# Shadows Over Sol

## Science Fiction Horror Roleplaying

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**Tab Creations**

{SAGA MACHINE}

*This book is dedicated to all those working to make the future a better and more accepting place.*

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# Introduction

Somewhere out in the void a spaceship makes its way from Mars to Ceres. Its voyage will take six months. Its crew sleeps the time away, deep in stasis.

The crew is made up of individuals from three distinct subcultures, each with their own dialect, views and ideology. These subcultures do not always agree—sometimes violently. None of them know it yet, but three months ago, two of these subcultures went to war.

When the ship left Mars, it departed from a Unitech docking facility. In another two months, when it reaches Ceres, it is scheduled to dock with a different corp. This corp has taken sides in the subcultural conflict. What happens will not be pretty.

Three of the passengers have smuggled guns on board. Most of the crew is armed. One passenger has a knife implanted in her arm. When the ship wakes the crew, a day away from port, they will get news of the conflict.

The violence will be slow to start, with everyone still recovering from stasis sickness. But some crew are going to begin applying augmented reality tags to likely targets. Others will get their guns. Not everyone is going to want to dock at the scheduled port for fear of reprisals or worse, but the captain won't have a change of course, and there will be blood.

The fighting starts shortly after the passengers are awoken ahead of schedule. A mutiny is in progress while disoriented passengers stumble around, some fearful and others dangerous in their own right. The herd instinct takes over and people panic.

Blood in zero-G doesn't drain the way it does in a gravity well; instead, it bulges out from a wound in large bubbles. Recoil scatters it about and it gets everywhere.

The mutiny is a failure. With a wounded crew and scattered passengers, the ship makes its scheduled dock, but outside there's an eerie silence—a radio silence. When the airlock opens, even worse things await. Everyone hears the echoes down the empty colony hallways, but no one sees the bioengineered claws in the darkness.

Welcome to the future of *Shadows Over Sol*.

## Themes

**Isolation** is a common theme in both science fiction and horror, and consequently, it is an important theme in *Shadows Over Sol*. Space is unbelievably vast. Voyages take months or years. Stations are but small specks of life in a vast sea of lifelessness. When the horror starts, no one is coming to help, and often there's nowhere to run.

**Social change** is another important theme. The future is a different world with different social norms and different technologies. Subcultures see the world through their lenses, and this social distance can play into the themes of isolation.

Despite the horror, technology and human exploration march on. This ties in the theme of **new horizons**. Humanity is always pressing outward with the next distant expedition or colony, and it's always inventing new ways to do things.

The counter to themes of social change and new horizons is the **fear of the unknown**. Exploration, new technologies and new ways of social operation bring with them risk, new dangers and systems that are ripe for abuse. This is where the science fiction meets the horror.

Finally, the theme of **conspiracy** wraps it all up. With every new discovery, every social evolution and every lingering fear, there will always be those looking to suppress it or it exploit it for their own purposes.

# Recommended Media

A variety of exciting science fiction and horror media exists, which may serve to inspire potential players or game masters. Below are some of the movies, games and books we recommend for inspiration:

- **Alien:** The 1979 film directed by Ridley Scott is a classic piece of sci-fi survival horror. Its sequel, Aliens (1986), has more of an action-horror feel, but is also good in its own way.
- **Eclipse Phase:** This is a well-designed tabletop roleplaying game set in the Sol system but with a decidedly more transhumanist and wildly speculative bent to the science fiction.
- **Europa Report:** The 2012 science fiction horror movie serves as a character drama throughout its first half and a haunting creature feature in its second. It is good for its depiction of hard science, but set significantly closer to the present day.
- **The Expanse:** This is series of science fiction novels by a pair of authors going by the pseudonym James S. A. Corey. The first novel, Leviathan Wakes, is stellar and the series shares many themes with **Shadows Over Sol**, even if the technology and social structure differs somewhat.
- **The Thing:** We recommend the 1982 film directed by John Carpenter. The Thing is a well-sculpted piece of survival horror where the protagonists are caught between the alien thing, the harsh Antarctic environment and justified paranoia.
- **Transhuman Space:** This is another transhumanist RPG set in the Sol system, this one using *GURPS*. *Transhuman Space* has a wealth of well thought-out source books.
- **The Void:** This is a science fiction horror RPG with a Cthulhu Mythos spin on the horror. It is similar in timeline and scope to **Shadows Over Sol**, but differs significantly in themes and tone.

# Preparation for Play

**Shadows Over Sol** is a tabletop roleplaying game. It uses the **Saga Machine** system, the same system used by our other games, such as Against the Dark Yogi. If you do not know what a tabletop roleplaying game is, a wealth of information is available online—more than could ever be reproduced here. To play you will need this book, a group of friends, pencils, paper, a standard deck of poker cards for each player and ideally some tokens. Play is designed to take place in one or more sessions—a few hours one evening should suffice.



## What is Saga Machine?

**Saga Machine** is the tabletop roleplaying system used by **Shadows Over Sol**, as well as **Against the Dark Yogi** and many of our upcoming games. It combines an exciting action mechanic with meaningful consequences.

The rules of every **Saga Machine** game are tailored for that particular game's genre and themes, adapting a solid core and bringing in custom-made supporting subsystems. This strikes a balance between the ease of going from one **Saga Machine** game to another and the rules being tailored to the genre.

Various incarnations of **Saga Machine**, including this one, have been released under the Open Game License (OGL) and are available for use in third-party games.

# Glossary

The following terms are used throughout the *Shadows Over Sol* setting:

- **Augmented Reality (AR):** The use of virtual layers and tags, which overlay the user's perception of the real world.
- **Corp:** Short for corporation. Usually used to refer to one of the titanic mega-corps, which dominate the halls of power.
- **Entro:** One of the major subcultures found throughout the system today. The Entro subculture thrives on discord and is highly critical of authorities, social class and corporate power.
- **Expret:** One of the major subcultures found throughout the system today. Expret subculture values aesthetics and creative expression in all things, placing great emphasis upon forms that appeal to the emotions.
- **Former:** One of the major subcultures found throughout the system today. The Former subculture almost fetishizes the pursuit of perfection.
- **Ganymede Conference:** An important meeting of world leaders in 2165, which established the current political status quo and set many of the rules of space travel.
- **Geneline:** One of a standard set of packages used to upgrade an individual's genome before she is born.
- **Ghostman:** One of the major subcultures found throughout the system today. Ghostmen couple a love for clarity of intent and a rejection of the false niceties that make up social etiquette.
- **Heed:** One of the major subcultures found throughout the system today. Heeds exalt having new experiences with a particular emphasis on the baser instincts and animal drives.
- **Implant:** An augmentation implanted in the recipient's body. Usually divided into either bioware (implants made from primarily living components) or cyberware (implants primarily made from machinery or other nonliving components).
- **Neoret:** One of the major subcultures found throughout the system today. The Neoret subculture values a certain amount of reflection on and reinvention of past eras.
- **Net, the:** The computer network used by various machines across the system; it is one of the pillars upon which life in the twenty-third century is centered.
- **Serv:** One of the major subcultures found throughout the system today. The Serv subculture is an amalgamation of various conservative religious groups.
- **Simspace:** A virtual environment, usually shared between multiple users on the net.
- **Sol:** Also known as "the sun." It's the yellow G2V main sequence star around which Earth and the other planets orbit.
- **Space Elevator:** A long, durable strand extending from the surface of a planet into orbit. Used for cheaply moving goods from the ground into space.
- **Subculture:** One of a variety of breakaway cultural groups organized around the net, which now dominate twenty-third century society.
- **Techno:** One of the major subcultures found throughout the system today. Technos prize the march of progress, culture and most of all, technology.
- **Thorium Power:** The dominant form of energy production is the use of fission reactors utilizing the thorium fuel cycle.
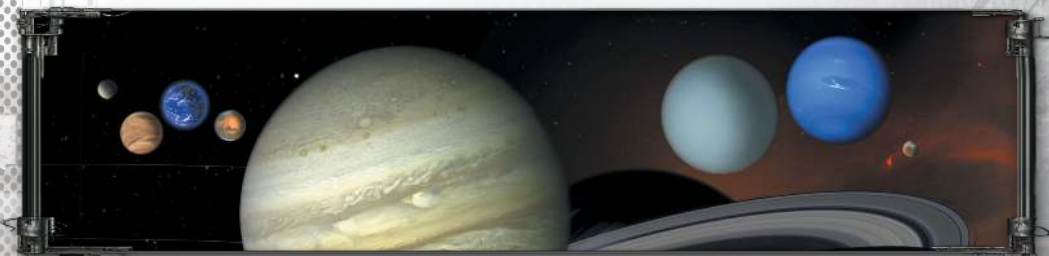
# Dark Future

The future holds a million wonders and a million horrors. Two centuries from now, humankind has spread into space, taking our rivalries and struggles with us. We've conquered diseases but created others. We've built new electronic networks but let the old ties atrophy and die. With each new rise and fall, we keep changing.

## Welcome to the Future

Don't try to get up. I've been told you're going to be too weak for that. I'm not a doctor, but take it from me that you have some recovery to go through. Don't worry, I know you're disoriented, but with all that's happened to you, that's only to be expected. Physically, you're going to be strapped to this bed for some time, but I'm more concerned about your social recovery.

As I said before, I'm not a doctor. I'm a historian. I've been told they found you frozen in your ship near one of the Lunar Lagrange points. According to our estimates, you've been in cryo almost two hundred years—since the early twenty-first century. It's now the early twenty-third century, and things are very different. They've called me in to help you adjust socially, as I specialize in understanding your era.

No, don't try to talk. Your tongue won't be fully working yet. Just lay back and let me try to fill you in on what you can expect from the brave new world. As I said before, many things have changed, and you're going to have to adapt to them quickly.

### The Networked World

We're plugged in, turned on, networked and wired in a way we never were before. From toddlers, we tune into a world of instant access and far-ranging communication. We see into the lives of others; we read their blog posts, stalk their friends lists and comment on pictures of their breakfasts. Just this morning I had a conversation in a random-match chat room with a man from Brussels. We talked about education. But he's a Heed and had different views than I.

We may never see our neighbors. We may not even speak the same languages, though they live just a hab cell over. Through the miracle of telepresence, telecommunication and telecommuting technologies, physical location means less than it ever has. I have more in common with people of my subculture in Tokyo than I have with those down the street.

If there's a linchpin of our society, it's the net. It's how we structure our lives, track our friends, jack into the social networks and pass our free time. Some of us spend more of our waking life in simspaces than here in meatspace.

## Splintering of the Culture

The thing about the net, though, is that it's easy to wall yourself off from the things you don't normally seek out. We all hit up our favorite news feeds, follow our favorite subcultural celebrities and cruise our favorite forums, but these are all places we self-select. They're likely to be places that feed back to us our own confirmation biases and that market to us our own subcultural trappings. This means the media I consume, and the lens through which I obtain information about happenings in the world may be radically different than what my neighbor sees. These sorts of differences divide the culture.

Often the places we visit on the net are the same sites or descendants of the same sites our parents were jacking into in their own youth. Sure, the generation gap may give rise to new forks of the profiles or new sub-forums, but views and habits tend to pass down through family lines. Over the last couple of centuries or so, the individual subcultures people live in have diverged so much they're becoming non-geographical cultures in their own right.

# Language Shift

While nation-states may be on the downslide, languages remain as fractured as ever. However, due to the widespread use of real-time translation software, the language barrier—while still present—is less of a problem than ever before. Almost all net profiles have translators built in, and most anyone actively doing business across a language barrier usually has translation software running on their hand terminal. While these translations aren't perfect, the software is pretty good at what it does, and as long as a speaker avoids obscure euphemisms or slang, the point usually gets across.

Still, sometimes software or hardware malfunctions, information is lost in translation or you come across a speaker of a language for which you don't have software installed. In times like these, you must fall back to the old-fashioned methods of learning the language.

The ten most common languages today are English, Mandarin, Wu, Arabic, Spanish, Hindi, Russian, French, Portuguese and Bengali. Many hundreds of others are spoken as well, while many hundreds still have died off in the last two centuries. Generally speaking, Mandarin is the typical language of trade while French is used in diplomacy. English is typically used for scientific works, although much scientific terminology is still drawn from Latin.

To make matters more complicated, individual subcultures often have their own dialects of languages. How varied these are differs from subculture to subculture and language to language, but at their most extreme, two speakers of the same language from different subcultures can be almost incomprehensible to each other. Automated translation programs still mitigate this somewhat, but subcultural slang is typically handled less well than the more common baseline words of a language.

The Transient Population

I understand geographic location once meant something culturally. People broke themselves up into communities and post-tribal affiliations based on it— neighborhoods, cities, baronies, nation-states. I guess geographical location still means something today, if you're living in one of a handful of backwater undeveloped locales. But for the most part, more than two centuries of the net, migrations and telepresence has led geographic location to mean very little beyond what to wear when you're going outside.

With orbital flights that can take anyone anywhere on the planet within a few hours and high-speed long-distance communication systems that can let a user operate remotely from almost anywhere on the globe (and even from the far-flung reaches of the solar system, if one allows for a few minutes light lag), where one is physically located often means very little in determining one's opportunities. It also means very little in terms of what culture one absorbs. I might not speak the same language as my neighbors and that might have once posed practical problems. But no more.

It also means people don't feel as much of a connection to some particular geographic place or nation and are much more willing and able to move where the winds may take them. This has resulted in a population that is very transient and fairly spread out. One no longer looks to the cities for jobs, as many jobs can just as easily be worked remotely. Population centers have spread out. One can no longer look at a region and say that region has some sort of homogeneous culture.

