Weapon	Damage	Acc	Range	Weight	RoF	Shots	ST	Bulk	Rcl	LC
AMR, 15mm	12d pi++	6	770/4,100	23/2.9	3	10	12	-6	3	1
Recoilless Rifle, 15mm	3d+1 pi++	4	200/1,900	8.5/2	3	10	7	-4	1	2

Guns (Rifle) (DX-4, or most other Guns at -2) & Guns (Gyroc) (DX-4, or most other Guns at -4)

Weapon	Damage	Acc	Range	Weight	RoF	Shots	ST	Bulk	Rcl	LC
Battle Rifle				11*				-4		1
– 5.6mm lt. auto	5d pi	3	530/3,300	1.6*	12	100(5)	10		2	
– 30mm missile	12d-1 pi++	2	500	0.8*	3	3(3i)	5		1	
Assault Pod				3*				-2		1
– 4mm lt. auto	3d+2 pi-	3	380/2,700	0.56*	12	100(5)	9		2	
– 15mm missile	6d pi++	1	500	0.1*	3	4(3i)	3		1	

* Weight in first line for each weapon is for the complete weapon; weight in subsequent lines is for ammunition.

Guns (SMG) (DX-4, or most other Guns at -2)

Weapon	Damage	Acc	Range	Weight	RoF	Shots	ST	Bulk	Rcl	LC
PDW, 4mm	3d+2 pi-	3	380/2,700	2.1/0.56	12	100(5)	8	-2	2	2
PDW, 10mm	3d pi+	4	200/1,900	5.9/1.6	12	60(5)	9	-3	3	2

Stun Weapons

An *electrolaser* has two effects. First, its laser beam inflicts 1d-3 burn damage. Smoke, fog, rain, or clouds give extra DR equal to the visibility penalty – e.g., if rain gives a penalty of -1 per 100 yards, a target at 200 yards gets an extra DR 2. The beam needn't penetrate DR to carry the shock effect.

Second, an electrolaser's shock is a HT-based affliction attack with a (2) armor divisor (i.e., each 2 DR on the location struck provides +1 to HT). Add +3 past 1/2D range. In humid conditions, the electrical bolt may jump off the laser path to paths of lower resistance. In moist, humid environments, the attack roll must be made by at least 2; in rain, drizzle, or heavy fog, it must be made by at least 6. Otherwise, the charge has jumped off the laser beam, and there is no shock effect – just the 1d-3 burn damage from the laser. In a vacuum or trace atmosphere, there is no air to ionize; the electrolaser *only* inflicts the burn damage. If the victim fails to resist, the shock stuns him. He may roll against HT every turn at the same penalty (but *without* the DR bonus) to recover. Electrolasers can affect machines with the Electrical disadvantage the same way that they affect human targets.

Electrolasers produce a "zap" sound, no louder than a silenced pistol, and the beam is visible.

A *shock glove* inflicts the same HT-2 stun affliction damage as an electrolaser pistol whenever the wearer touches, punches, or grapples an opponent.

Laser Effects

Transhuman Space laser weapons use multi-frequency/tunable beams, and do tight-beam burning damage with an armor divisor of 2. Rain, fog, smoke, snow, and similar weather or atmospheric conditions interfere with high-energy lasers, adding extra DR to the target equal to the vision penalty. Thus, if a yard of smoke would be -10 to vision, then each yard gives DR 10; if every 100 yards of haze gives -1 to vision, then a thousand yards provides DR 10.

A laser beam can pass through material transparent to its particular frequency of light, which includes most glass, plastic canopies, etc. Increase the laser's armor divisor to (10) when it strikes glasses, visors, windows, etc. unless the material was specifically designed to be laser-resistant. Mirrored surfaces are not effective protection: any laser powerful enough to inflict damage destroys the mirror, ruining its reflectivity. (This rule may be relaxed in cinematic games!)

MADS Effects

MAD beams deliver a HT-based affliction attack (modifier varying by weapon) with no armor divisor; add the target's DR to HT to resist. If he fails to resist, he suffers from the Agony affliction for as long as he is in the beam and one second afterward. MAD beams project ranged cone attacks – see *Area and Spreading Attacks* (p. B413).

Weapon and Ammunition Options

The following effects replace those described on p. TS157.

Articulated Weapon Harness: Has the same effect as a bipod (ST requirement of the weapon is reduced by 2/3 and the weapon counts as braced) but can be used while standing up or moving.

Gyrostabilized Weapon Harness: Functions as an articulated weapon harness, and also cancels penalties for walking or running while firing.

Smartgrip: Reduces the weapon's ST requirement by 1.

Stabilized Ammo: Reduce the effective range by 30% before assessing range penalties. The weapon's *actual* ranges do not increase, however. For example, a target 300 yards away is treated as if it is just 210 yards distant – but it is still beyond 1/2 damage range for a 4mm pistol.

Homing Ammo: Can be used to making Homing (Vision) attacks (p. B413). For the Aim maneuver, use the normal appropriate skill for whatever weapon you are firing (e.g. Guns (Pistol) for a pistol).

Laser Homing Ammo: As for homing, but only works if the firer is using a laser sight or designator, and receives the normal +1 bonus for a laser sight. Ineffective if the target is obscured by smoke, prismatic smoke, etc.

Gestalt Ammo: As for stabilized; also, when used for Rapid Fire attacks, increase the number of shots fired by 50% for purposes of assessing the Bonus to Hit *only*, and decrease the weapon's Recoil number by 1 when assessing how many shots hit *only*.

Armor Piercing Ammo: Treat as Armor-Piercing Hard Core (p. B279).

APS Ammo: Treat as Armor-Piercing Discarding Sabot (p. B280).

Hollow Point Ammo: As on p. B279.

HEMP Warhead: Replace the weapon's regular damage with the following:

Warhead	*Damage*
15mm	5d×2 (5) imp + linked 1d cr ex [1d-1]
30mm	6d×3 (10) cr + linked 2d cr ex [1d+1]
60mm	6d×8 (10) cr + linked 8d cr ex [3d]

Damage in brackets is cutting fragmentation damage. The main (non-explosive) damage in all cases is *incendiary* (see p. B105) – it can start secondary fires in volatile material, etc.

SEFOP Warhead: This is treated differently in 4e games.

A SEFOP projectile is a multi-purpose sensor-fused round which will detonate several feet away from and usually above the target, forging the warhead into a high-density slug that can fire *down*, attacking from overhead.

SEFOP warheads are only available for homing projectiles. If fired to overfly the target, they may choose to attack the side they are facing or the top, targeting particular hit locations (usually the head of a person or a tank turret), and ignoring cover that does not protect from above or penalties for striking prone or kneeling targets.

SEFOP warhead damage is as follows:

Warhead	*Damage*
15mm	4d+4 (2) imp
30mm	5d×3+15 (3) cr
60mm	6d×7+40 (3) cr

All damage is *incendiary* (see p. B105) – it can start secondary fires in volatile material, etc.

Armor

All armor types provide DR as in the ***Transhuman Space*** main book.

Battlesuits: The Shenyang H-23 gives 17 ST for lifting and striking purposes only; the Vosper-Babbage Centurion gives 19 in both. Use the DR and Move values on p. TS160. Note, incidentally, that battlesuit technology in the ***Transhuman Space*** universe is slightly different from that described in the upcoming 4th edition version of ***GURPS Ultra-Tech***.

MEDICAL TREATMENTS

The main issue here is with treatments that provide specific character advantages, which may have different costs under the new edition. Some minor but permanent treatments may be treated as perks. ***GURPS Bio-Tech*** may include very slightly different versions of a few of these items; GMs may choose to treat those as variants or new (or potential) developments. Certainly, minor variations are likely to exist, and can justify buying all manner of character features with points.

Biomods

Andraste (p. TS161): Gives Mars-Adapted (p. 43) [9].