# Decline of Nation-States

Once, nation-states were the major actors on the world stage. The globe was neatly carved into its various geographical regions. Each region had its political leaders and most people lined up behind them, as if those invisible lines called borders were more than just a collective delusion.

Well, nation-states are still around, but they're now the washed-up has-beens of the world stage. The comparative meaninglessness of geographic location and the readiness of the population to move across borders had led to people not strongly identifying with nation-states. Sure, most people are a citizen of one or

another—sometimes three or four. I'm also a citizen in three MMOs (massively-multiplayer online games), but few people are going to fight and die over that—at least in meatspace.

Couple this decline of identification with nation-states along with the general gutting direct public powers, and you get to where the world is now. Most people identify more with their subculture or corp than they do with that imaginary line they were born behind. A lot of people will keep the same citizenship their entire lives and not really think about it. Others will play the citizenship market, seeking the best tax-for-social-benefits deal available to them at the moment. They'll switch citizenships a thousand or more times in their lives.

I'm sure many nation-states familiar to you still exist and have long traditions behind them, but today they are mostly shells of their former selves. They still collect taxes from their citizens and persons operating in their territories. They still can employ military forces to protect their borders—although in practice that is mostly contracted out to private entities now. They provide some legal protections and they have a court system, although this is also frequently contracted out. Almost all other social services come from a person's employer or are privately purchased.

## Corporate Rise

With the decline of nation-states, it was just a matter of time until something stepped up and filled the power vacuum. Subcultural and ideological groups did that to an extent, but the corps filled most of the vacuum. This was less of a revolution than a gradual handing off power. Prisons handed off to corps. Schools handed off to corps. Retirement plans. Healthcare. Police forces. Road maintenance. Courts. The nation-states held onto their national armies for a long time, but eventually even those were handed over. In the last few decades, the corps have even been realizing they can skip the governmental middleman, and get people to pay them directly for those services.

The effects of the corporate rise manifest in many ways. Children are educated in corp schools, which take the opportunity to cross-market to them other products produced by that school's parent corp and business partners. Militaries are manned by contracted corp soldiers whose first loyalties are to their paychecks. Oftentimes contracts are subcontracted out several levels deep, leaving accountability behind in a trail of paperwork.

All this is doubly true in space. The corps funded most of the early space exploration, and the grasps of Earth governments were never very strong out in the void. Most corps in space have gotten used to operating as a law unto themselves, much like the British East India Company of old.

## Crime & Punishment

Here's something you might soon find relevant: if you run afoul of the powers that be, punishments are rather different than they were in your time, especially out here in space. Don't look at me like that! This is serious!

The good news is that capital punishments are a lot more rare—at least for the sort of crimes where a trial actually occurs. Back on Earth, they'll mostly fine you or put you into stasis. Keeping a lot of criminals in stasis is expensive, but certainly less so than incarcerating them while awake for long periods of time. Fines tend to snowball indefinitely, and if you can't pay them, you're looking at a term of indenture.

Out here in space, though, things are a bit different. Living space and life support are at a premium. Fines are still common, but when they don't suffice as punishment, authorities look to exile or corporal punishment. Exile is exactly what it sounds like, and the convicted party may not have a lot of say in where they're sent. As for corporeal punishment, well, the removal of body parts is considered rather backward, but society has gotten rather good at inflicting large amounts of pain in a very cheap manner.

Crimes committed with the aid of implants will usually result in the forcible removal of those implants as part of the punishment. This is often accompanied by the offender being barred from legally obtaining any similar implant from the same colony in the future.

## All About the Money

Okay, here's something that should be familiar to you: it's still all about the money. Everyone wants it. Everyone needs it. Most people don't have enough of it, and a few people have too much. Sound familiar? Good. Here's where things begin to change.

Most money in your time is backed by a nation-state. They print it. They try to control inflation. It's good as long as the nation-state remains solvent or at least until the political leaders change their minds. But money is a complicated fiction. It's valuable because people say it is; and because people treat it as valuable, it continues to stay that way. If one currency begins to tank, you trade it in for another currency—or at least you try, hoping that there is the available liquidity to do so.

Currency today is an even more complicated fiction. A few nation-states still issue their own money—usually in the form of bonds rather than physical currency, but most common notes are backed by corps. After all, they're the major players on the political block

now. A few subcultures have even tried issuing their own voucher currency, but those haven't worked out so well.

The corps are where the money is at because they are where the employment is at. Every major corp has its own credit system used to pay its employees and many of its debts. This credit is redeemable at any corp-affiliated market. Naturally, a variety of exchanges exist to trade one type of credit for another. Most trades on these exchanges are made automatically, done in real-time with the swipe of a credit chip.

Money is rarely physical. It's mostly a series of bits sitting in various centralized accounts and transferred back and forth between computer systems as transactions take place. On a planetary network, this is almost instantaneous, but in space, these transactions require synchronizing with financial databases minutes away by broadcast.

It's different on Earth, but out here the de facto standard for currency is the Unitech microcredit. That's because of Unitech's commercial dominance in space.

# Shiny New Toys

You are the third person we've resurrected from cryo. None were from as far in the past as you are, but each of them have seemed very interested in one particular question: what sort of shiny new toys do people have to play with now? That is, what new bounties has technology brought the world? Let's cover that.

I understand that in your time, the world was still undergoing a revolution in computing and networking power. Today those technologies are mature. We have basic microcomputers everywhere, in everything from toasters to clothing. Most of these machines are dumb—even by the standards of your time—but they network regularly with more powerful machines, and this makes for a good deal of intelligence. Shops can take digital inventories with the small computers in every product reporting their location. Refrigerators can provide alerts when staple foodstuffs get low. AIs can plan a person's evening wear from the chips in her wardrobe.

The biological sciences have also undergone a considerable revolution. Most of us have had our genomes sequenced before birth and have been screened for common genetic defects and developmental issues. Many, going on most, of us have also been genetically upgraded before birth for enhanced attractiveness, reflexes, durability or cognition. Out in space, upgrades tend towards not suffering bone degradation in microgravity, suffering less from radiation exposure or decreased life support requirements. These can be life-savers in the environments out here.

Where computers and cognition meet is the realm of augmented reality (AR). We're currently in the middle of an AR revolution, just as you were in the middle of a computing revolution in your time. Many of us have implanted AR interfaces or cheaper external interfaces. This lets us look out at the world and see it enhanced with tags and other metadata. I have an early AR interface model, and I no longer have to remember people's names most of the time—they just appear in my vision floating above their heads. I also no longer have to keep a tablet with notes. It's all in my head.

I don't have time to go into all the other technological advances, but they are many: thorium fission reactors, cloning, vat-meat, trans-genetic modifications, biological implants, tissue engineering, low-sapient AIs, asteroid mining and quantum encryption. It's all too much to name at once, and I have limited time.

# A Final Word

Now pay very close attention: this is perhaps the single most important thing I have to say. I am not a doctor, and this is not a hospital. We are a resistance group based out of Mars. In a very short time—perhaps a few minutes now—Unitech troops will come bursting through that door, guns raised.

I'm going to be arrested, but I'm sure my ties at the university will pull me through. You, on the other hand, have no ties in this time. You have no electronic records. You have no established identity. In this pan-optic day-in-age, that is very rare. The troops are going to take you and they're going to ask a lot of questions. They will likely even lie to you and tell you many half-true stories about our time. Remember what I've told you. Remember that there are other points of view out there—in fact, many of them.

At some point in the future, we will contact you again. Don't worry, we have ways. Then we will come to collect on having revived you from your icy death.

# A Future History

History keeps marching forward into that unknowable void called the future. Much has changed in the last two hundred years, and much more promises to change still in the next hundred. Humans have spread out throughout the inner solar system and have begun to penetrate further afield. Nation-states have undergone their slow decline. Society has fractured into myriad subcultures. Technology has advanced. Implants and gene modification have become commonplace. But still people struggle with the same timeless issues of the human condition.

Here is how it happened.

## 2030s to 2040s

The 2030s and 2040s saw an explosive growth of biotechnology, advances in fission technology and increased space funding. However, it also saw dramatic increases in climate-change related conflicts, severe resource shortages and a steep rise in antibiotic-resistant bacteria.

- **2030:** The Chinese successfully complete a manned mission to Luna, the first since Apollo 17.
- **2031:** A habitable-zone Earth-like planet is discovered around Alpha Centauri A, making it the closest habitable planet yet discovered. It is nicknamed Sirine by the media. Other similar planets have already been found around Tau Ceti and Barnard's Star.
- **2033:** The first commercial thorium reactor comes online, beginning a trend that gradually replaces uranium in nuclear fission.
- **2033:** Prenatal gene modifications to correct life-threatening genetic disorders become commonplace, paving the way for further commercial genetic manipulation.
- **2035:** Worldwide shortages of tellurium—used in bleeding-edge electronics—result in increased funding for space programs, as tellurium is much more common elsewhere in space.
- **2039:** An outbreak of antibiotic-resistant tuberculosis kills tens of thousands in China. Bacteriophage research is increased significantly.
- **2039:** Oil drilling in the Arctic sparks a brief international conflict between Russia and Canada.
- **2040:** Functional human hearts can now be grown for implant. Most organs outside of the nervous system are now replaceable.
- **2044:** Increasing desertification in Africa and the American Midwest causes grain shortages worldwide, resulting in food riots in many cities.
- **2046:** Unitech Enterprises is founded. It will be at the forefront of space exploration and grow into one of the five largest megacorps.

## 2050s to 2060s

The 2050s and 2060s saw the widespread adoption of prenatal gene modifications, a continued advancement in space exploration and the first divisions in mainstream culture that would eventually lead to its splintering.

- **2051:** Xuan Ping becomes the first baby to be born in Earth orbit. He will later become a spokesman for space-adapted gene modifications.
- **2053:** Unitech, in cooperation with the US government, completes the first manned mission to Mars. Derek Stillwater of Minnesota

## Derek Stillwater

Derek Stillwater (2021–2109) remains a household name and is still an inspiration and hero to many. Not only was he the first human to set foot on Mars, he was already known for an extreme sports career. In his later life, he went on to be prominent blogger, politician, business leader and antiwar activist during World War III. At the height of his career, he was the single most highly followed individual on any social network.

The Stillwater colony on Mars bears his name, as do numerous schools, streets and buildings around the solar system. Upon his death, a sizable fortune was left to the Stillwater Foundation, which still funds humanitarian operations in his name.

is the first to set foot on the planet.

- **2055:** Wearable AR headsets become common among youth and will eventually expand to become commonplace across all generations.
- **2055:** Corporate space funding finally outpaces government space funding.
- **2056:** Laser propulsion is first used to launch satellites into orbit. It quickly becomes the dominant means with which satellites are launched.
- **2060:** This is the first documented use of the term "Former" to refer to the subculture, which split off from mainstream Western culture. This makes it the oldest still-existing subculture to break away from the main culture.
- **2060:** Prenatal genetic modifications to express desirable traits become common in wealthy regions of the world.
- **2063:** The United Nations collapses due to lack of funds contributed by member states and a lack of support among world powers.
- **2066:** Bacteriophages surpass antibiotics as the dominant means to treat bacterial infections.
- **2067:** Vatmeat, while commercially available for at least three decades, becomes accepted only after it is regularly featured in the cuisine of several celebrity chefs. Within a decade, it outpaces conventional meat production as an environmentally-friendly and ethical alternative.

## 2070s to 2080s

The 2070s and 2080s saw the dominance of thorium-based fission power, a rise in the popularity of cybernetics and the first lunar colony. It also saw the construction of the first space elevator, which dramatically reduced the cost of reaching orbit.

- **2070:** Some worry that the Saudi-Iranian War will escalate and plunge the globe into warfare. Fortunately this does not happen, and an early peace is agreed to in the Treaty of Moscow.

## The Beanstalk

The first space elevator was in operation for 67 years, meeting its final end during World War IV. Its completion was a true revolution for the space industry. A monument stands outside Sao Luis, at the site of the original Beanstalk, and pieces of its cable can be found in museums across Earth.

- **2071:** Thorium reactors now outnumber uranium reactions, becoming the dominant means of energy production.
- **2073:** Sinoex, the second-oldest of the Dominant Five megacorps is founded in a merger of Chinese and Burmese corporations.
- **2075:** Early experiments with sensory recording and playback result in a black market in brain-damaging experience chips.
- **2079:** The Expret subculture breaks away from mainstream Eastern European culture. This makes it the second still-existing subculture to diverge from the common culture.
- **2080:** No longer content with simply replacing failed organs, it becomes common to replace failed organs with upgraded cybernetic ones among some subcultures. Over the next decade, this will gradually catch on with what's left of the mainstream society.
- **2082:** The first space elevator is completed in Brazil after almost 20 years of construction. It's funded largely by various European grants, and in its latter stages, Unitech. It's operation further reduces the cost of reaching orbit. Colloquially known as the Beanstalk, it remains in operation until its destruction in World War IV.
- **2085:** The first colony on Luna, Zihao Gan, is established as a collaboration between several Chinese corporations. This colony is short-lived but paves the way for future space colonization.
- **2088:** Reliable human stasis is first achieved. Over the next two decades, this technology matures, allowing for longer manned space flights.

- **2089:** The first lunar mass driver is completed at Zihao Gan, improving the means through which resources are extracted from the moon.