Bio-Booster (p. TS161): Basic Speed +1.00 (Cardiac Stress, every minute, -30%, Costs Fatigue, 1 FP, -5%) [13], Lifting ST +3 (Cardiac Stress, every minute, -30%) [7], and Striking ST +3 (Cardiac Stress, every minute, -30%) [11]. Total 31 points.

(Cardiac Stress is a new limitation that can only be taken on an advantage that is used for a short period of time and then turned off. While in use, make HT rolls at the specified interval; a roll of 14+ always fails. Failure means loss of 1d Fatigue Points; critical failure means a heart attack – see p. B429. See ***GURPS Bio-Tech*** for details.)

Boosted Heart (p. TS161): Gives HT +1 [10], FP +1 [3], and Hard to Kill +1 [2]. Total 15 points.

Flesh Pocket (p. TS162): Gives Payload 1 [1].

Liver Upgrade (p. TS162): Gives Alcohol Tolerance [1] and Resistant to Ingested Poison (+8) [5]. Total 6 points.

No-Shock Glands (p. TS162): Gives High Pain Threshold (Limited Use, 4/day, -20%; Temporary Disadvantage, -1 DX and -1 IQ, -40%; Attribute loss continues for an extra hour after use ends, -10%) [3].

Retinal Enhancement (p. TS162): Corrects Bad Sight, or gives Acute Senses (Vision) 1 [2].

*Ruanmao (**In the Well**, p. 97):* Gives Damage Resistance 1 (Flexible, -20%) [4], Temperature Tolerance 2 [2], and Perk (Fur) [1]. Total 7 points.

*NERV Drug Regimen (**In the Well**, p. 97):* Gives DX +1 [20] and possibly Ham-Fisted (usually the -5 point version on an ordinary failed HT roll, -10 points on a critical failure).

*Testicle Tuck (**In the Well**, p. 97):* Injury Tolerance (No Vitals; Partial, Vitals, Groin only, -60%) [2]. The cheap version adds the feature Sterile.

*Guan Di (**In the Well**, p. 98):* A package of modifications that grants extra +1 ST [10] and +1 Striking ST [5]; also includes a NERV drug regimen and (for men) a testicle tuck, both as above. Total 36 points for men, 35 for women, less any side-effects of the NERV.

*Whirling Claws o' Death (**In the Well**, p. 98):* Combines a Bio-Booster, Boosted Heart, and (for men) Testicle Tuck (all as above) with +1 ST [10], +1 Lifting ST [3], +3 Striking ST [15], and Claws (Sharp Claws) [5]. Total 81 points for men, 79 for women.

*"Eunuch" (**In the Well**, p. 98):* Gives +2 IQ [40], Fearlessness 2 [4], Killjoy (Will still seek revenge, in a calm way, -20%) [-12], Low Empathy [-20], and Unnatural Feature 1 (Bulging forehead) [-1]. Total 11 points, less the value of any further disadvantages or quirks also gained, such as Callous or a Sense of Duty. Also, the level of Fearlessness gained may be greater than listed, and if the character chooses to lose all his head hair and otherwise emphasize his new bulging forehead, the level of Unnatural Feature may increase to 2 or 3.

*Andro-Womb (**Deep Beyond**, p. 121):* This should be treated simply as a feature ("Can act as a surrogate mother with extensive technological support").

*Lactonarcotic Bioreactors (**Deep Beyond**, p. 121):* This can be treated as a perk.

*Prehensile Tongue (**Deep Beyond**, p. 122):* Extra Arm 1 (Extra-Flexible, +50%; Short, -50%; Weak, 1/4 body ST, -50%; Nuisance Effect, Can't talk or eat while using tongue to hold objects, and may convey dirt or poisons to mouth, -10%) [4], plus Disturbing Voice (Severe lisp) [-10]. Total -6 points.

*Quadrupedal Retromorphosis (**Deep Beyond**, p. 122):* Enhanced Move (Ground) 1/2 [10], plus Quadruped [-35]. If the modification gives hooves rather than feet, these may qualify as a Claws (Hooves) [3]. Total -25 or -22 points.

*Venus Flytrap (**Deep Beyond**, p. 122):* Striker (Cutting; Only in severely limited circumstances, -80%) [1].

*Winged Retromorphosis (**Deep Beyond**, p. 122):* Flight (Accessibility, Only in 0.2G or less, -40%; Winged, -25%) [14]; Strikers (2; Crushing) [10]; No Fine Manipulators [-30]. Total -6 points. If given to a bioroid or parahuman with Extra Arms (Foot Manipulators), delete that and replace No Fine Manipulators with No Fine Manipulators (Only when standing up, -35%) [-20]. If given to a multi-armed being, delete the No Fine Manipulators and two of the being's Extra Arms.

*Xenostriker Biomods (**Deep Beyond**, p. 122):* Any of Claws (Blunt, Sharp, or Talons, usually Switchable, +10%), Striker (Any damage type, sometimes with Cannot Parry, Clumsy, or Weak), or Teeth (Sharp Teeth). Teeth may add Affliction 1 (Hemophilia, +30%; Follow-Up (Teeth), +0%; Only affects wounds caused by the bite, -10%) [12].

*Fisheyes (**Under Pressure**, p. 118):* Gives Nictitating Membrane 1 [1], Night Vision 5 [5], and Unnatural Feature 1 (Reflective eyes) [-1]. Total 5 points.

*Myelin Replacement (**Under Pressure**, p. 118):* Gives a perk; Immunity to Gas Narcosis [1]. ***GURPS** 4e* doesn't have rules for this danger at present; GMs can adapt those given in ***Under Pressure*** if necessary, but in any case, this biomod removes the problem. Note that Nerve Booster nanosymbionts (p. 66) also replace the recipient's myelin; a dual-purpose treatment, combining both these benefits, costs $145,000.

*Perflubron Blood (**Under Pressure**, p. 118):* Gives the bioroid +1 FP [3] and Resistant to Dissolved Gas Problems (+8) [2]. This is *the same as* Resistant to "the Bends," as mentioned in other sources; in games which allow for the dangers of gas narcosis or high pressure nervous syndrome (see ***Under Pressure***), the same resistance or immunity (with a base cost of 5 points) covers all three effects. Note also that bioroids with Pressure Support 1 have some resistance to the bends (see p. B435), but will have limited protection at best against the other problems; hence, combining these advantages, while expensive in points, may be useful for characters intended to perform deep diving missions. Total 5 points.

*Perflubron Transfusion (**Under Pressure**, p. 118):* Not a permanent modification, but provides the same protection against dissolved gas problems as perflubron blood, above, for 12 hours, and a HT+4 roll every 5 minutes to let anyone already suffering from the bends recover completely.

Nanodrugs

These work much as on p. TS163. Advantages, perks, disadvantages, quirks, and features that can be induced are as follows (those marked * must have at least long-term duration): Absent-Mindedness, Alcohol Tolerance, Attentive, Autotrance, Bad Temper, Berserk, Bestial, Blindness, Bloodlust, Chronic Pain*, Combat Paralysis, Combat Reflexes, Cowardice, Deep Sleeper*, Delusions* (see below), Dependency (some kind of high-tech drug), Draining* (needs some kind of high-tech drug), Dreamer, Eidetic Memory, Epilepsy, Fearfulness (up to 8 levels), Fearlessness (up to 6 levels), Flashbacks, FP from -5 to +5, Gullibility, High Pain Threshold, Imaginative, Incompetence (Carousing, Diplomacy, or Fast-Talk), Laziness, Lecherousness, Less Sleep* (up to 5 levels), Manic-Depressive, No Hangover*, Overconfidence, Paranoia, Per from -4 to +2, Radiation Tolerance 2*, Rapid Healing* (either level), Resistant to Acceleration or Disease (+3), Short Attention Span, Single-Minded, Slave Mentality, Social Chameleon, Sterility, Truthfulness, Unfazeable, Will from -4 to -1. Self-control rolls, where appropriate, may be set to any value when the drug is defined; if the HT roll to resist the nanodrug is missed by exactly 1, the self-control category improves by one level. (Drugs set for a self-control roll of 15 are reduced to producing a quirk-level effect.)

Nanodrugs that produce delusions may be designed to produce a general delusory state, but can't produce a specific delusion . . . unless they are administered under controlled conditions with follow-up treatments. The GM should decide on a random specific delusion for the victim to suffer. A high-end delusion drug might be set to produce a severe sense of personal power or invincibility; different victims might decide that they are immortal, that they have personal biomods that make them as strong as any other human or bioroid, that they are really a celebrity with a disguising bodysculpt, etc.

Mitigator drugs can affect anything listed above apart from secondary characteristic modifiers, and also Chronic Depression, Insomniac, Motion Sickness, Space Sickness, and some types of Terminally Ill. If a roll to resist a mitigator nanodrug is missed by exactly 1, self-control rolls may again be improved by one level, with 15 becoming a quirk. Other advantages or disadvantages may be eliminated or reduced in effect as a side effect of a drug which induces some state with which they are incompatible, or may even be *induced* as a long-term unintended side-effect, at the GM's option.

The nanodrugs listed on p. TS164 are modified as follows:

"Cry Baby!" induces Cowardice (12) [-10] and Will -1 [-5] (and so now costs $60/dose).

Metatron induces Autotrance and Social Chameleon.

Nepenthe grants Fearlessness 5. Used under medical supervision, it can act as a mitigator for Chronic Depression or Manic-Depressive.

Zero gives the user Bloodlust and Incompetence (Diplomacy), and eliminates Combat Paralysis, Honesty, and Pacifism if they are present.

Nanosymbionts

Permanent versions of many of these may grant advantages. (Ephemeral versions are simply purchased with cash.)

Artery Cleaners (p. TS165): In themselves, these grant only feature-level benefits. However, combined with other treatments (such as DNA Repair Nanosymbionts, below), they might give Longevity, or even Extended Lifespan or Unaging, perhaps with limitations.

Bacteriophages (p. TS165): Give Immunity to Known Bacteria [5].

Brain Boosters (p. TS165): Give Enhanced Time Sense [45].

Carcinophages (p. TS165): Give Immunity to Cancer [5]. They also increase lifespan as described on p. TS165; this is treated as a feature.

DNA Repair (p. TS165): Gives Regeneration (Slow; Radiation Only, -60%) [4]. They too also increase lifespan as described on p. TS165, which is treated as a feature.

Guardians (p. TS165): Give Resistant to Nanomachines (+8) [2]. Some nanomachines may *only* be resisted if the target has or receives treatment with Guardians or similar; this is essentially a feature of those nanomachines, and so doesn't add to the points cost of the Guardians.

Immune Machines (p. TS165): Give Resistant to Disease (+3 or +8) [3 or 5].

Lung Cleaners (p. TS165): Give Filter Lungs [5].

Metabolic Regulators (p. TS165): Give Metabolism Control 2 [10].

Microgravity Biochemistry (p. TS165): Gives Perk (No Degeneration in Zero-G) [1].

Nerve Boosters (p. TS165): Give +1 Basic Speed [20].

Pore Cleaners (p. TS165): These don't provide enough benefit to qualify as an advantage in themselves. However, combined with several other treatments, including Tooth Cleaners (below), they may be used to give a character the Sanitized Metabolism perk.

Respirocytes (p. TS165): Give +2 FP [6] and Doesn't Breathe (Oxygen Storage ×25, -50%) [10].

Tooth Cleaners (p. TS165): In themselves, these aren't enough to cost points – but see Pore Cleaners (above).

Virus Hunters (p. TS165): Give Immunity to Known Viruses [5].

*"AquaDude" (**Under Pressure**, p. 119):* Gives +1 FP [3] and Breath-Holding 2 [4].

*Electroreceptors (**Under Pressure**, p. 119):* Give Detect (Electrical fields) [10].

*Lateral Line (**Under Pressure**, p. 119):* Gives Vibration Sense (Water) [10].

Proteus Nanovirus

Birth Control: "Sterile after one child" now counts as a 0-point feature.

Skin Transformation: Fur in itself now counts as a 1-point perk, but it *may* also grant Damage Resistance 1 (Flexible, -20%) [4] and Temperature Tolerance 1 or 2 [1 or 2]. Very light scales are simply a feature. Spiny fur gives Perk (Fur) [1], Damage Resistance 1 (Flexible, -20%) [4], and Spines (Short Spines) [1].

Vehicles

Vehicles now tend to have significantly lower HP totals – and also, because of the new treatment of lifting ability, lower ST. In fact, ST and HP are usually set to the same value. (See *Purchasing Vehicle ST*, p. 34, for more on this.) Where vehicles have detailed statistics available – for example, as a product of the ***In the Well*** and ***Under Pressure*** modular design systems – some of these can be converted to 4e attributes. In other cases, new details just have to be estimated. Use the following guidelines:

ST/HP: Find Empty Weight (on Earth) in pounds, take the cube root, multiply by 4, and round off.

Hnd: This can only be estimated, but given the use of smart materials and refined computer controls in ***Transhuman Space***, it should generally be one or two higher than the value for a comparable TL7/8 vehicle on p. B464-5. Hence, wheeled civilian designs will usually have +1 or +2, fast surface watercraft will have +2 or +3, and light to medium aircraft (which benefit especially strongly from these advances) around +2.

SR: Equal to the vehicle's old SR in its normal environment.

HT: Use the HT determined by the vehicle design system when available. Ordinary vehicles usually have a base HT 10. Especially flimsy, inherently overloaded, or ill-engineered designs have less, while redundant systems (e.g. a twin-engine aircraft that can fly safely on one engine), internal compartmentalization, built-in damage control, etc., raise HT by a point or two. In ***Transhuman Space***, smart materials and AI-monitored systems permit quite a lot of such high-reliability engineering.

Move: Acceleration and Top Speed in yards/second are half Accel and Speed in mph.; round up.

SM: Derived from the largest dimension and general form; see p. B19. Alternatively, see the component SM values generated by the design system used, especially if attackers attempt to target specific locations.

Range: For simplicity, multiply the time at full power that the fuel tank provides by the top speed. (Realistically, more cautious driving speeds *could* extend range, but few journeys achieve optimum fuel economy.)

Note that all of the above are approximations. Some converted vehicles:

Vehicle	ST/HP	Hnd/SR	HT	Move	LWt.	Load	SM	Occ	DR	Range	Cost	Locations
Air Car	34	+2/3	12	4/200	0.7	0.4	+3	1+3	5	1,600	$100K	G4W
Off-Road Vehicle	74	+1/4	12	3/45	5.17	2.05	+3	1+3	8	2,100	$79K	G6W
Smartcar	48	+2/4	12	3/70	1.63	0.8	+2	1+3	8	1,800	$24K	G4W
Personal Aircraft	104	+2/6	10	11/803	15.3	6.50	+6	2+6	5	4,600	$5.5M	G3WWi
Light Martian Rover	57	+1/5	12	2/33	2.42	0.95	+2	2	10	1,100	$65K	G4W
Heavy Martian Rover	85	+1/5	12	2/33	7.72	2.97	+3	2+4	10	780	$125K	G6W
Hydrofoil Yacht	183	+2/6*	8	6/60	88.8	41	+7	2+8	5	8,600	$843K	g
Patrol Submarine	271	0/7	6	3/18	182.2	26.5	+6	3	605	620	$3.3M	s

* Becomes +1/7 when not planing on hydrofoils.

(The air car is described on p. TS193; the off-road vehicle, smartcar, and personal aircraft are from ***Fifth Wave***, pp. 130-132; the Martian rovers are from ***In the Well***, p. 101; the hydrofoil yacht and patrol submarine are from ***Under Pressure***, pp. 126-129.)

Note that listed Occupancy does *not* include computers with infomorphs installed, though in many cases they act as crew – in fact, as drivers – most of the time.