## 2090s to 2100s

The 2090s and 2100s began with a new space race, spurred by the second space elevator, and resulted in colonies both in orbit and on Mars. These decades ended in World War III, and the beginning of the end of the dominance of the nation-state.

- **2091:** The second space elevator is finished after only six years construction. It is situated in Indonesia and is largely owned by Sinoex.
- **2093:** The Entro subculture diverges from mainstream Western society and is initially demonized by the media.
- **2096:** Construction on Domus Station, the first space colony intended for permanent residence, is finished. It is a Stanford Torus located at the L5 Lunar Lagrange point. It is largely funded by Unitech.
- **2099:** Jenseitech is founded after a series of mergers between Japanese and Brazilian biotech corporations.
- **2100:** The Techno subculture diverges from mainstream East Asian society. This marks a turning point in the rise of subcultures. What might be called "mainstream society" now actually consists of less than half of the people on the planet.

## World War III

Although World War III was the shortest and least bloody of any of the four world wars, the impact it had on warfare cannot be overlooked. The war signaled the beginning of a trend away from standing national armies and a reliance on smaller well-equipped mercenary forces. The war is also responsible for the greater prominence of heavier armors on the battlefield. Cast-off World War III military spacecraft are still a staple of pirate and rebel fleets today.

- **2102:** Indian corporations establish Vidhi, the first Martian colony. While the colony has a successful beginning, it will soon be doomed by World War III.
- **2103:** Rising sea levels cause Manhattan and several other coastal population centers to be flooded. This creates a worldwide population shift that helps contribute to the beginning of World War III.
- **2105:** Gene modifications that significantly alter human physiology briefly become a fad, resulting in many births that come to a deformed and messy end. The backlash to this fad cements the taboo against radical gene alterations.
- **2107:** Regular prenatal gene modification to enhance the new child's natural human abilities become commonplace, although more radical trans-genetic modification remains taboo.
- **2108:** A conflict in the Balkans begins, which will quickly spread to become World War III, also known as the Mercenary War. Although this conflict only lasts two years, it introduces many changes to warfare, including an emphasis on mercenary forces over national armies and the widespread militarization of space.
- **2109:** The Vidhi colony on Mars is cut off because of World War III and slowly starves to death while listening to the conflict in the stars above.

## 2110s to 2120s

The 2110s and 2120s saw an enormous growth in space colonies, the end of mainstream Western culture and in the aftermath of World War III, a widespread movement opposing the dominance of nation-states.

- **2110:** World War III comes to an end with the Treaty of the Hague, but not before the Beanstalk and two partially-completed space elevators are destroyed.
- **2112:** Stillwater, the first long-lasting colony on Mars, is founded and initially populated primarily by settlers from North America and the Indian subcontinent.
- **2114:** Early attempts at prenatal trans-genetic modification to prevent bone de-

terioration in microgravity and provide radiation resistance result in bestial long-term side-effects, leading to what's called the Malformed Generation.

- **2116:** The Chinese establish the colony of Chi Chen, or "Red Earth," on Mars. It will quickly become one of the last strongholds of Chinese nationalism.
- **2117:** Kamen Station, the first space station in the Belt intended for permanent human habitation is founded. It is a zero-G station built from the hollowed out shell of one of the larger asteroids.
- **2120:** The first successful brain transplant is documented. It's far from perfect, with severe neurological side-effects, but the patient survives.
- **2123:** The best-selling treatise The Heed Life is released. This is generally recognized as the critical juncture in which remnants of the old mainstream Western culture became the Heed subculture.
- **2126:** Miskan Station, the second station in the Belt, is founded by Mennonite settlers, following a Stanford torus design. Improbably, it will later grow to be a major hub in the Belt.
- **2127:** An unmanned probe operated by Jenseitech discovers life under the ice on Europa, spurring a race to Jupiter.

- **2128:** The Gong Si Revolution results in the overthrow of the Chinese government and it's replaced with a weak central authority. This will be the last of the major governmental revolutions as nation-states continue to wane in power.

## 2130s to 2140s

Beginning with a growing discontent with the state of the world political stage, the 2130s and 2140s saw numerous small rebellions and increased unrest. The resulting corporate rise to power and the desperation of the declining nation-state system world spark World War IV later in the decades.

- **2130:** Chi Chen breaks away from China, rejecting the ideals of the Gong Si movement. It becomes an independent colony.
- **2132:** An accident on Kamen Station results in the explosive decompression of the station and the deaths of all residents. To this day, the accident has never been fully explained and the station remains abandoned.
- **2132:** After the death of the liberal Pope Pius XIX fails to yield a more conservative successor, large portions of the more conservative wing of the Roman Catholic Church break away and declare their own pope, with a new Catholic hierarchy based out of Stillwater on Mars.
- **2134:** The first colony on Venus, the Dome de la Fortune, is founded as a scientific research base. Although initially a heavily-shielded dome on Maxwell Montes—the highest mountain on Venus—the colony soon launches several aerostats. Within a decade the last of the colonists will move to aerostat habitats in Venus's atmosphere.
- **2137:** The Terraforming Project begins on Mars. It continues to the present day, interrupted only by World War IV. It also ignites the water trade, bringing ice from the Belt and outer solar system to Mars.
- **2141:** In what is now known as the Black Night terrorist incident, Entro terrorists seize control of Domus Station and hold the population hostage. Three different corporate fleets respond, ending in a shoot-

# World War IV

Although it ended 61 years ago, World War IV remains the last great war, one with a profound impact on the world's balance of power.

Throughout the 2100s, the various mercenary companies that had received a sudden rise to prominence in World War III found employment in the skirmishes between the corps. As governmental controls fell apart in the earlier war's aftermath, these sort of paramilitary corp operations became increasingly prominent. Faced with this type of corp activity, China, Myanmar and India began operations to reign in corp warfare in the mid-2140s, and to reestablish a monopoly on the legitimate use of physical force. China's response to corp paramilitary activity was particularly heavy-handed and aroused the ire of numerous foreign corps.

And where the corps go, the governments follow. In December 2146, six nation-states—including Japan, Korea, the United States and Brazil—declared war on the Eastern Powers in order to protect their national corps. By late 2147, this conflict had spread across the globe, as a network of alliances and enemies unfolded.

Socially, World War IV was a massively fractious war, underlining the ideological gulf that had grown between different subcultures since society began to drift apart. Sympathies among the Entro, Morb and Techno subcultures strongly aligned with the Eastern Powers, even in the West where the governments overwhelmingly aligned with the corps. Sympathies among the Exprets, Formers and Heeds were pulled the opposite direction. The Neoret subculture grew out of the War, and an opposition to the fighting itself, while the Serv subculture—as usual—did not act as a unified group.

In June 2149, the war went nuclear, beginning with the destruction of Foshan by a Korean missile. This act struck a fatal blow to the antiwar movement that had been growing since the war's beginning. The response was the nuclear destruction of Novosibirsk, followed by Naypyitaw, followed by Abuja, as each side retaliated in turn. The bombing continued until 2152, and the fallout from all the bombs caused global temperatures to plummet nearly two degrees for the next several years, causing crop failures across North America and Africa. 2152 was known as a year without a summer.

Facing a losing war in 2152, in the single most deadly and desperate act of the war, the Eastern Powers released a genengineered virus on Madagascar. Originally intended to self-terminate after several weeks, the virus mutated and spread across the globe. It single-handedly killed almost half as many people as the rest of the war combined. The Madagascar Virus was the beginning of the end for the Eastern Powers. In 2153 they sued for peace, and an agreement was reached in the Mumbai Accords later that year.

out between all three the fleets and the terrorists. Domus Station is damaged and will take another two years to repair.

- **2142:** Utakar System Dynamics is founded. The success of its early weapons designs in World War IV quickly leads to its expansion and acquisition of many preexisting mercenary companies.
- **2146:** Beginning as an attempt by several Asian nation-states to reign in corporate mercenary activities, the fighting soon spreads and World War IV breaks out. This war will last for seven years and be the only war to see the widespread use of nuclear missiles. It results in the highest number of deaths of any war to date.
- **2147:** The Neoret subculture breaks away from the Heed subculture, rejecting what it sees as the excesses and violence of the modern day. During the war, this new subculture will be both applauded and vilified as opponents to the fighting.
- **2149:** World War IV goes nuclear. Beginning with the destruction of Foshan, Naypyitaw, Abuja and Novosibirsk, a dozen more cities are soon to follow.

## 2150s to 2160s

These two decades began with the height of the nuclear detonations in World War IV. The result of the war would hang over the rest of the decade, despite continued space expansion. This would lead to the Ganymede Conference and the official end of nation-state dominance.

- **2150:** The first commercial quantum communication is available. It, however, remains prohibitively expensive for anything other than vital but short corporate messages.
- **2151:** Microdyne is founded as a military intelligence processing corporation. However, after the war it moves into other forms of computing, which become its primary business.
- **2152:** As the single most deadly act of the war, a genengineered virus is released in Madagascar. It quickly spreads, killing some 50 million people and infecting 500 million others.
- **2153:** World War IV comes to an end with the Mumbai Accords. These agreements will be short-lived, however, and will soon be replaced in the Ganymede Conference.
- **2156:** The Ghostman subculture grows out of the remnants of the old East Asian mainstream culture. It is significantly influenced by the aftermath of the war.
- **2160:** The Oras colony is established on Mars. This colony will quickly grow to become the nexus of the Mars Terraforming Project.
- **2161:** The Australian-Indian War breaks out, resulting from a disagreement over the Mumbai Accords that ended World War IV. This war will last only eight months, but is noteworthy as the last of the nation-state wars and an important point paving the way to the Ganymede Conference.
- **2164:** The first Jovian colony is established on Europa. Built into the ice that covers Europa's surface, this colony is soon booming due to the water trade.
- **2165:** The Ganymede Conference occurs, resulting in a series of agreements that officially end the dominance of nation-states on the world stage.

## The Ganymede Conference

The Ganymede Conference, named for the Ganymede Syndicate that sponsored it, set the current status quo between governments and corps. Additionally it established rules for dealing with ships encountered in space, definitions of "pirate activity," how captives are supposed to be handled and responsibilities for responding to distress calls.

- **2167:** New developments in nuclear fusion lead to a rush on He-3, which is much more common in space than on Earth. This fuels migration and the economy of the space colonies, but sadly never leads to commercially-viable fusion power.

## 2170s to 2180s

The 2170's and 2180's saw the rise of the new political order as the fallout from World War IV and the Ganymede Conference finally settled down. It saw the rapid growth of Artificial Reality (AR) and Artificial Intelligence (AI) technologies, as well as the continuing penetration of humanity into the outer planets.

- **2172:** AR implants become mainstream, providing an improved AR experience that leads some to believe that implants in general might come back into vogue.
- **2173:** Aedes Station is opened, intended to be a replacement for the ailing Domus Station, however, Domus Station remains in use among the poor, despite its deteriorating conditions. Aedes Station is a Bernal Sphere, a design that becomes common in newer stations, replacing the older popular Stanford Torus design.
- **2177:** Large concentrations of thorium are discovered on Ganymede. Soon numerous mining colonies will be established there.
- **2181:** The population of Earth reaches the 12 billion mark. At this point, Luna is home to roughly 2 million people, Mars is home to almost 4 million and there are almost a million others scattered throughout the rest of the solar system.
- **2183:** After half a century of "it's just a

decade away" predictions, non-damaging sensory recording and playback finally becomes available. Older, damaging sensory playback technology, however, remains in use on the black market due to its dramatically cheaper price tag.

- **2186:** The Contemp Victorian subculture breaks apart and is mostly absorbed by the Neoret and Ghostman subcultures. This will be the first dissolution of a major subculture.
- **2186:** The first and only Saturnine colony is established on Rhea to support the water trade. It never takes off, but remains the furthest outward human settlement.
- **2188:** Microdyne researches unveil Embryo, which they claim to be the first emergent AI with human-level intelligence. Any self-awareness claims with the AI remain in dispute.
- **2189:** The Harbingers of the Divine Form cult arises in Australia, predicting a doomsday ushered in by the turn of the new century. It will later go to ground and move its operations to space.
- **2189:** The first manned mission to Titan ends in two of the crew mysteriously disappearing while exploring. The rest of the crew abort the mission and return to Mars prematurely.

## 2190s to 2200s

The turn of the new century brings in a wave of social shifts, as some small but significant subcultures are absorbed by larger ones. The ongoing series of small corporate battles known as the Dui Wu Ya Conflict also begins.

- **2191:** The Morb subculture dissolves and is largely absorbed by the Ghostman and Expret subcultures. Some sociologists see a trend of smaller subcultures being absorbed by larger ones.
- **2193:** The first manned mission to Uranus is completed by Unitech. It makes several orbits of the planet and lands a rover on the moon Miranda.
- **2194:** Commercial antimatter production begins on Mercury, utilizing vast solar arrays to generate the energy needed for its manufacture.

### The Jupiter Group Incident

On April 1, 2209, without warning, all four colonies around Jupiter went silent. Two days later, on April 3, a single message was broadcast: "The Jovian colonies and associated satellites are now the property of Jupiter Group. Do not approach Jupiter. Do not transmit to Jupiter." There still has been no word.