Spacecraft

The existing ***Transhuman Space*** spacecraft construction and combat rules can be used as they stand in 4e games; use the weapons damage listed in the 3e books for that purpose, rather than taking anything from this chapter. (Fortunately, spaceships are unlikely to be significantly damaged by much other than other ships' weapons.) Vehicle and weapons design and combat systems for 4e will become available, and will be compatible with ***Transhuman Space*** concepts, but designs will largely have to be recreated from scratch – no quick or simple conversion system can be offered here.

SM values for ships will be much the same in the new system, which may be useful for perception and so on; take the highest value for a cylinder, and add +2 for a sphere and any ship whose largest and smallest dimensions are within 25% of each other, or +1 if its second largest dimension is at least 30% of the largest.

Bioship Template

The bioship template on p. 22 of ***Spacecraft of the Solar System*** converts to 4e as follows:

Advantages: Doesn't Breathe [20]; High Pain Threshold [10]; Injury Tolerance (No Neck) [5]; Internal Hearing [4]; Internal Sight [10]; Internal Speech [5]; Internal Taste and Smell [1]; Pressure Support 2 [10]; Resistant to Acceleration (+8) [2]; Temperature Tolerance 20 [20]; Vacuum Support [5].

Perks: Sanitized Metabolism [1].

Disadvantages: Bioroid Body [-9]; No Manipulators [-50]; No Legs (Aerial) [0].

Total cost for this template is 34 points.

A bioship will usually have a high SM and accordingly high ST; it *must* purchase the Flight advantage in some form. The advantages of Internal Hearing, Sight, Speech, and Taste and Smell simply represent the bioship's ability to use these senses and abilities *inside* its own body. See ***GURPS Bio-Tech*** for more on this subject.

Appendix: Off-the-Shelf Allies

The following are some infomorphs which can be acquired off the shelf, complete with appropriate cybershells. They can make useful Allies for PCs, although some players may prefer more "experienced" or personalized systems.

All of the skills listed below can be assumed to be at TL10. However, it may sometimes be possible to acquire infomorphs trained and optimized for use in low-tech environments.

Charlesfoster-M

157 points/$57,200

ST 0 [0]; **DX** 10 [0]; **IQ** 10 [0]; **HT** 12 [0].
Damage 0; BL 0; HP 1 [0]; Will 10 [0]; Per 10 [0]; FP n/a.
Basic Speed 5.5 [0]; Basic Move 0 [0]; Dodge n/a.

Advantages: LAI-7 [102]; Modular Abilities (Computer Brain) 3 (2, 2, 2) (Limited Integration, -20%; Skills and Languages Only, -10%) [30].

Disadvantages: Wearable Virtual Interface (DVI, small genius computer) [-42].

Skills: Accounting (A) IQ+4 [16]-14; Administration (A) IQ+3 [12]-13; Computer Operation (E) IQ+3 [0]-13*; Expert Skill (Memetics) (H) IQ+1 [8]-11; Law (Commercial, for a region of the buyer's choice) (H) IQ+1 [8]-11; Merchant (A) IQ [12]-10†; Research (A) IQ+1 [4]-11; Savoir-Faire (E) IQ-3 [1]-7†; Survival (Desert) (A) IQ-1 [1]-9; Survival (Jungle) (A) IQ-1 [1]-9; Tactics (H) IQ [4]-10.

* Included in LAI template.

† Includes -3 for Low Empathy.

The Charlesfoster series of deluxe personal AIs is popular among buyers who've acquired wealth through inheritance, luck, or specific talent, without also acquiring the skills required to keep it. This release (also known as the CF-3.1) is considered the most bug-free. In addition to business skills, it's supposed to be capable of helping its wearer out of physical danger, aiding with information searches, and monitoring for memetic manipulations. But it's mostly designed to perform accounting and *routine* financial activities. Major investment advice, portfolio management, etc., are better handled by human or static AI consultants.

Variations: A surprising number of purchasers run "Charlesfoster" AIs on Virtual Interface Implants with small compact genius computers (99 points, $98,700). Stories of aging plutocrats installing similar programs on *puppet* implants in feckless offspring are probably just urban legends.

Cortez-Ghao "Faraday"

84 points/$8,900

ST 0 [0]; **DX** 10 [0]; **IQ** 9 [0]; **HT** 12 [0].
Damage 0; BL 0; HP 1 [0]; Will 10 [0]; Per 10 [0]; FP n/a.
Basic Speed 5.5 [0]; Basic Move 0 [0]; Dodge n/a.

Advantages: LAI-6 [82]; Modular Abilities (Computer Brain) 3 (2, 2, 2) (Limited Integration, -20%; Skills and Languages Only, -10%) [30].

Disadvantages: Wearable Virtual Interface (DVI, small computer) [-42].

Skills: Computer Operation (E) IQ+3 [0]-12*; Driving (Automobile) (A) DX-1 [1]-9; Electronics Operation (Communications) (A) IQ [2]-9; Electronics Operation (Sensors) (A) IQ [2]-9; Mathematics (Applied) (H) IQ [4]-9; Piloting (Vertol) (A) DX-1 [1]-9; Research (A) IQ+1 [4]-10.

* Included in LAI template.

This wearable AI is designed for technicians. It doesn't attempt to match the specialist depth that a competent human will possess; rather, it provides mathematical analysis and handle communications, data searches, or routine vehicle interfaces while its wearer gets on with an immediate task. Lacking hands, it can't use Mechanic skill sets "directly," but it may have a few knowledge databases installed to support its research functions.

Variations: NAI-based "techie" wearable systems are quite popular, as they don't always need much flexibility, but most serious users prefer a research aid with decent initiative and a grasp of colloquialisms. The same sort of program can of course be run in an implant, but putting a library of technical manuals inside one's own skull is generally considered to be the mark of a hopeless nerd.

EDI "Bhisti"

138 points/$11,300

ST 0 [0]; **DX** 10 [0]; **IQ** 9 [0]; **HT** 12 [0].
Damage 0; BL 0; HP 3 [0]; Will 10 [0]; Per 10 [0]; FP n/a.
Basic Speed 5.5 [0]; Basic Move 0 [0]; Dodge n/a.

Advantages: LAI-6 [82]; Modular Abilities (Computer Brain) 3 (2, 2, 2) (Limited Integration, -20%; Skills and Languages Only, -10%) [30].

Disadvantages: Ruggedized Portable (small computer) [-2].

Skills: Computer Operation (E) IQ+3 [0]-12*; Diagnosis (Owner) (A) IQ+3 [12]-12; Electronics Operation (Communications) (A) IQ+2 [8]-11; Electronics Operation (Sensors) (A) IQ+1 [4]-10; Savoir-Faire (Military) (E) IQ-2 [2]-7†; Soldier (A) IQ [2]-9.

* Included in LAI template.

† Includes -3 for Low Empathy.

Executive Decisions (p. TS94) issues this AI model to many of its human combat troops. A Bhisti can supervise routine communications and sensor ops (including handling "sentry duty" while the user is asleep), signal for aid if the wearer is wounded, and run skill sets. (Area Knowledge, Survival, and languages are often installed for specific missions.) EDI retains override reprogramming codes for these AIs, but commands

them to obey their assigned users. Employees are expected to develop a relationship with their AIs, so that they work together smoothly; many transfer the same program between different wearable computers according to the current mission. (Buy other cybershells, such as full helmet systems, p. 58, as "vessels," as discussed on p. 39, if necessary.)

EDI usually reclaims the system if the soldier leaves the company, although it must then be reacclimatized for the next user.

GenTech BR-Secretarial

36 points/$14,000

ST 0 [0]; **DX** 10 [0]; **IQ** 9 [0]; **HT** 14 [0].
Damage 0; BL 0; HP 1 [0]; Will 10 [0]; Per 10 [0]; FP n/a.
Basic Speed 6 [0]; Basic Move 0 [0]; Dodge n/a.
Advantages: LAI-6 [82]; Languages (any three, at Broken level) [6]; Modular Abilities (Computer Brain) 3 (2, 2, 2) (Limited Integration, -20%; Skills and Languages Only, -10%) [30].
Disadvantages: Virtual Interface Implant (small compact computer) [-100].
Skills: Administration (A) IQ [2]-9; Area Knowledge (User's home area) (E) IQ+1 [2]-10; Computer Operation (E) IQ+3 [0]-12*; Diagnosis (User) (A) IQ+3 [12]-12; Electronics Operation (Communications) (A) IQ [2]-9; Savoir-Faire (Servant) (E) IQ-1 [4]-8†; Teaching (A) IQ [2]-9.

* Included in LAI template.
† Includes -3 for Low Empathy.

GenTech developed this implant AI personality for their bioroid division, and then discovered that they could make a comfortable profit licensing it out to others. It is *not* generally the first AI installed in a newly "decanted" bioroid; that will usually be a highly specialized "trainer," optimized for the particular bioroid model. Rather, the "Secretarial" can aid a trained, competent, but narrowly focused bioroid in performing complex duties. It monitors the bioroid's health, tracks appointments and work schedules, advises on minor social niceties, and occasionally plays the stern older brother. Some bioroids become fond of their "Sec," or totally dependent on it; others regard it as a badge of servitude, and have it replaced the day they achieve independence.

An indentured or legally immature bioroid will have an AI whose programmed loyalty is to his legal guardians; the codes for this must be handed over if the bioroid achieves independence. If a bioroid has a functioning puppet implant (and most do while in training), their indenture is easy to enforce. However, even many indentured bioroids have their puppet systems disabled as they mature, as owners either use this as a symbol of trust and "graduation," or regard the things as a glaring security hole. Only the most unconfident bioroids keep puppet systems on achieving independence.

Rosario-Klein P55-J

263 points/$16,000

ST 8 [0]; **DX** 10 [0]; **IQ** 9 [0]; **HT** 11 [0].
Damage 1d-3/1d-2; BL 13; HP 6 [0]; Will 9 [0]; Per 9 [0]; FP n/a.
Basic Speed 5.25 [0]; Basic Move 7 [0]; Dodge 8; Parry 8 (Wrestling).
Advantages: LAI-6 [82]; Modular Abilities (Computer Brain) 3 (2, 2, 2) (Limited Integration, -20%; Skills and Languages Only, -10%) [30]; Securibot (small computer) [141].
Skills: Beam Weapons (Rifle) *or* Guns (Gyroc) *or* Guns (SMG), all (E) DX+2 [4]-12; Computer Operation (E) IQ+3 [0]-12*; Law (Police, for purchaser's home area) (H) IQ-2 [1]-7; Observation (A) Per-1 [1]-8; Tactics (H) IQ-1 [2]-8; Wrestling (A) DX [2]-10.

* Included in LAI template.

Notes: An implementation of the low-cost "security cybershell" concept, the P55-J may be found as partner to a human or bioroid Fourth Wave cop, assisting with security work in locations where a little real trouble seems *possible*, or even providing backup to door staff at nightclubs whose management want to project a tough image. While aggressive police forces may install a mini-missile pod on its weapons mount, private buyers tend to favor electrolasers, although mini-missiles with tangler warheads are also viable. (The cybershell may then also carry a can of anti-tangler aerosol.) A police armgun makes an acceptable compromise for some, though this requires that the AI receives additional training to use both weapon options to full effect. Space-based owners may opt for a laser rifle.

Newshawk/7-6

98 points/$2,320

ST 3 [0]; **DX** 10 [0]; **IQ** 9 [0]; **HT** 11 [0].
Damage 1d-5/1d-4; BL 1.8; HP 3 [0]; Will 9 [0]; Per 9 [0]; FP n/a.
Basic Speed 5.25 [0]; Basic Move 5 [0]; Dodge 8.
Advantages: Modular Abilities (Computer Brain) 3 (2, 2, 2) (Limited Integration, -20%; Skills and Languages Only, -10%) [30]; NAI-5 [49]; Newshawk (tiny computer) [13].
Skills: Computer Operation (E) IQ+3 [0]-12*; Photography (A) IQ+1 [4]-10; Writing (A) IQ [2]-9.

* Included in NAI template.

The Newshawk/7-6 is an example of the flying cameras widely used by reporters on Earth and Mars and in some larger space colonies. The AI has been trained to select camera angles, compose images, transcribe speech, and even prepare simple captions and other text. Favorite skill sets include languages and Area Knowledge for regions to which the owner has been assigned. Tactics programs or training are sometimes added by reporters who have to venture into war zones, for use in assessing immediate risks.

Janssen-Nord "Parker"

23 points/$22,700

ST 0 [0]; **DX** 10 [0]; **IQ** 10 [0]; **HT** 12 [0].
Damage 0; BL 0; HP 8 [0]; Will 10 [0]; Per 10 [0]; FP n/a.
Basic Speed 5.5 [0]; Basic Move 0 [0]; Dodge n/a.
Advantages: LAI-7 [102]; Modular Abilities (Computer Brain) 3 (2, 2, 2) (Limited Integration, -20%; Skills and Languages Only, -10%) [30].
Disadvantages: Microframe [-136].
Skills: Computer Operation (E) IQ+3 [0]-13*; Electronics Operation (Communications) (A) IQ+1 [4]-11; Electronics Operation (Sensors) (A) IQ [2]-10; Law (International Travel) (H) IQ-2 [1]-8; Navigation (Air) (A) IQ+1 [4]-11; Piloting (one specialty of purchaser's choice) (A) DX+3 [12]-13; Savoir-Faire (Servant) (E) IQ-1 [4]-9†.

* Included in LAI template.
† Includes -3 for Low Empathy.

A fairly typical "pilot" AI as often installed in medium-sized aircraft, the "Parker" is well regarded among wealthy private buyers for its technical competence and refined personality. Very similar systems are often found in other vehicles, such as private yachts (for which, replace Piloting with Seamanship, and change Navigation (Air) to Navigation (Sea)).

Tenzan THI-200bis

341 points/$64,500

ST 8 [0]; **DX** 10 [0]; **IQ** 9 [0]; **HT** 11 [0].
Damage 1d-3/1d-2; BL 13; HP 6 [0]; Will 9 [0]; Per 9 [0]; FP n/a.
Basic Speed 5.25 [0]; Basic Move 5 [0]; Dodge 8.

Advantages: LAI-6 [82]; Modular Abilities (Computer Brain) 3 (2, 2, 2) (Limited Integration, -20%; Skills and Languages Only, -10%) [30]; Tech-Spider (small computer) [204].

Skills: Computer Operation (E) IQ+3 [0]-12*; Electronics Operation (Communications) (A) IQ-1 [1]-8; First Aid (E) IQ+2 [4]-11; Free Fall (A) DX+1 [4]-11; Mechanic (specialty of buyer's choice) (A) IQ+2 [8]-11; Mechanic (second specialty of buyer's choice) (A) IQ+2 [8]-11.

* Included in LAI template.

This is Tenzan's *Suchi-Rukara* (p. TS125) with basic skills trained into a LAI brain. It makes a dull partner; spacers exchange tips on how to teach it to display a bit more personality without too much risk of bizarre emergent behaviors.

Variations: Installing essentially the same AI in a Mobile Helmet produces the *Tenzan Gearhead-Ro*, a less useful engineering assistant but a life-saver in emergencies. ST 4, HT 12, HP 6, Basic Speed 5.5; add Cooking (A) IQ+1 [4]-10; 330 points, $71,900.

Wotatech Hugin

93 points/$3,200

ST 3 [0]; **DX** 10 [0]; **IQ** 9 [0]; **HT** 11 [0].
Damage 1d-5/1d-4; BL 1.8; HP 3 [0]; Will 9 [0]; Per 9 [0]; FP n/a.
Basic Speed 5.25 [0]; Basic Move 5 [0]; Dodge 8.

Advantages: Modular Abilities (Computer Brain) 3 (2, 2, 2) (Limited Integration, -20%; Skills and Languages Only, -10%) [30]; NAI-5 [49]; Wotatech Combat Buzzbot (tiny computer) [2].