- **2195:** The Sovereign Liberation Front becomes widely known after they bomb four ships leaving dock at Miskan Station. Bounties are still unclaimed.
- **2198:** A research station in Shizen colony Europa claims to have received an encrypted signal being broadcast from somewhere in the Kuiper Belt. Later attempts to pick up the broadcast fail and copies of the signal are lost after a data breech at the station.
- **2199:** What's now known as the Dui Wu Ya Conflict begins, as street-level conflict between Jenseitech and Sinoex escalates to open warfare. The conflict continues to this day, although since 2207 the conflict has simmered back to street level.
- **2202:** Stillwater University mission to the Venusian surface claims to find tunnels in Maxwell Montes of an unnatural origin. This paper claiming this is later retracted and the program's funding cut by Jenseitech.
- **2205:** The first known Insurrection Virus infection occurs at a server farm in Stillwater. The infection becomes widespread and expands to a variety of other installations before it is discovered and contained. This operation disrupts the Martian net for a week.
- **2207:** Construction begins on Mandala Station in the Jovian Greek Trojans. With a target completion date of 2215, this station will be the first to use the O'Neill Cylinder design. It's size will also to make it the largest space station to date.

- **2209:** All colonies around Jupiter suddenly go silent. Two days later a single message on loop is broadcast. In it a corporation called the Jupiter Group claims responsibility and warns the rest of the solar system not to approach. All subsequent attempts to reach the Jovian colonies end in silence.

## 2210s

In the 2200s technological progress continues, while humankind expands further into the outer solar system. Several ambitious projects are now underway to expand space colonization, as well as send colonists beyond the bounds of Sol itself. Meanwhile, mysteries lie in the outer void.

- **2210:** Jenseitech gains an undisputed upper hand in the Dui Wu Ya Conflict, although the fighting continues.
- **2211:** Construction begins on the ARC Project, an ambitious attempt to construct an STL colony ship aimed at the planet Sirine at Alpha Centauri A. If successful, some 10,000 colonists will be sent in stasis on a centuries-long voyage to the new solar system. Applications for potential colonists are currently being accepted, but the ship isn't scheduled for completion until 2221.
- **2212:** The Luna Slasher claims an eighth victim, the latest in a campaign of series killings that spans fifteen years. Despite a massive amount of media attention the killings have attracted, the Slasher remains at large.
- **2213:** Sabotage at a Martian mining facility leads to an explosion that kills two dozen people. The Sovereign Liberation Front claims responsibility.
- **2214:** The present day.

## Looking to the Future

The 23rd century is still young and much about the future is unknown. The Dui Wu Ya Conflict still simmers and threatens to reignite in full. The Jupiter Group Incident still remains unresolved, and all it might take is one successful surviving expedition there to uncover its secrets. Mysteries remain with unexplained tunnels under the surface of Venus, unconfirmed movements within the atmosphere of Jupiter and enigmatic broadcasts detected from the Kuiper Belt. The ambitious ARC project aims to colonize beyond the solar system itself.

Technologically, human knowledge progresses. A breakthrough in sustainable nuclear fusion could spur a new space race and a new series of conflicts over He-3, an isotope rare on Earth but common in space. Advances in artificial intelligence could revolutionize everything. A breakthrough in nanotechnology could mean growing new colonies rather than building them. And of course with every breakthrough, there are those who would suppress the knowledge, or try to hoard it for themselves, reaping the profits.

In the outer void, the line between spectacular success and untimely death is very thin. And all it often takes is a few hardy individuals to change the course of human ventures into space for decades to come.

# Technology

New technologies are at the heart of science fiction. Time goes on; science advances; some problems are solved and other problems are created. The future of *Shadows Over Sol* is no different. This section contains discussion of a variety of technologies that have shaped both society and the human habitation in the Sol system.

## Space Travel

Space travel is necessary for human civilization to reach beyond the limits of Earth's upper atmosphere. In *Shadows Over Sol*, thousands of ships ply the void between the system's various planets, moons and asteroids.

## Engines & Thrust

The core of any significant spacecraft is its thorium reactor. This reactor uses nuclear fission to supply the power necessary for the ship's engines and other systems. This engine is almost always located on the back of a spacecraft, where it can be used to directly generate thrust in the form of fission-fragment rockets.

One of the largest technical issues using fission to generate power is the waste heat. A spaceship is in essence a large thermos flying through the void, and vacuum is a very good insulator. This means that the vast majority of the waste heat generated by the reactor is conducted into the rest of the ship. Running the thrusters for too long causes the temperature of the ship to increase. Run the thrusters too frequently and all the inhabitants of the ship boil to death. In this way, engine efficiency—how much waste heat the engines produce—is the limiting factor in the speed of space travel.

Fission-fragment rockets provide the thrust used in most interplanetary spacecraft. This design uses powerful magnetic fields to channel the output of the nuclear reaction to produce thrust. Momentum = mass × velocity. The mass ejected from a fission-fragment rocket may not be much, but the particles are emitted at close to the speed of light, meaning sufficient thrust can be generated.

Small distance spacecraft intended only for orbital trips or short-term deployment from a parent spacecraft use a different design altogether. These include shuttles and fighters. These spacecraft are generally fueled by powerful batteries that are charged when connected to their parent spacecraft. They then use this to maneuver with low-power ion thrusters.

## Design & Hulls

Spacecraft are designed very much like submarines. Most have a double-hulled design with an inner hull and an outer hull. This provides redundancy, ensuring that the interior of the spacecraft is not compromised. Between the inner and outer hull are typically a few feet. This space between the hulls can be used for storage and often houses the ship's water reservoirs and waste deposits. These water reservoirs are also often used as a heat sink for the reactor, channeling the waste heat into the mass closest to the surface of the ship, and thus closest to the cold void outside.

On civilian ships, the engine is often removed from much of the rest of the spacecraft, separated from the rest by large metal and ceramic struts. This increases the amount of waste energy radiated into space, rather than absorbed into the rest of the ship. The downside is that this leaves the engines easily vulnerable to attack. Military craft aren't able to afford this vulnerability, and consequently have to pay a premium for increased reactor efficiency. Many military ships also carry compliments of fighters, which can be deployed as additional protection for the engines.

Shuttles and fighters are often exceptions to these designs. They need to be small by nature to keep from consuming too much room within their parent ships. They also do not have the engine requirements of other ships. Consequently, they typically have only one hull and do not have significant water or waste reservoirs.

Most military ships have hulls whose exteriors are covered with a special black paint designed to absorb most light from ultraviolet into the infrared. This helps the ship avoid detection in some situations. When a ship wants to be detected, it typically broadcasts its

identification. Civilian ships are painted in any number of colors or patterns, but black often arouses suspicions due to its military use.

## Broadcasting & Running Silent

Ships are trivial to detect when under thrust or when broadcasting using radio comms. Any observer with the proper equipment can easily pick up the transmissions or heat signature from the accelerating vessel. The Ganymede Conference has also established rules for ships broadcasting their identification so observers know the nature of the ship and whose name it flies under.

There are times, however, when a ship might want to operate silently, avoiding detection as much as possible. This is most commonly done with military vessels, but occasionally pirate or smuggler activity will prompt other ships to run silent as well.

When running silent the thrusters are cut and the ship ceases broadcasting through radio comms, including the broadcast of any form of identification. Military ships are also usually painted black to help avoid visual detection.

Ships wanting to communicate while avoiding detection rely on laser comms. These comms can only be detected if an object or observer comes between the ship and its comm target. Also, their transmissions cannot be intercepted and decrypted in the way radio comms can. The downside of laser comms is that they require a specific target to receive the signals, and this target must be reachable in a straight line without interference. A laser comm cannot be used to broadcast.

## Hard Burns

When a ship enters combat or needs to make a sudden desperate maneuver it may perform what is called a "hard burn." During a hard burn, a ship will power its engines and thrusters up beyond their usual limits. This will allow the ship to maneuver very quickly, letting it dodge incoming attacks or avoid disaster. It will also cause the internal temperature of the ship to spike, causing issues if performed too frequently. Hard burns will

also cause the ship to experience G-forces, which can be hazardous to the crew.

Most ships are equipped with crash couches for the use of crew during hard burns. These are foam platforms with various medical equipment. During a hard burn, a crash couch with a crew member strapped in will both provide padding and monitor the crew member's physical condition, administering drugs to help keep her alive and awake despite the G-forces acting upon the ship.

## Stasis

Voyages through the Sol system can take months or even years. This is a lot of time to remain stuck inside a small metal and ceramic box with limited internal mobility and limited entertainment. Many people will snap after too much time in these conditions. The life support requirements to enable this can also be prohibitively expensive, meaning that even though it can technically be done, it's often too expensive.

To counteract this, the general rule is, for voyages of longer than 30 days, all passengers and crew are put into stasis. This puts a person into a suspended animation, slowing their metabolism down to a tenth its usual rate and keeping them asleep. Putting a person into stasis reduces the life support requirements for the voyage down to a tenth of their usual expense. It also allows the passenger to sleep the voyage away without going crazy from isolation.

For commercial voyages, paying passengers are usually put into stasis before the ship even leaves dock. This maximizes closeness to medical facilities if something does go wrong. The ship then launches, and crew are put into stasis within a day after launch. On the opposite end of the journey, crew are usually woken up a day before the destination is reached, to allow them time to get over stasis sickness. Passengers are woken up shortly after the ship docks.

Military voyages will sometimes leave a skeleton crew awake throughout the voyage, cycling crew members back into stasis every 30 days or so. Troops being transported are put into stasis for the entire journey.

For more information on stasis, see page 146.

# Space Habitats

Supporting human life in space requires food, water, living space, physical activity, protection from radiation, the right temperature range, the right atmospheric pressure, the right atmospheric composition and regular stimulus. All of these things are naturally in short supply out in the void and many of these are taken for granted on Earth.

## Life Support Loops

Because many of the elements to support life are in short supply in space, almost everything gets recycled and reused. Human waste is filtered and its water extracted for reuse. Solid composts are used to fertilize plants that are grown along walls or in agricultural bays. These plants take carbon dioxide out of the atmosphere and give off oxygen, which is breathed. Many are grown to produce food. Runoff water is likewise recycled. Most stations have easily-found recycling capsules, in which waste can be deposited for processing and reuse. Everything eventually goes in these, from worn out clothes to food wrappers. Everything sees reuse time and time again.

All stations and colonies have air scrubbers, which take in the ambient air, filtering out moisture for reuse, and filtering out harmful dust and chemicals. On all but a few agricultural colonies, it is also necessary to inject additional oxygen into the air as well.

Even with all of this recycling, no ship or habitat in space has a completely closed life support loop. Every station and colony in the system still depends, at least to some degree, on materials mined out of asteroids or other bodies—or more likely—shipped up out of Earth's gravity well.

The very best colonies may be able to go for years or decades without outside supply. The ARC Project aims to construct a colony ship that can go for centuries without resupply, but to this day the only completely closed life support loop is Earth itself.

## Gravity

Earth has the strongest gravity a person is likely to experience. The surface of Venus

## Space Elevators

Modern space travel wouldn't be possible without the aid of space elevators. These structures consist of long tethers which are anchored along the equator and which stretch upward into geostationary orbit. At the far end rests a counterweight, which holds the tether taut and keeps the entire structure from collapsing downward on itself. The counterweight usually consists of a geostationary space station or "high dock" at which ships can stop without the extra costs of entering the local gravity well.

Space elevators are crucial to space travel and colonization because without them reaching orbit would be orders of magnitude more expensive—prohibitively expensive enough to keep most ventures from being profitable.

comes close, but few missions venture down there due to its inhospitable nature. Everywhere else in the Sol system humanity is likely to venture has much lower gravity. Mars has a third the gravity of Earth. Luna has a tenth the gravity. Even the artificial gravity of most space stations is closer to Mars than to Earth—lower gravity means rotating slower, which means less strain on the station's hull.

The human body begins to deteriorate unless it has regular impact and regular exercise. Lower gravity means lower impact and less exercise when moving around. This also means that in space, more people's bodies will begin to quickly weaken unless they perform regular daily exercise. Spacer genelines are designed to help alleviate this problem for those lucky enough to have them, but gyms remain a popular recreational destination in habitats throughout the system. Those who don't get their daily exercise may weaken to the point where they will never be able to walk on Earth again.

On all but older "tin can" and asteroid stations, the habitat of the station rotates to produce artificial gravity through spin. This faux gravity doesn't feel the same as normal gravity. The Coriolis effect causes dropped

objects to fall slightly to the side. Too tight a spin can also cause those unaccustomed to the gravity of the station to feel nauseous as they move around. Additionally, the gravity produced can change dramatically as one moves towards or away from the axis of rotation, with the center of the spin being in microgravity and the outside rim of the spin having the most gravity.

## Structure

Space stations face many of the same design constraints as spaceships. At the core of a space station, there is typically a thorium reactor which supplies the station with all its necessary power. As with spaceships, the waste heat from this reactor is a concern, but as thrust is less of a concern for a space station, heat spikes from maneuvering isn't an issue and most stations can more efficiently use large heat sinks.

The hulls of most space stations are made from a combination of metal and ceramic. Metal is used for the main supports and skeleton of the station. It's strong, it's durable and it can take a lot of stress. Ceramic, on the other hand, is often used in the inner hull and around the power core of the station. It's used because it conducts heat less easily than metal while still being comparatively strong and durable. This allows heat to be channeled throughout the station where it is most needed.

Planetside colonies and asteroid habitats have a different design. These are typically dug into the rock and consist of a series of tunnels. Building a colony in this way allows the rock to act as radiation shielding, insulation as a giant heat sink for the waste energy from the reactor at the core of the colony. It also gives these colonies a narrow, maze-like quality which inhabitants find comforting and visitors find disquieting and disorienting.

## Natural Resources

Despite its hostility to life, space has many natural resources. Asteroids, planets and moons are mined for their minerals and other construction materials. Comets and the rings of gas giants are mined for water, which is used by colonies throughout the system and in the Martian Terraforming Project. This has ignited the water trade, which runs from the outer solar system to the inner, bringing in vast amounts of water. Space also has an abundance of exotic particles, many of which have found use in medicine.

# Space Stations

A variety of different space station designs are found throughout the Sol system. Here are a few of the most common designs.

## Tin Can

The oldest space stations—a handful of which still see use—are so-called "tin can" stations. These stations are usually little more than a hollow metallic shell which has been pressurized to keep in atmosphere. Sometimes several such modules are connected by tethers. These stations typically are designed for no more than a hundred or so inhabitants and provide no artificial gravity.

## Asteroid Habitats

Another older design, asteroid stations are simply hollowed out asteroids or other large pieces of rock. This provides cheap shielding from space radiation, and insulation, but provides no spin gravity and disorienting living conditions. Asteroid habitats are still commonly used as short-lived mining outposts or covert bases of operation. The largest asteroid habitats can house thousands of residents, but in practice, few do.

## Stanford Torus

The most common space station design remaining in use today, new Stanford torus construction was most popular between the 2090s and the 2170s. These stations consist of a donut-shaped right, usually around 2 km in diameter. This ring spins to provide artificial gravity, and a Stanford Torus station is usually designed to house around 10,000 residents. At the center of the ring is a hub, usually connected to the ring through a series of spokes that radiate away from it. Connected to the hub are a series of mirrors that channel sunlight into the station's ring.

## Bernal Sphere

A common design for space stations since the 2170s, a Bernal sphere is essentially a hollow spherical shell that rotates to provide spin gravity. Bernal sphere stations are typically about 16 km in diameter and house between 20,000 and 30,000 residents. Often at the poles—where the spin gravity is lowest—the material of the station is transparent, and a series of exterior and interior mirrors channel sunlight into the station.

## O'Neill Cylinder

An upcoming design used in Mandala Station and a few other proposed stations, the O'Neill design consists of two counter-rotating cylinders, divided lengthwise into six sections. These sections alternate between transparent sections to allow sunlight into the station, and "land area" on which inhabitants of the station live. Each cylinder is usually about 5 km in diameter and up to 32 km in length. A O'Neill cylinder station is designed for up to 100,000 residents.
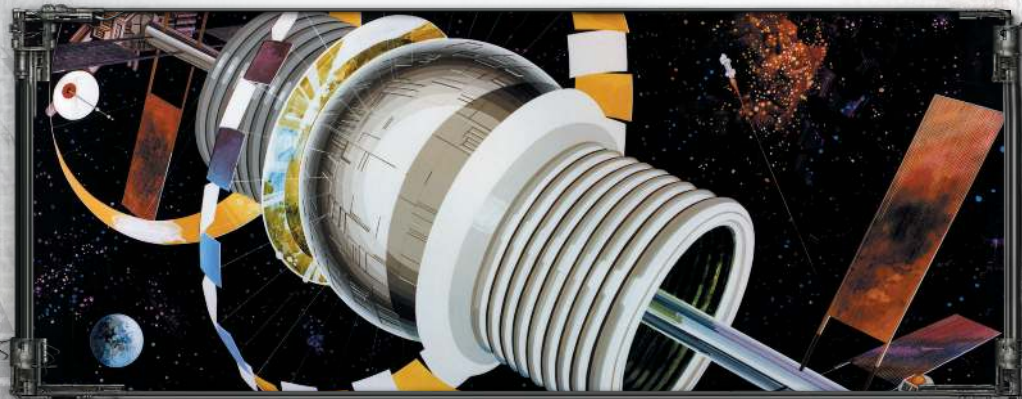
## Power Generation

The vast majority of power generated for human use comes from either thorium-based nuclear fission or solar energy. On Earth, wind energy and hydroelectric power also enter the picture, but since space lacks both wind and sizable quantities of liquid water, pretty much everything is either nuclear or solar outside of Earth.

### Solar Power

Solar power is collected in large solar arrays and used to power colonies, space stations and battery-powered vehicles. It is most commonly used on planetary bodies in the inner solar system because the attainable solar energy per area decreases exponentially with distance from the sun. In a practical sense, this means solar power is most useful in and around Mercury, Venus and Earth. By the time light gets to Mars, large solar arrays are only useful because vast areas of the Martian surface can be taken up with them. By the time light gets to the Belt, solar arrays would have to be so impractically large that they simply aren't used.

### Thorium Power

Thorium-based nuclear fission is the cornerstone of space travel. It powers almost all spaceships, space stations and colonies from the Belt outward. Thorium is an abundant element, making it cheaper and more easily attainable than Uranium—the traditional fuel for fission electrical production. It also produces less dangerous nuclear waste.

On the flip side, generating energy from nuclear fission results in vast amounts of wasted heat. On a planet, bodies of water or other material can be used as a heat sink to absorb all this waste heat. On a spaceship or space station, however, this heat still needs to go somewhere. Remember, vacuum is a very good insulator, while the metal frame of a ship or station conducts heat very well. Practically this means spaceships and space stations need to cap how much energy they produce; otherwise the waste heat will transfer into the rest of the station and bake the inhabitants alive.

### The Failure of Fusion

It's worth noting that in *Shadows Over Sol*, sustainable nuclear fusion as a power source has never quite panned out. Despite promises to the contrary and claims of it being "just a couple decades away," technical issues have always rendered it technologically and economically infeasible. In short, the often-promised future of nearly free and clean fusion-based energy remains a fairy tale.

## Biotechnology

While basic manipulation of the material that makes up life itself has become somewhat commonplace, many of the more exacting manipulations are still beyond the limits of early twenty-third century science. Meat may be grown in vats, babies may be genetically modified before birth, many cancers may be curable and bacteriophage may fight off anti-biotic-resistant diseases, but at the same time, creation of higher intelligence remains elusive. Organisms cannot be constructed whole cloth, and there are still many mysteries to solve in the twin worlds of genomics and ecology.

### Human Genetic Engineering

Prenatal genetic engineering has long been commonplace. Few people want their children to suffer from potentially debilitating genetic diseases, so most children these days are, at the very least, screened for such diseases and infringing genes are fixed before birth. Bit by bit, common genetic diseases are becoming less common, as there are fewer people with them passing them along to children.

In the last several decades, genetic enhancement before birth has also become common. Many people are willing to pay to give their children an advantage in being smarter or faster or stronger or more charismatic. As this sort of enhancement becomes the norm, those who don't pay for this sort of enhancement risk their children facing an even greater competitive disadvantage.

In space, the pressures for prenatal genetic enhancement are even stronger. Individuals lacking enhancement are at a greater risk for bone deterioration. They're at a greater risk

from space radiation. They're at a greater risk of poor brain development due to conditions of lower oxygen. In space, genetic enhancement is more than just a competitive enhancement—it's an adaptation to the environment.

The practice of human genetic engineering has also raised a variety of social concerns. The children of rich parents—already at an economic and social advantage—are now more prone to have biological advantages as well. The sudden dominance of selected "good genes" is leading to a loss of genetic diversity in some areas. This allows for the possibility of widespread and devastating diseases targeting the shared genes. Corps have also cashed in on the demand for engineered children, creating genelines, which become problematic in subsequent generations unless enhancement is repeatedly paid for.

## Nonhuman Genetic Engineering

Genetic engineering is also ubiquitous in agriculture. Numerous crops and livestock have been adapted to different environments as climate change continues to affect the world's ecosystems. Crops have likewise been adapted for growth in space habitats. Pets and helper animals have been adapted to make them smarter, cheaper to maintain or more useful.

Vatmeat has become the dominant form of meat consumed by human society. Why pay for an animal's housing, treatment and feed when you can just grow some meat in a vat on your kitchen counter? Various cross-genetic meats are currently a fad—there doesn't even need to be a living analogous animal.

## Medical Technology

Medical technology has come a long way. Many people keep genetic samples of them- selves in storage so new organs can be grown if needed. Regrowth treatments allow people to slowly regenerate missing limbs or heal what would formerly leave a nasty scar. Drugs are often tailored to the patient's genome. Suspended animation can make surgeries safer. Sensory recording and AR can reach people in various forms of coma.

## Bioware Implants

Implants are currently not in vogue, but biological implants have been some of the most enduring. Artificial glands have been used in a variety of fields to provide chemical enhancement on the job. Enhanced eyes have been grown that allow the recipient to see into the infrared or to see better underwater.

## Radical Science

So far the technologies mentioned have focused on what has become common. But that's not to say it's the limit of what is tech- nologically possible. Many discoveries and experiments have fallen by the wayside, not because there are technical limitations, but because they're not economical enough to become commonplace.

More radical human genelines have been created in laboratories and among security research—half-human beings that can breathe in water, have an exoskeleton or who can spit acid. Such research is not common, but it is pursued. Hybrid animals have been created, melding traits from various genetic donors. Creatures with enhanced senses or intel- ligence exist. There are a handful of people whose bodies have been designed to literally break down unless they pay for proprietary medical treatments.

# Computing

Computers have come a long way from their humble beginnings. Today, primitive wireless computers are found in all sorts of objects, from household appliances to shipping crates, from exterior doors to vehicles. These computers do basic processing tasks, from taking self-inventory to relaying tracking information. The spread of wireless network connectivity has made this possible, long having ushered in an era of ubiquitous computing. Most of these computing devices don't have human interfaces; however, instead accepting commands over the network from authenticated users.

## Hand Terminals

For most people, computer use centers around their hand terminal—a handheld computer that works much like a smartphone on steroids. It acts as a daily organizer, will accept basic programmed tasks and will route larger processing tasks to other networked computers for which the user has access. It uses radio comms to send and receive messages, can transmit video and audio, takes photos, connects to various planetary positioning systems and can send commands to nearby networked machines. It stores files, runs games and accepts input from the user's AR devices. In short, it's a mini-personal computer with limited processing power, but the ability to route larger processing jobs to more powerful stationary machines.

Need to check which storage crates are in your cargo bay? Just ask your hand terminal, and it will wirelessly ping the mini-computers in all of the crates in your cargo hold, giving you an up-to-the-moment inventory. This is just one example of the many tasks possible through a hand terminal and a network.

## The Net

The open computer network—or simply "the net"—is the information backbone of society. It's used to connect with friends, plot the courses of ships, purchase goods, track goods, retrieve AR tags, get the news, organize and pretty much everything else.

The net is a decentralized network dependent on no single computer or entity. A mixture of powerful and not-so-powerful machines route information around, backing the available information and computation services. These services are called "nodes," and they can be visited or queried in much the same way as an early twenty-first century websites only without the dependency on a centralized server. Nodes come with various interfaces, from traditional on-screen display optimized for hand terminal use to augmented reality display layers or tag clouds to full-on virtual environments. The later of these are known as simspaces.

Simspaces are complete virtual environments geared towards interaction over the net in a "naturalistic" fashion. They can appear to be anything from a shady nightclub to a grandiose mansion, from a barren alien landscape to a historical period piece. Users logged into a simspace are also usually made to appear in a way that fits the theme, although most simspaces are programmed to give individuals a great deal of leeway in their appearance. This is the user "avatar" in the virtual world. Simspaces run the gamut from simple places to socialize to full-fledged virtual games with statistics and special abilities. They're used by corps and other organizations for teleconferencing. They're used to arrange shady deals or anonymous hookups across the net, and they're used for all manner of recreation.

## Augmented Reality

Augmented Reality (AR) is a burgeoning technology that imposes digitally-created layers of information over a user's view of the world around her. It might include tags labeling the names of people she has met before, so she never appears to forget a name. It might pop up reviews of a restaurant as she walks by it. It can bring up synonyms for words as she speaks, or provide a visual alert when she wanders into a dangerous neighborhood. AR is increasingly ubiquitous, and the possibilities are endless.

AR technology has existed in some form for over a century, but is only in the last decade or two that it has been developed and polished enough for mass adoption. AR works through either displaying the digital layers on a wearer's AR glasses, tracking eye movement to align the display correctly, or through high-tech AR implants that intercept the nerve signals

between the eyes and the brain, editing them to include the new visual layer. The former method has the benefit of being cheaper and less invasive, but it has the drawback that others can see the display on the glasses—albeit smaller and backwards—and thus lacks the privacy that the implant method ensures. Whether displayed through glasses or through an implant, AR devices typically connect wirelessly to a user's hand terminal or other computing device. This device provides the processing power necessary to run AR programs and operates the network connection on behalf of the AR display.

One of the most common ways that AR is used is through the posting of tags. Tags are small piece of digital information that can be attached to real world objects through a tag cloud. AR users who subscribe to a tag cloud who encounter a real world object with a tag will see the tag come up in their field of vision. This can give them information about what they're encountering. A tool seen in a store might be tagged with reviews or the price. People that are encountered might be tagged with relationship status, criminal status or common interests. Roads might be tagged with their destination or traffic congestion.

Tags are, however, one of the ways in which the culture is fractured. Different subcultures often operate their own tag clouds, meaning that different people encountering the same real world object will see different tags, and will sometimes consequently come to different conclusions about it. Corps, too, often have their own private tag clouds for employees or those with privileged information.

Most tag clouds are public, meaning anyone can subscribe or post to them. Others are private, only allowing people to view or post by invite only. Still others are some combination of the two—such as tag clouds whose tags are carefully curated, but to which anyone can subscribe.