Skills: Computer Operation (E) IQ+3 [0]-12*; Forward Observer (A) IQ [2]-9; Guns (Gyroc) (E) DX+2 [4]-12; Savoir-Faire (Military) (E) IQ-3 [1]-6†; Soldier (A) IQ-1 [1]-8; Stealth (A) DX+1 [4]-11.

* Included in NAI template.

† Includes -3 for Low Empathy.

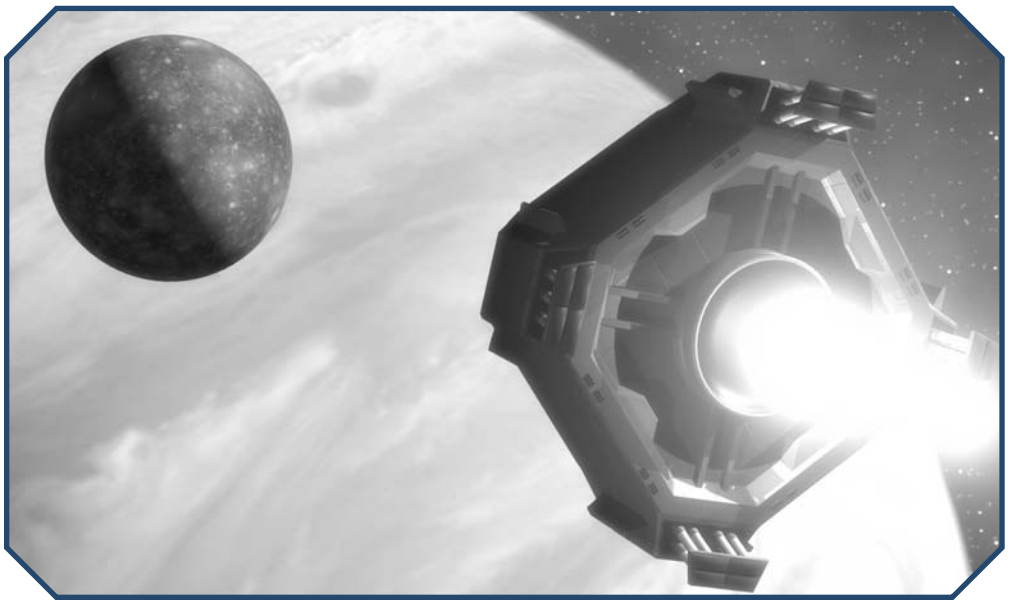
Wotatech buzzbots are intended for scouting, perimeter patrols, and emergency fire support. They die quickly in real war zones, but some units find them useful for reconnaissance. The model is typically fitted with a micro-missile pod with IFF interrogator (p. TS156-7), included in the above cost.

The pre-trained AI is primarily oriented towards purely military missions; law enforcement and peacekeeping forces may prefer something custom-coded to less aggressive specifications. (Military Hugins on duty in peaceful areas often have to deal with a lot of complex and conditional orders, though some forces just load them up with tangler rounds.) Buzzbots used on guard or patrol duties can quickly gain local Area Knowledge.

Note that this cybershell gains the Noisy disadvantage when in flight, with the associated penalty to Stealth.

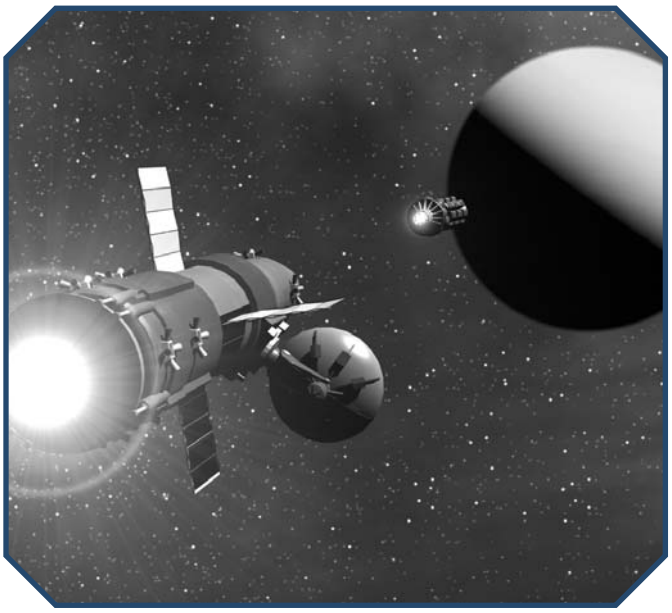
INDEX

Advantages, 38-41; *perks*, 41; *see also Attributes and Secondary Characteristics, Disadvantages and Quirks, Skills.*
Adventure seeds, 24, 30-32.
Aerobatics skill in Zero-G, 45.
Affliction advantage, 38-39.
Afghanistan, 7, 21.
Africa, 8, 24, 28, 30.
AI, 14, 52, 60-61; *legality in Europe*, 14; *machine empathy*, 52; *see also Infomorphs.*
Alcoholism disadvantage, 41.
Allies advantage, 15, 39, 68-70; *off-the-shelf*, 68-70; *servants who do everything*, 15.
Alpha upgrade template, 48.
Ammunition, 64.
Andraste biomod, 64.
Andro-womb biomod, 65.
Animal handling skill, 45.
Aquaculture skill, 45.
AquaDude nanosymbiont, 66.
Aquamorph template, 48.
Arachnoxoxenology skill, 46; *see also Expert Skill.*
Area knowledge skill, 47.
Ares Conspiracy, 29.
Armenia, 7.
Armor, 64.
Armory skill, 44.
Artery cleaners nanosymbiont, 66.
Artificial life, 20.
Asteroid Belt, 11, 25.
Astropus template, 49-50.
Attributes and secondary characteristics, 33-34, 51, 67; *see also Advantages, Disadvantages and Quirks, Skills.*
Augmented reality, 18-19.
Author, 5.
Avatar Klusterkorp, 29.
Backups, 39-40.
Bacteriophages nanosymbiont, 66.
Basic Move, 33; *see also Attributes and Secondary Characteristics.*
Basic Speed, 33; *see also Attributes and Secondary Characteristics.*
Beam weapons skills, 44.
Binding advantage, 38-39.
Bio-booster biomod, 64.
Biomods, 64-65.
Bioroids, 4, 14, 38, 43, 48-49; *bioroid body advantage*, 38; *legality*, 14; *meta-trait*, 43; *social stigma and wealth*, 43; *templates*, 48-49.
Bioshell template, 59.
Bioship template, 67.
Biotech, 4, 20.
Birth control Proteus nanovirus, 66.
Boosted heart biomod, 64.
Born spacer talent, 40.
Brain boosters nanosymbiont, 66.
Brain hacking skill, 44-45.
Built-in weaponry, 38-39.
Burma, 21-22.
Bush robot template, 53-54.
Business campaigns, 11-12.
Buzzbot template, 54.
Caicos islands, 31.
Callisto, 25.
Cambodia, 7.
Cameroon, 7.
Campaigns, 4, 6, 8-10, 12-13, 15, 24, 26-27, 29-32, 59; *adventure seeds*, 24, 30-32; *baseline wave*, 6; *corporate*, 29; *existing*, 59; *focus*, 9-10; *ideas for*, 30-32; *intelligence work*, 27; *law enforcement*, 26; *low resources and high technology*, 8; *moods*, 10, 12; *private investigation*, 26; *soap opera*, 12-13; *summary of setting*, 4; *wildness quotient*, 13.
Carcinophages nanosymbiont, 66.
Central America, 21.
Central Asia, 21.
Challenges, 15-17, 22; *combat*, 15-16; *exceptional wealth*, 16-17; *information*, 15; *keeping track of characters*, 17; *mortality*, 15-16; *safe adventures*, 16; *servants who do everything*, 15; *telepresence*, 22.
Characters, 14-15, 17, 33-59; *attributes*, 33; *control rating*, 14; *cultural background*, 34-35; *legality*, 14; *points*, 17, 35, 59; *tracking their abilities*, 17; *wealth and status*, 36; *weird options*, 15.
Charlesfoster-M ally, 68.
China, 7-8; *see also Mars.*
Ciao Chu, 30; *see also Organizations.*
Cinematic and gritty campaigns, 13.
Citizen AI template, 52.
Clockwork souls customer cyberdoll template, 55.