## Violence & Warfare

Since the World War IV, warfare has gotten smaller in scale and broader in scope. Instead of massive battles and well-defined theaters of combat, wars are fought through smaller skirmishes, raids, assassinations, sabotage, electronic infiltration and targeted orbital strikes.

They're tallied up as cost objects, decided upon in board rooms and executed by paid mercenaries or specialist security forces.

Small scale violence, on the other hand, still happens the same way it always has. Rival gangs fight it out for turf or to save face. Domestic disturbances end in tragedy. Hotheaded youth pull weapons and start their lives on a sudden downward spiral.

## Personal Weaponry

Chemically-propelled projectiles are still the bread and butter of personal weaponry. That is to say, guns are the most common personal weapon. Compared to most other weapons, they're cheap, easy to use and lethal at a distance. They're used by gangs and security forces the world over.

Traditional firearms are, however, at a decided disadvantage in microgravity, as the recoil that firearms possess can send the wielder spinning at uncontrollable angles, leaving her vulnerable to return fire and at disadvantage for future shots.

In these environments, combatants typically rely on laser weaponry. Lasers, unlike slug throwers, have minimal recoil, making them easier to use in microgravity, and they do not depend on atmospheric oxygen to ignite cartridges, allowing them to function in vacuum. On the other hand, they're bulkier, more expensive and more temperamental than guns, limiting their use in other environments.

## Personal Armor

As battles have grown smaller, more money can often be afforded per combatant, bringing enhanced personal armor back into vogue among professional military units. Combined with the need for sealed protective suits in many space environments, these factors have combined to make modern power armor the pinnacle of combatant personal protection.

## Tactics

Military assets are often designed to be mobile or hidden. The abundance of space-based and long-distance artillery has rendered stationary bases of operation obvious targets. This means a greater reliance has been placed

upon fast-moving mobile vehicles, such as spacecrafts or small-scale land vehicles that can pass from orbit as standard groundcars.

# Entertainment

Every society needs its entertainment. In the future of *Shadows Over Sol* the usual music, books, games and vids have been augmented by the ranks of simspaces, sensory playback and AR layers. Celebrity culture remains a thriving phenomenon, grown by the idea of glamor as intellectual property. Some of the darker forms of entertainment—blood-sports and the like—have even found a place in the shadier corners of the system.

## Traditional Media

Traditional media is alive and well. New music appears daily on the net for immediate download. New books appear regularly as well, but the high cost of paper has rendered traditional printing expensive. Anyone with a hand terminal and media editing software can make a vid. Computer games appear in the net regularly. Many of these traditional media pieces have even been enhanced with new media.

## New Media

There's an ongoing fad that has popularized both AR games and AR vids. AR games work a lot like traditional video games, except the action of the game is superimposed over the world around the player. It may cause her hab complex to appear as a sinister dungeon, and allow her to swing her arms as if she were fighting monsters that are superimposed into her field of vision. AR vids operate in much the same way, except instead of being an interactive game, they are an ongoing narrative that is superimposed over the real world. Instead of a vid showing a mysterious shooting in an alleyway, if a viewer has an AR vid turned on, she may observe a superimposed shooting occur when she passes a real world alleyway. This can create an immersive narrative experience, as events in the AR vid progress as the viewer goes about her life.

Sensory playback is also common in new media, although it reached the height of its fad twenty-some years ago. Essentially it works like a traditional vid, except tactile, olfactory and other sensations are transmitted in addition to audio and visual. Sensory playback exists as an optional track to many new vids and some AR vids and has found a particular niche in pornographic media.

## Celebrity as Intellectual Property

Think over-the-top glamor: costumes and wigs, cosmetic surgery, eyes that literally sparkle, glow-in-the-dark hair. Smooth Jackson isn't just a larger-than-life party-boy, he lives the dream—day and night. He's a media icon, a celebrity followed by millions on social media and the news. He revels in youth; he's been young for nearly 30 years. He drinks a liter of vodka a night and survives, not because of a biotech liver, but because he's three different people.

Take away the makeup, the wigs, the glamor and the party-boy lifestyle, it doesn't really matter who's underneath. Beauty can be bought at the tip of a scalpel. What matters is the idea. Smooth Jackson is an ideal, a staple of Heed youth culture. He's intellectual property. When one man wearing Jackson's mantle ages out of the role, another look-alike is found to replace him. This is common in popular culture nowadays. Celebrity isn't selling a person; it's selling an image. It's the same sort of staged and dramatized attraction that keeps people coming back to reality vids or professional wrestling.

## Bloodsports

Bloodsports have existed throughout most of human history—from the ancient Greek pankration, to Roman gladiators, to Sumbanese pasola spear fighting. Their comparative absence in the twentieth and twenty-first centuries is just a blip in the long view of things. Now, in the early twenty-third century, they appear to be staging a comeback. In countless decaying urban centers on Earth, and in Chi Chen on Mars, games are being formed to fight to grievous injury or even to the death. So far these games have mostly been underground, kept to the seedier corners of society and on the net. However, recent deals in Chi Chen promise to broadcast their upcoming season of fight-to-the-death blood sports in a much more open way, and to a much broader audience.

# Life in the 23rd

Life goes on. It evolves. In the early twenty-third century it is still changing. People in **Shadows Over Sol** still form families, still need education for many jobs and many still attend religious services. Other things have changed, though, such as where people look to form relationships, the methods used in education and many of the allegiances of everyday life.

## Relationships

Human society would not exist without relationships, and in the twenty-third century it is no different.

Family is still an important component of most anyone's life, even if family members are spread out throughout the system. Most people inherit their subculture from their parents. Corp and nation-state citizenship is often transferred automatically from parent to child. Family wealth also largely determines access to education and the most profitable jobs.

The institution of marriage is also still alive and well, even if it has evolved substantially. Marriages typically last an average of 8 years, and few people expect to be married for life. Same-sex marriage is accepted in all but a few Serv groups, and in most places group marriage—marriage between three or more consenting adults—are also commonly accepted.

These newer permutations of marriages are particularly relevant when children come into the picture. Advances in biotech mean viable children can be produced from parents of the same sex or even from the DNA of more than two individual parents. This comes with a sometimes hefty price tag, though, and as a consequence, it is significantly more common among the well-to-do. The average number of children is slightly over two, and the population keeps creeping upwards, with Earth now home to over 12 billion human beings.

The rise of reliable telepresence technologies has resulted in extended families spreading out more than they used to. People tend to go where their patron corp sends them, and the idea of living one's adult life in the same town or neighborhood where one grew up is seen as something of a charming thing of the past.

## Education

Almost everyone born into a corp citizenship gets at least a basic middle school-level education. It's used to indoctrinate children, teach social norms and ensure a competent workforce. Many nation-states also still contract out basic schooling for those without a corp. Only the illegal, unregistered or poorest go without this level of education. Beyond this level, however, how much schooling one gets is largely a function of family wealth, connections and ability.

New technologies have also changed education significantly. Telepresence technology allows classrooms to virtually stretch across the system. AR technologies are used to teach reading and the names of objects encountered in the surrounding world. Simspaces are used to model lifelike situations and test on their subject matter.

## Religion

Religion is alive as well. Despite all the new technologies and all the advances in science, many people still need faith and the comfort it brings. Religion isn't just something for the Serv subculture—even if the Servs define themselves by it—it's an eons-old institution attended to by people from all subcultures. It's one of the dwindling ways in which people from the fractured subcultures regularly interact.

That said, religion—like the rest of human society—is always evolving. New beliefs or interpretations of scriptures arise. Entire new faiths sometimes spring up, although how much traction they get is often limited.

The list of the world's largest religions hasn't changed much in the last two centuries, despite some gains, losses and schisms. They are still Christianity, Islam, Hinduism and Buddhism, with a sizable chunk of people being nonreligious as well.
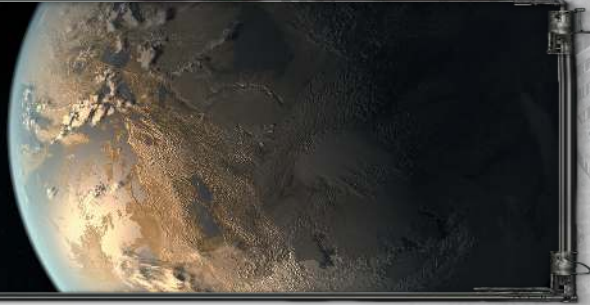
## Subcultures

Subcultures are almost like an extra extended family. They provide social support when the corps don't see profit in it. They are a way for people to meet. They reaffirm people's beliefs. They have their own celebrities, AR tag clouds, net nodes and styles of interaction. In many ways, subcultures are the new neighborhoods in a world infatuated with telepresence. For more on subcultures, see page 36.

## Corps

Corps are the juggernauts of the world, and for many a corp citizenship is more important than a nation-state citizenship. Corps educate their employees' children, provide social services and, of course, provide jobs in a world where many former jobs have been replaced with automation. For more on corps, see page 54.

## Wealth

The gulf of wealth between the haves and the have-nots waxes and wanes throughout the centuries, but it's currently on the rise and nearing an all-time high. Corps may trickle some wealth down to their lower class citizens—society needs enough buying power to keep the economy afloat, after all—but individuals in corp upper management can often outspend entire nation-states.

In many nation-states, the current trend is there to be something of a basic income system. This keeps many in the poorer classes afloat and the corp goods flowing. Often this income isn't in actual currency, but rather in vouchers for basic necessities—sometimes tied to goods approved by the local nation-state or corp. In space this basic income tends to be even less liquid, often being paid out as vouchers for air, basic food and water.

Amongst all these economic happenings, the practice of indenture has wormed its way back into common use. This ties individuals to a particular employer and is often used as a punishment for defaulting on debts or as a means to pay off loans.

## Law & Punishment

Laws are typically passed by nation-states or dictated by corps. Breaking them is done at one's own risk, but the response from the security or law enforcement charged with upholding the law is usually a function of expense and popular opinion. Sometimes security wants to make a point that certain actions won't be tolerated. Other times the expense of tracking down a criminal means not a lot of effort is expended doing so.

Courts are largely contracted out to corps, who are by and large responsive to those pulling the purse strings. Trails are speedier than many twenty-first century trials.

Capital punishment is highly frowned upon; it is not on the books in most nation-states and corps or is little-exercised only on the books for a handful of very grave offenses. "More humane" punishments are more common, including mental or chemical alteration, various forms of corporeal punishment and fines. Long-term incarceration is moderately rare—and extremely rare in space—but incarceration in stasis is sometimes practiced, as it is cheaper than incarceration while conscious.

# Subcultures

In the twenty-third century, society has splintered into numerous minor subcultures, each being fed their own spin on the world around them and possessing their own values, distinct from the other subcultures. These subcultures usually have their own trends in dress and speech, allowing members to easily identify others that share the same subculture and those who do not belong.

## Subcultures in Society

Subcultures tend to run in families, and in the new transient society, they often serve the same purpose that extended families once did, providing local support networks for other members of the subculture. In this way, subcultural identification and visibility is important because it comes with a ready-made set of contacts and social safety net for those who adhere to their subculture.

The trend of subcultures to run in families, however, does not mean subcultures don't change. Indeed, long-lasting subcultures—like any human institution—tend to morph and change with time. The subcultural views of one's grandparents will be subtly different than the views of the youth in that subculture.

Sometimes these views diverge by greater amounts, and when this happens, subcultures tend to break apart or merge with other subcultures that have grown in a similar direction. Despite sometimes dramatic long-term changes, however, long-lasting subcultures have a continuity of identity. Even despite the tendency of subcultures to change with time, younger members of a family don't always see eye-to-eye with their elders. When this happens, the younger member may switch subculture. Subcultures are not assigned entities; they are a matter of self-identification. A new member of a subculture will have to work to be seen as a member of that subculture and will have to win acceptance. She'll initially be at a disadvantage compared to those who were born into it, but with enough effort she ought to be able to adapt.

Subcultures tend to have their own virtual spaces on the net, as well as their own blogs, news streams, shops and sometimes real-world hangouts. Even in places that aren't subculturally-aligned, the experience between members of different subcultures may be very different. Due to the ubiquitousness of AR technology, a member of one subculture may encounter a businessman and see him tagged with AR notes indicating significant upward mobility, a soundness of investment and a note that he is wearing a top-shelf cologne. A member of a different subculture viewing the same man may see AR tags indicating his involvement in releasing industrial pollutants into the atmosphere, a note of the names of three homeless men he's assaulted and photos of his time spent with cheap hookers. These differences in experience paint a different picture of the world around them, and tend to reinforce the confirmation biases different subcultures already have.

## Major Subcultures

The first wave of settlers in space was largely fringe groups and outcasts. They had religious or political views outside of the mainstream, or even just lifestyles that did not fit in. Some were fundamentalists and others were anarchists, but what all of these early settlers had in common is that they would rather take their chances in the great unknown of space than live in the society back on Earth.

In these early days of space settlement corp, workers went to space to mine or do business. They did not settle there for good. But as more and more commerce moved into space and human interests expanded further throughout the solar system, straight-laced corp workers began to migrate to space as well. As the great unknown of space began to be more settled and more known, others followed as well.

These settlement patterns mean the subcultures commonly represented in space aren't always representative of the subcultural population back on Earth. The eight largest subcultures in space are described in detail in the following sections. Many of these subcultures have established a particular role off Earth and have used it to expand their members and interests. Others

are simply common subcultures back on Earth and are consequently numerous in space as well by weight of sheer numbers.

## Satellites & Minor Subcultures

These eight subcultures are far from being the only subcultures in space, let alone back on Earth. There are literally hundreds of subcultures out there, with most only prominent in their own corners of the net and the world. Many minor subcultures can also be seen as satellites of the major subcultures, having significant similarities but retaining a distinct identity. With time many of these satellite subcultures will merge into or completely split off from the major subculture. For now they live at its fringes, consuming its media and often making use of its AR tags.

A sampling of minor subcultures is listed in brief below:

- **Bunkers:** A relatively new subculture that grew out of the Servs, Bunkers believe the transience of human settlement patterns has undermined the fabric of society. They argue for a more stationary existence, claiming that telecommuting and remote operations has made this easily feasible.
- **Postals:** Postals are a radical outgrowth of the Techno subculture. They seek to become post-human through augmentation and genetic modification, engaging in a greater degree of alteration than is socially acceptable, even among the Technos.
- **Tribals:** Tribals are a satellite of the Neoret subculture. They romanticizes the past tribal structures of humanity. Often they can be seen in urban environments, squatting in the crumbling shells of buildings and staking out territory in small gangs.
- **Virtuals:** Virtuals are a subculture that collectively fetishizes the net, claiming that meatspace is mostly obsolete and that the pinnacle of human expression is only reached in simspaces, where reality itself can be molded.

## Entros

*Just bleedin' pipe down already! I didn't break your bleedin' arm... I think.*

*Anyway, now that we've tap danced a little, I think it's time for you and I to have a bit of a heart-to-heart. You see, I don't appreciate you coming in here, swaggering your Former ass, and throwing around your excessive cred and plastic-sculpted face like all of us here and product to be bought and sold. You may think you're big shit up there at the skyline, but here in the gutters we can see you people for what you are: The worm living in the apple.*

*Bleedin' look at me when I talk to you, damn it! Now I've said my piece. I don't want you commin' around here no more.*

## Values

The Entro subculture thrives on discord and an unrefined aesthetic that is supposed to seem more authentic. It's highly critical of authorities, social class and corporate power. Adherents to the subculture prize stubborn determination and bullheadedness, even to the point of throwing punches.

In many ways the Entro subculture is a long-lived counterculture, rebelling against many of the trends of the last half century. Entros typically reject powerful authority figures—both corporate and otherwise. Displays of aggression, rebellion and individualism are hallmarks of the subculture, coupled with an emphasis of value on what is perceived as raw or authentic. Entros also tend to prize a do it yourself attitude, and sometimes outright reject over-reliance on mass production.

## Memes

The following cultural trappings and practices have arisen to prominence in the Entro subculture in the past couple decades:

- **Cowbells:** Cowbells have come to be seen as a symbol of the subculture, and on the net stylized cowbells are used as icons for the subculture. The arises from the early ubiquitous use of cowbells in Entro-associated music.
- **Fist Fights:** Many Entros see fist fights as a prized way to settle small disputes

or blow off anger and steam before sitting down to settle an issue. Such fights always last until one side yields, rarely to the point of serious injury.

- **Hand-Modified Clothing:** Clothing that has obviously been modified by hand, including with darning, knitting or patching is seen as particularly emblematic of the subculture. Additionally, natural materials such as cotton or wool are often favored over synthetic materials.

## History

The Entro subculture grew out of mainstream Western culture sometime in the late 2080s to early 2090s. At first linked strongly to the Dissociative Youth Movement, it soon was established as a full-fledged subculture in its own right. Like its predecessor, the Entro subculture rejected many the social and economic institutions that had long been staples of society, as well as the sleek glass-and-chrome aesthetic then at its height in the West. The Entro subculture also contained strong anarchistic and anti-establishment sympathies, coupled with a tendency to shock and offend.

These values earned the fledgling subculture little love from those in positions of authority, and it quickly came to be associated with civil unrest and lower class rabble-rousing. It's perhaps this marginalization by much of the rest of society that led large numbers of Entros to leave Earth for space throughout the 2110s and 2120s, making the subculture well represented in space—particularly in Chi Chen, as well as many stations in the Belt.

The Entro subculture's reputation took a further turn for the worse in 2141, during the Black Night terrorist incident, where a group of Entros took Domus Station hostage, demanding an end to Unitech's policy of blacklisting suspected troublemakers from space travel. The perpetrators were quickly and summarily executed, but the incident set off a firestorm of anti-Entro sentiment in various media.

This negative media continued well into the late 2140s and the beginning of World War IV, when the Entro subculture largely sided—

sympathetically, if not militarily—with the Eastern Powers. In regions not aligned with the Eastern Powers, many Entros were held under open suspicion; in others they were sometimes rounded up and held as a threat to the war effort.

Today the Entro subculture is still going strong, but continues to exist as a sometimes vilified group. Associations between the subculture and terrorist organizations, such as the Sovereign Liberation Front, do much to continue the damage to the subculture's reputation. Additionally, Entros are underrepresented in major corporations and in other halls of power, a fact that is hardly surprising given its values and anti-establishment tendencies.

# Exprets

*I don't want to be a vetch, but I have to make my feelings known: I don't like what you're doing to the corp. I know... I know... It's not my place to make decisions of policy. But this is really a matter of utmost importance. I couldn't live with myself if I didn't say something. So let me say this. Just sit back and let me say this:*

*Does the new corp station have to be so brutalist?!? Maybe a little art deco? Maybe a little blobist or Amsterdam school? That would be nice. But why does it have to be so unattractively boxy?!? To hell with the deng, our stations are the outward expressions of the state of our minds!*

## Values

Expret culture values aesthetics and creative expression in all things, placing great emphasis upon forms that appeal to the emotions. It particularly values personal upkeep and appearance and places great value on interpersonal communication, even in areas that others might consider too personal for comfort. This drive toward pleasing aesthetics and openness—particularly in regards to the attention many Exprets pay to their personal expression and appearance—has led some outside the Expret subculture to negatively caricaturize Exprets as wishy-washy shallow art aficionados without a filter.

## Memes

The following cultural trappings and practices have arisen to prominence in the Expret subculture in the past couple decades:

- **Face Paint:** It's common—particularly among the younger generation of Exprets—to paint their face each morning in a way that symbolizes their mood that day. Such painting usually emphasizes or exaggerates a particular emotional expression.
- **Poetry:** The poetic tradition is alive among the Exprets, and many short asynchronous communications are delivered in verse.
- **Tassels & Clothing:** Stereotypically Expret clothing is loose—particularly at the sleeves—and flowy, with lots of tassels and frills. In practice, this style of dress is mostly only still popular with the older genera-

tion of Exprets, but tassels in some form are still common because they've become a symbol of the subculture.

## History

The Expret subculture is the second oldest still-existent subculture to break away from the old mainstream culture, diverging first in Eastern Europe sometime in the 2070s.

As with many early subcultures, the Exprets began as a youth subculture which grew up along with a generation, was retained into old age, and then was passed down to the subsequent generations. A wealthy subculture from the very beginning, the first Exprets were among the upper crust. Gradually over time, these individuals grew increasingly distinct in both values and tastes from the Eastern European masses and began to focus increasingly on ascetics.

The subculture spread throughout Europe and then the world in the 2090s, skipping the first wave of space settlement entirely. After World War III, however, the second wave of space settlement began, pushed largely by the corps. In this wave of settlement, the Exprets were at the forefront. They expanded into space and settled particularly in the stations at the L4 and L5 Lagrange points—settlements where they are still found in abundance today.

In World War IV, the Exprets largely aligned themselves with the Corporate Powers. This was a natural alliance because Exprets made up the upper ranks of many of the world's most prominent corps. This served the subculture well at the end of the war, and in the aftermath the subculture continued to expand among the corp upper ranks.

The period immediately following World War IV may have been the pinnacle of the influence of the subculture, however. By the 2170s it was seen by many as an ailing dinosaur—a massive but senile relic of the 2070s. Some began to speculate that it wouldn't be long before the subculture would fracture.

That never happened, however. Sometime around 2190, another ailing subculture, the Morbs, fractured and their former members largely found their way into either the Exprets

or the Ghostmen. This injection of new blood and new views was exactly what the Exprets needed. Within a decade, the subculture underwent some shifts in power but was revitalized in influence.

Exprets today remain an influential faction, particularly in the orbital and Lagrange settlements around Earth. They make up the upper ranks of many corps—most notably Jenseitech—and retain much of the connection to their moneyed history, even if this connection has been somewhat diluted in the new century. The Morb influence, while good for the subculture's vitality, has created something of a divide between the older generation of Exprets and the younger generation. This divide is expected to lessen as the older generation dwindles proportionally.

# Formers

*Jackie's been a little lax lately, hasn't he? Not really working to earn his keep. He acts like he thinks that air is free! Imagine that! Maybe it's time we forced him to spend some time down with the gongren—perhaps that will motivate the boy to work a little harder.*

*Speaking of which, how do you get your hair to stand straight like that? Mei! It's gorgeous. Whenever I venture into microgravity it's like my hair forms a mind of its own—drifts everywhere, goes all fabiao. It's positively dreadful! And your skin—it's as smooth as new molding. How do you manage it so well?*

## Values

The Former subculture almost fetishizes the pursuit of perfection. Adherents to the subculture typically a don a perfected "plastic" look with large hair, starched clothing and meticulous personal upkeep. This aesthetic is very stylized, with features often either exaggerated or covered up.

Formers are frequently workaholics, seeking advancement in their careers. Traditionally formers are not ones to adhere to abstract ideals, preferring instead to value practical action, performance and results above all else.

Formers are traditionally a moneyed subculture, and by-in-large, they prize material comforts. This combined with their attention to personal upkeep has led some to criticize the subculture as wealth-obsessed, unforgiving and hallow.

## Memes

The following cultural trappings and memes have arisen to prominence in the Former subculture in the past few decades:

- **Big Hair & Starched Clothing:** Hair styles among formers tend to be large, starched and highly styled. Many feature elaborate braids, loops or twirls—both among the masculine and feminine.
- **Plastic Styles:** Formers favor an almost "plastic" look, with makeup of skin treatments smoothing out any wrinkles, freckles or moles. Body hair is typically removed with laser treatments.
- **Locked Arms:** When groups of young formers travel together they will lock arms as they walk or wait. In the last couple decades locked arms has risen to be a symbol of Former subculture, as it has prominently featured in several vids.

## History

The Former subculture originated in North America in the 2060s. It is the oldest still-existent subculture and paved the way for many of the later subcultures to break away from the mainstream culture. Unlike with these later subcultures, however, the Formers didn't begin as a youth subculture so much as a class-based self-segregation that eventually grew up into a subculture all its own.

The Formers were involved in the first great expansion into space throughout the 2090s and 2100s, giving them an early toehold on Luna, where they are still in abundance today. Throughout this period, the subculture began to largely divest themselves from nation-states, starting a larger trend to do so. This distance served them well in World War III and left them in a position of power after the war.

During the period between the two twenty-second century world wars, however, the Former subculture began to falter. Despite coming in with a position of power, the Formers began to lose ground in corp circles to the Expret subculture. This situation would continue until World War IV, with the Formers being in an increasingly vulnerable state.

In World War IV, the Former subculture largely backed the Corporate Powers. This was a natural alliance, and in the activity of the war, the Formers were able to make up some of their lost ground in the hierarchies of the world's corps. This maneuvering served them well and coming out of World War IV, the Formers were once again on an upswing.

In the aftermath of the war in the 2060s, the Former subculture missed the boat entirely with the rise of AR technology. While other subcultures were busy building their AR tag clouds, the Formers were busy in board rooms. This lag behind in AR technology began to be

increasingly obvious, and the subculture spent much of the 2080s playing catch-up.

In the 2190s, the Formers found themselves mired in the Dui Wu Ya conflict. This was a blow to the subculture, as it fractured much of their internal solidarity.

Today the Formers are still riding the momentum of their upswing in the aftermath of World War IV, although this momentum has begun to falter. While they are without a doubt a powerful subculture, they are also vulnerable, as their subcultural goodwill and infrastructure has begun to crumble from the inside. Time will tell whether they will rebound like after World War IV or if their time has come.

# Ghostmen

*Cru! Cru! They say they finally found the body. It was shoved in a maintenance shaft behind the old reactor maintenance room. They say it was old, but it had been drained before it was left to rot. It was like all the blood and mucus and other faex has been taken out. They say there were old incisions along the nasal cavities, in the gut and down the arms and legs.*

*How do I know? Wu down in processing. He can never keep anything somb. He's like a font of gossip and rumors. Have to take anything that comes out of his mouth with a grain of salt, but he's not one to intentionally pull anything. After I heard it from him, though, I checked the news logs. The story checks out.*

## Values

The Ghostman mindset traditionally falls somewhere between "Memento Mori" and "Carpe Diem." The thinking goes: "we're all flawed, we're all going to die, and we're never going to be a perfect as we want to be, but that's no real reason to piss away everything you do have. Go get up early and seize the day."

The subculture typically identifies themselves by wearing nothing but white and keeping an early schedule. This easy subcultural identification goes hand in hand with its "seize the day" values and ethereal, ghostly imagery, but leads to pressure to confirm to these norms.

Ghostmen couple with this a love for clarity of intent and a rejection of the false niceties that make up social etiquette. This fatalism, bluntness and love of the death motif leads the detractors of the subculture to criticize Ghostmen as being clannish, conformist, depressing and rude.

## Memes

The following cultural trappings and practices have arisen to prominence in the Ghostman subculture in the past few decades.