Colombia, 22; *see also Crime.*
Colonization campaigns, 11.
Columbia Aerospace, 29.
Columbia, 31.
Combat naga template, 57.
Combat, 9, 15-16; *campaigns*, 9; *infomorphs and*, 16.
Comedy campaigns, 12.
Compartmentalized mind advantage, 39.
Computer hacking skill, 46; *see also Computers.*
Computer wizard talent, 40.
Computers, 4, 19, 46; *intrusion*, 46; *ubiquitous*, 19; *see also Web.*
Concealed bioroid body meta-trait, 43; *see also Bioroids.*
Connoisseur skill, 45, 47.
Conspiracies, 29.
Control Rating, 14; *see also Legality.*
Corporations, 29-31; *see also Organizations.*
Cortez-Ghao "Faraday" ally, 68.
Costs, 23, 36-38, 60-70; *AI*, 60; *of living*, 36-38; *space travel*, 23; *see also Status, Wealth.*
Crime, 10, 19, 27; *campaigns*, 10; *see also Legality, Law Enforcement.*
Cry baby nanodrug, 66.
Cryobot template, 54.
Cryptanalysis skill, 44; *see also Computers.*
Cultural backgrounds and familiarity, 34-35; *see also Languages.*
Current affairs skill, 45, 47; *see also Memetics.*
Cyberdoc template, 54.
Cyberdoll template, 55.
Cybershells, 43, 53-58; *meta-trait*, 43; *templates*, 53-58.
Damage resistance advantage, 39.
Dependency disadvantage, 42.
Detect advantage, 39.
Dexterity, 33; *see also Attributes and Secondary Characteristics.*
Disadvantages and Quirks, 34, 41-43; *see also Advantages, Attributes and Secondary Characteristics, Skills.*
DNA repair nanosymbiont, 66.
Domestibot template, 58.
Downslinks, 61.
Duncanites, 31.
Early maturation feature, 44.
Earth, 21-24; *hot spots*, 21; *memetic conflicts*, 21-22; *orbit*, 24.
Ecuador, 7.
EDI "Bhisti" ally, 68-69.
Electrical disadvantage, 42.
Electroreceptors nanosymbiont, 66.
Elevator, 24-25.
Emergent intelligence AI template, 52-53; *see also AI, Legality.*
Employment, 26-30, 37.
Engineering, 4.
Equipment, 36, 60-67; *armor*, 64; *communication implants*, 61; *legality class*, 60; *medical treatments*, 64-67; *sensors*, 61; *software*, 60-61; *using points to buy*, 36; *vehicles*, 67; *weapons*, 61-64.
Esperante Enterprises, 30.
Eunuch biomod, 65.
Europa, 10, 25, 29; *Defense Force*, 29; *horror campaigns and*, 10.
Europe, 7-8, 14, 27; *AI*, 14; *intelligence agencies*, 27.
Executive Decisions Inc., 29.
Exogenesis, 11.
Expert skill, 45-47.
Exploration and research campaigns, 11.
Extra life advantage, 39-40; *see also Backups, Infomorphs.*
Far Reaches, 25.
Fatigue, 33; *see also Attributes and Secondary Characteristics.*
Features, 14, 43-44; *mandatory*, 14.
Felicia template, 48-49.
Fifth Wave, 8, 18, 36-37; *see also Waves.*
Fisheyes biomod, 65.
Flesh pockets, 38, 64; *advantage*, 38; *biomod*, 64.
Floater template, 48.
Fourth Wave, 7, 18, 37; *see also Waves.*
Fragment mind emulation template, 53; *see also Infomorphs.*
Free Mars movement, 24; *see also Mars.*
French Foreign Legion, 29; *see also Legality.*
Frontier campaigns, 11.
Future shock, 6-7, 19; *see also Waves.*
Game of ideas, 20.
Genetic rights management, 12.
GenTech BR-Secretarial ally, 69.
GenTech Pacifica, 30.
Gestalt intelligence AI template, 53; *see also AI.*
Ghana, 7.
Ghost mind emulation template, 53; *see also Infomorphs.*
Gritty and cinematic campaigns, 13.
Guan di biomod, 65.
Guardians nanosymbiont, 66.
Gypsy AI template, 53; *see also AI, Legality.*
Haut-Zaire, 7, 21-22; *see also Hot Spots.*
Health, 33, 34, 67; *vehicles*, 34, 67; *see also Attributes and Secondary Characteristics.*
Hit points, 33; *see also Attributes and Secondary Characteristics.*
Horror campaigns, 10.
Hot spots, 21, 23; *choosing sides*, 23.
Human templates, 48.
Humaniform templates, 55.
Immune machines nanosymbiont, 66.
Incubus template, 49.
Infiltration android template, 55.
Infomorphs, 4, 9, 28, 32, 36, 39-40, 50-53; *backups*, 39-40; *campaigns*, 32; *combat and*, 9; *intelligence campaigns and*, 28; *sapience*, 52; *templates*, 50-53; *wealth*, 36; *see also AI.*
Information control, 15.
Innate attack advantage, 38-39.
Intellectual property, 30.
Intelligence work, 27-28, 31.
Intelligence, 33, 51; *see also Attributes and Secondary Characteristics.*
Investigative campaigns, 9, 19, 30-31.
Io, 25.
Ishtar upgrade template, 48.
Islandia, 32.
Janssen-Nord "Parker" ally, 69-70.
Jupiter, 25.
K-10A postcanine template, 50.
Kazakhstan, 21-22.
Kenya, 7-8.
Kyrgyzstan, 7.
Lactonarcotic bioreactors biomod, 65.
Lame (wearable) disadvantage, 42.
Languages, 34.
Laser weapons, 63.

Lateral line nanosymbiont, 66.
Law enforcement, 26-27, 30; *intellectual property*, 30; *see also Crime, Legality.*
Legality, 12, 14, 29-30, 60; *characters*, 14, 29; *equipment*, 60; *European AI*, 14; *French Foreign Legion*, 29; *genetic rights management*, 12; *intellectual property*, 30; *xoxes*, 14; *see also Crime, Law Enforcement.*
Limited endurance disadvantage, 42.
Liver upgrade biomod, 64.
Locations, 4, 7-11, 14, 21-25, 27-31.
Low-pressure lungs, 38, 44; *advantage*, 38; *feature*, 44.
Low-sapient AI (LAI) template, 51-52; *see also AI.*
Luna, 24.
Lung cleaners nanosymbiont, 66.
Machine body advantage, 38.
Machine empathy advantage, 52; *see also AI.*
Macroframe template, 55.
MAD weapons, 63.
Mainframe template, 55.
Maintenance disadvantage, 42-43.
Mars, 9, 11, 24-25, 31, 38, 43; *campaigns*, 11, 25; *Mars-adapted advantage*, 38; *Mars-adapted meta-trait*, 43.
Marwari Digital, 29-30.
Medical treatments, 23, 64-67; *in space*, 23; *see also Biomods, Biotech, Nanodrugs.*
Memetics, 4, 9-11, 20-22, 31, 40, 45-47; *combat campaigns and*, 10; *Earth conflicts*, 21-22; *investigative campaigns and*, 9; *political campaigns and*, 11; *skill*, 46; *talent*, 40, 47; *war and*, 21-22, 31; *see also Expert Skill.*
Mercury, 25.
Meta-traits, 43.
Metabolic regulators nanosymbiont, 66.
Metanoia-series upgrade template, 48.
Metatron nanodrug, 66.
Microbots, 4, 19.
Microframe template, 55.
Microgravity biochemistry nanosymbiont, 66.
Micromanipulators advantage, 38.



Military organizations, 29.
Minimal software template, 50; *see also Infomorphs.*
Mistaken identity disadvantage, 42, 53.
Mobile helmet template, 56.
Modular abilities advantage, 40.
Moon, 24.
Morality, 23.
Mortality, 15-16.
Motion capture mannequin template, 55.
Myelin replacement biomod, 65.
Nanodrugs, 65-66; *see also Nanosymbionts, Nanotech.*
Nanodynamics, 30.
Nanosan Umweltsysteme AG, 30.
Nanosocialism, 22, 30, 32.
Nanosymbionts, 66; *see also Nanodrugs, Nanotech.*
Nanotech, 4, 19; *see also Nanodrugs, Nanosymbionts.*
Nations and places, 4, 7-11, 14, 21-25, 27-31.
Natural diver talent, 40.
Nepenthe nanodrug, 66.
NERV drug regimen biomod, 65.
Nerve boosters nanosymbiont, 66.
New players, 4.
Newshawk template, 54.
Newshawk/7-6 ally, 69.
Nicaragua, 32.
Nigeria, 7.
No degeneration in Zero-G advantage, 38; *see also Space.*
No genetic defects feature, 43-44.
No legs (portable) disadvantage, 42.
No mental instability feature, 44.
No physical changes feature, 44.
No self-awareness feature, 44.
No-shock glands biomod, 64.
Noisy disadvantage, 43.
Nonsapient AI (NAI) template, 50-51; *see also AI.*
North America, 8.
Numb disadvantage, 43.
Nyx template, 49.
Ocean depths, 11.
Oceanography skill, 45-46.
Off Earth, 8-9, 23, 36; *wealth*, 36.
Off-the-shelf allies, 68-70.
Olympus Project, 24, 30.
Organization types, 26+29; *dangerous masters*, 28; *intelligence agencies*, 28; *law enforcement*, 26-27; *military*, 29; *see also Organizations.*
Organizations, 29-31; *see also Organization Types.*
Orphan AI template, 52; *see also AI, Legality.*
Outer System, 25.
Pacific Rim Alliance, 28.
Parahuman templates, 48-49.
Payload advantage, 40.
Perception, 33; *see also Attributes and Secondary Characteristics.*
Perflubron blood biomod, 65.
Perflubron transfusion biomod, 65.
Perks, 41; *see also Advantages.*
Phil Masters, 5.
Philosophical exploration campaigns, 10.
Phobia disadvantage, 42.
Picaresque campaigns, 12; *see also Travel.*
Piloting skill, 44.

Political campaigns, 11, 21, 24, 32; *Earth power blocs*, 21; *Mars power blocs*, 24.
Polypede template, 56.
Pop culture maven talent, 40.
Pop culture skill, 45; *see also Memetics.*
Pore cleaners nanosymbiont, 66.
Possession advantage, 40.
Prehensile toes advantage, 38.
Prehensile tongue biomod, 65.
Private investigate, 26; *see also Investigative Campaigns.*
Propaganda skill, 47, *see also Memetics.*
Proteus nanovirus, 66-67.
Psychology skill, 46-47; *see also Memetics.*
Public speaking skill, 47; *see also Memetics.*
Puppet advantage, 41.
Puppeteer implant template, 58.
Quadrupedal retromorphosis biomod, 65.
Quirks, *see Disadvantages and Quirks.*
RATS template, 56-57.
Reduced consumption advantage, 41.
Reproductive control advantage, 38.
Reprogrammable disadvantage, 51.
Reprogrammable duty disadvantage, 42.
Research skill, 47.
Respirocytes nanosymbiont, 66.
Retinal enhancement biomod, 65.
Rosario-Klein P55-J ally, 69.
Sapience, 52; *see also AI, Legality, Infomorphs.*
Sapient AI (SAI) template, 52-53; *see also AI, Sapience.*
Satire campaigns, 12.
Saturn, 25.
Sea shepherd template, 48.
Securibot template, 58.
Seihin Corporation, 31; *see also Organizations.*
Sensors, 61.
Sessile disadvantage, 42.
Shadow mind emulation template, 53; *see also Infomorphs.*
Siduri upgrade template, 48.
Signal lag, 8.
Sitcom and soap opera campaigns, 12-13, 32.
Skills, 44-47; *see also Advantages, Attributes and Secondary Characteristics, Disadvantages and Quirks.*
Skin transformation Proteus nanovirus, 66.
Slinks, 61.
Snakebot template, 57.
Soap opera and sitcom campaigns, 12-13, 32.
Social stigma disadvantage, 42-43; *bioroid*, 43.
Sociology skill, 47; *see also Memetics.*
Software, 28, 60-61; *intelligence agents*, 28; *see also AI, Infomorphs.*
Solar Express, 30.
South Africa 8, 28, 30.
South Sudan, 7.
Space, 4, 8, 23, 67; *flight*, 23; *medical treatments*, 23; *signal lag*, 8; *spacecraft*, 67.
Speed swimming skill, 45.
Status, 36-38, 43; *see also Costs, Wealth.*
Sterile disadvantage, 42.
Street campaigns, 10.
Street scenery, 18-19.
Strength, 33-34, 67; *vehicles*, 34, 67; *see also Attributes and Secondary Characteristics.*
Stun weapons, 63.
Taboo traits, 43-44; *see also Features.*
Talents, 40.
Team building, 14-15.
Tech level, 6-7, 34; *crossing between*, 7; *waves and*, 6.
Tech-spider template, 58.
Technological edge, 7.
Technology and society, 18, 27.
Telecommunication advantage, 41.
Templates, 48-59, 67; *bioship*, 67; *bioshells*, 59; *cybershells*, 53-58; *human upgrades*, 48; *infomorphs*, 50-53; *parahuman and bioroid*, 48-49; *uplifted animals*, 49-50.
Tennin template, 49.
Tenzan THI-200bis ally, 70.
Teralogos Consortium, 30; *see also Organizations.*
Terraforming skill, 46; *see also Expert Skill.*
Testicle tuck biomod, 65.
The Belt, 11, 25.
Third Wave, 6, 18.
Thriller campaigns, 10.
Tianyi template, 49.
Time Corps, 32.
Time travel, 32.
Tooth cleaners nanosymbiont, 66.
Transhuman Space Status Table, 37.
Travel, 12, 22-23; *picaresque campaigns*, 12.
TSA, 30-32.
Ubiquitous computing, 19.
UCAV template, 57.
Uplifted animal bioroid advantage, 38.
Upslinks, 61.
USA, 7, 27; *see also Mars.*
Uzbekistan, 21.
Vacuum Cleaners, 24, 41; *see also Earth.*
Vehicles, 34, 67.
Venus flytrap biomod, 65.
Venus, 25.
Vessel advantage, 38-39.
Viking template, 49.
Virtual interface implant template, 57-58.
Virus hunters nanosymbiont, 66.
Visualization advantage, 41.
Volkspider template, 58.
Wages, 37; *see also Costs, Status, Wealth.*
Waves, 4, 6-8, 18-19; *4e tech levels and*, 6; *baseline*, 6; *crossing between*, 7.
Wealth, 16-17, 36-37, 43; *wages* 37; *see also Costs, Status.*
Weapons, 61-64; *advantages*, 38-39; *ammunition and options*, 64; *armor*, 64; *laser effects*, 63; *MAD effects*, 63; *stun*, 63; *tables* 62-63.
Wearable virtual interface template, 58.
Web, 8-9, 11; *see also Computers, Infomorphs.*
Whirling claws o' death biomod, 65.
Will, 33; *see also Attributes and Secondary Characteristics.*

Winged retromorphosis biomod, 65.
World Tree Enterprises, 30; *see also Organizations.*
Wotatech combat buzzbot template, 54.
Wotatech Hugin ally, 70.
Writing skill, 47.
Wu tsao template, 49.
Xenobiology skill, 45.
Xenostriker biomods, 65.
Xoxes, 14; *see also Crime, Legality, Law Enforcement.*
Yousheng template, 49.
Zero nanodrug, 66.
Ziusudra template, 49.
ZR-3 template, 49.
ZR-5 template, 49.