- **All White:** Ghostmen are known for an ethereal look, where wearing anything other than white is a social faux pas. Ghostmen pride themselves on the clean-

liness of this white. Some also bleach their hair a platinum white color. Often women in the subculture will dress in a fashion similar to porcelain dolls.
- **Death Motif:** A death or skull motif features heavily in Ghostmen imagery and has become something of a symbol for the subculture. Often these images are stylized to the point of almost being unrecognizable.
- **Early Hours:** Ghostmen are known for keeping early hours and often pride themselves for being among the first awake each day. The subcultures prizes the lack of hustle in the early morning, and as a rule it expects punctuality.

## History

The Ghostmen were the last of the major subcultures to form, originating in East Asia sometime in the 2150s and made up by some of the last remnants of the old mainstream culture in the East. The Ghostmen were not initially a major subculture of their own so much as they were considered a minor satellite to the old Morb subculture.

The early Ghostman subculture was influenced heavily by the aftermath of World War IV, the realities of cleanup and the human condition after the war. This influence is largely responsible for the heavy death imagery featured in the subculture's imagery, as well the heavy use of the color white—a traditional color for spirits and death.

Many of the proto-Ghostmen who found themselves grouped in with the subculture in the aftermath of the war had sided with the Eastern Powers. As many places on Earth were not friendly to them after the war, this fueled much of the Ghostmen's early migration into space.

For several decades, the Ghostman limped along, a satellite of the Morb subculture, but all this began to change in the 2180s when the ailing Contemp Victorian subculture began to fracture, and the Ghostman subculture absorbed a significant chunk of the defectors. This

new blood in the subculture brought with them the early morning and punctuality values found in the Ghostmen subculture today. Their numbers also propelled the Ghostmen into being their own subculture and not just a satellite of the Morbs.

Then in the 2190s, the Morbs themselves began to fracture. Once again the Ghostmen absorbed a chunk of the defectors, and with these numbers the Ghostmen were unquestionably propelled to major subculture status.

The Ghostmen's newfound power allowed them to make significant headway into the corps and into space in the years that followed. Today, although the growth of the Ghostmen has slowed, they are still one of the fastest growing subcultures and one who's at the height of their power and influence.

## Heeds

*I was dropping some dava the other night, and I met this guy. He's high as a kite, and he's letting slip all the jibha. It turns out he's a local corp security guard—night watch, just a minor guy doing the rounds. Anyway, I hear he's got a shockstick, and you know what? I've never been shocked by one of those things before. In my drugged up state of mind, I'm thinking to myself: If we're going to go up against Microdyne, I better know what it's like now to be struck by one of those things, right?*

*Anyway, I go home with him, and while he's distracted by running his fingers through my beard, I get ahold of the shockstick and turn it on. Holy balls, those things hurt! But damn, the pain makes you feel alive!*

## Values

Heeds exalt having new experiences with a particular emphasis on the baser instincts and animal drives. Think of it like this: one's worldview is a product of one's perceptions, and one's perceptions are limited by one's experiences. As one broadens their base of experience, one expands one's perceptions and thus solidifies one's worldview. Someone who has different views may just be a product of different experiences. This line of thought can lead Heeds to seem eerily accepting. Others look at the subculture seeing only the sex, the drugs and other strange experience-seeking acts.

The Heed subculture values a sort of emotional binge and purge. The baser instincts are let off the hook for a while, then they are tightly reigned in, having been satiated. The Heed view sees this as being in the pursuit of a sort of utilitarian good: little excesses can be indulged if it results in a greater period of benefit or clarity.

## Memes

The following memes and practices have been associated with the Heed subculture in the last few decades:

- **Body Paint & Loose Clothing:** Heeds will sometimes substitute thick body paint for traditional clothing. The clothing that Heeds do wear tends to be loose and have a certain amount of flow, such as sarongs or long skirts.
- **Chemical Experiences:** The Heed subculture is mired in drugs and other chemical-based experiences. Within the subculture, this is seen as mentally liberating, although physical dependence is frowned upon.
- **Bond Agreements:** The Heed subculture largely rejects the idea of lifetime marriage, instead favoring a notion of "personal bond agreements." These are something like an informal contract between romantic partners with a specific duration.

## History

The Heed subculture got its start after the publication of the influential book, The Heed Life, in 2123. Unlike other subcultures which got their start from ad hoc groupings of people, this book gave the Heed subculture an early definitive work and philosophical viewpoint. Throughout the remainder of the 2120s the Heed subculture absorbed the broken remnants of mainstream society in the West.

During the 2130s, the Heed subculture continued to establish itself and expand, growing beyond the bounds of the initial treatise which started the subculture. During this time, the first Heeds began to move into space, with Stillwater on Mars seeing the largest part of Heed immigration. Many of these Martian Heeds would later move to Oras after the foundation of that colony, because the Serv influence in Stillwater would grow and become less friendly to the Heed population.

During the 2140s the Heed subculture largely aligned itself with the Corporate Powers and stuck with them throughout World War IV. This alliance was largely a result of the lingering effects of the geographical origin of the Heed subculture in the West than it was anything philosophical. In fact, this alliance angered enough Heeds that the Neoret subculture broke away from the Heed subculture during the war, leaving the Heeds in a weakened state during the war's aftermath.

While this rift threatened the stability of the Heed subculture, the rest of the war's aftermath was nevertheless good to the Heeds, who were on the winning side. As these influ-

ences, both positive and negative, worked themselves out, it led to something of a Heed reformation during the 2160s. This period saw the introduction of bond agreements to the Heed way of life.

In the 2170s the Heeds embraced AR technology with open arms, as the technology grew beyond the bounds of the Techno subculture. This included the growth of a new Heed tag cloud.

Today the Heeds are going steady, having recovered almost to the point they were at before the rift with the Neorets.

# Neorets

*I know I've been wearing the toga for a while—ever since I got rid of the pith helmet, in fact—but I was reading on the net the other night about Incan marriages. You see, to the Incans, marriage was something of a business arrangement. When you got married the couple was on something of a probationary period. If it didn't work out, either of them could just pack up and go home. And that makes a lot of sense to me—very schon.*

*No, I'm not trying to propose to you. Ha ha ha! I'm just trying to let you know that I may be dropping the toga. I'm thinking some kind of Incan tunic. I'm going to have to see what patterns they have in the fabricator. Worst case scenario: I may need to design something up myself.*

## Values

The Neoret subculture values a certain amount of reflection on and reinvention of past eras. Its adherents are known for an eclectic style of dress, mixing and matching traditional or historical garb from different cultures and time periods.

Central to the Neoret system of values is the idea that the contemporary world has run amok and that technology and contemporary culture has lost some of the value of the past. The subculture has embedded an almost Rousseauian view of the "noble savage" and golden past. This is not to say that Neorets seek a return to the past—they are not Luddites, and any past idea they dredge up is retrofitted to fit modern mores.

Many Neorets practice isolation meditation, going through voluntarily periods of time when they disengage from electronic communication and simply go about their lives. Critics see Neorets as backward, while simply exalting the trappings of the past, without any of the real substance.

## Memes

The following cultural trappings and practices have arisen to prominence in the Neoret subculture in the past couple decades:

- **Anachronisms:** Almost the defining feature of the subculture, Neorets love reintroducing new anachronisms to the modern day. Their dress and personal habits often reflect this. Often these anachronisms are heavily revised to fit contemporary mores and norms.
- **Gardening:** Gardening is a pastime largely resurrected by the Neorets, one which has become a symbol of their subculture. Many Neorets, even in space, keep a small garden in a closet or gardening box.
- **Isolation Meditation:** There is a belief in the Neoret subculture that periods of voluntarily isolation from electronic means of communication is spiritually calming. To this end, many Neorets practice this with some regularity.

## History

The Neoret subculture grew out of the Heed subculture, breaking away in the 2140s during World War IV. This split was caused by a divide in the Heed subculture, over the subculture's widespread support of the Corporate Powers in the war. The Neoret faction opposed any participation in the war, initially being something of a pacifist movement. As the greater Heed establishment didn't get on board with this position, the Neorets ended up going their own way. Initially these early Neorets made good progress pressing their agenda, but when the war went nuclear, the Neorets lost much of their voice.

By the 2150s, in the war's aftermath, the Neorets were already well known due to their vocal opposition to the fighting. Despite this, their sheer numbers weren't quite enough to qualify them for the status of being a major subculture. They wouldn't obtain this status until the 2180s, when the aging Contemp Victorian subculture fragmented, and the Neorets absorbed many of the fracturing pieces.

During the 2160s the Neorets lead the way in organizing the Ganymede Conference, which formally established the new status quo and ended the associated fighting. During the 2170s, the Neorets were also one of the last subcultures to adapt to the widespread adoption of AR technology.

The Neorets didn't have significant numbers of adherents in space until the 2190s, when their slow trickle into space became a larger stream—driven largely by increasing Neoret economic interests in energy production. Even today, Neoret numbers in space are dwarfed by the other major subcultures. Neorets in space congregate mostly on the net—an irony given the subculture's propensity to disconnect from electronic means of communication.

Despite their lack of influence in space, Neorets are among some of the leaders of the ARC Project, in conjunction with the Stillwater Catholics, a Serv group.

## Servs

*"Therefore the Lord God sent him forth from the garden of Eden, to till the ground from whence he was taken. So he drove out the man; and he placed at the east of the garden of Eden Cherubims, and a flaming sword which turned every way, to keep the way of the tree of life," Genesis 3:23-25.*

*Let us remember this in our exodus. We have been driven from our homes, our Earth, our Garden of Eden by wickedness. And now begins the time of our trevail. We must have faith as we set out into the void. Only faith will sustain us, and the generations that come thereafter. Only faith will nourish us—not with earthly foods, but with the spiritual sustenance that we need to survive.*

### Values

Unlike the other subcultural groups, the Servs are not really a single cultural group so much as the label is used to refer to an amalgamation of different and unrelated traditional religious groups, which to some extent reject some or all of the values of the outside culture. These groups run the gamut from some evangelical Christian sects, to strictly traditional Islamic groups, and from some fundamentalist Hindu sects to some Hasidic Jews.

Pinning down exact values shared by all Serv groups is difficult, but broadly speaking, Servs place an emphasis on traditional values, family and religion—enough that this adherence distinguishes them from a simple religious member of any other subculture.

### Memes

The following cultural trappings and practices are typically shared between the various Serv cultural groups:

- **Religion:** Different Serv groups vary in a lot of different ways, but one thing that all of them have in common is a dedication to some form of religion—often with views that are fundamentalist or very traditional in nature.
- **Rejection of Contemporary Mores:** One of the things that differentiates those in the Serv subcultures from a religious member of any other subculture is the Serv rejection of contemporary mores in favor of a more traditional religious worldview.
- **Family Ties:** Although many groups in the Serv subcultures accept converts—some quite enthusiastically—most Servs are born Servs, and the subculture places an emphasis on family ties and beliefs.

### History

In many ways the Servs are by far the oldest subcultural grouping, most Serv groups having existed for centuries, if not millennia. While not every religious individual is a Serv, some choose to make their religion into a lifestyle—eating, breathing and living it every day. This sort of choice has existed in various human societies since before the advent of recorded history.

The use of the term Serv to refer to these religious groups originated in the 2090s, coming from either the phrases "to serve god" or "conservative." This term originated not as something self-proclaimed by the adherents to the subculture but rather as an external categorization, and even today many Servs reject the "Serv" moniker, refusing to lump themselves in with other disparate—and sometimes hostile—religious groups. Others on the other hand, have embraced the term, and some have even attempted to organize broad multi-religious councils to speak for the community.

Some example Serv groups with a few accompanying notes on their histories over the past two centuries follows:

- Chi Chen is home a vivid Vajrayana Buddhist community, including the largest Buddhist monastery beyond Earth. These Buddhist Servs were active in the Gong Si movement in the 2120s, and continue to serve as the front of opposition to the powers that be in Chi Chen today.
- Miskan Station in the Belt is known for its Mennonite community. These Mennonites immigrated to the newly built station in 2126, leaving their homes in North America behind. Since immigrating to Miskan station, the Mennonites there have established themselves as asteroid miners and in transit for the water trade.
- Europa and Ganymede were both home to significant populations of Shakti Hin-

Below are a couple terms that were coined a couple decades ago in the vids as Serv slang, and which have consequently been picked up by some of the Serv groups that regularly engage with the outside media.

- **Blino:** Someone who lacks religion
- **Pio:** Someone with deep-seated religious beliefs

dus before the Jupiter Group Incident, this religious group having moved to the edges of human expanse in pursuit of opportunity. Since the Jovian colonies lost contact external members of this group have been among the most vocal regarding reestablishing contact.

- Luna is home to a significant population of Ahmadiyya Muslims, who were driven there from Southeast Asia due to religious persecution in the 2120s. Having long established themselves on Luna, they are found across the moon today but maintain their own local networks and AR cloud.
- The Stillwater Catholics are the most populous Serv group beyond the bounds of the Earth's atmosphere. Their sect broke away from the Roman Catholics

as part of a schism following the death of Pope Pius XIX in 2132. Based out of Stillwater on Mars, they have their own pope and are one of the major financiers of the ARC Project. In recent years, there is a growing animosity between the Stillwater Catholics and Unitech, as Unitech has moved to block holy pilgrimages.

# Technos

*I knew her in the simspaces from way back. Used to run a flapper paladin through the dungeons hosted on the Ganymede servers. I first met her in hyeon only a year or so back, though. I was sitting in some little noodle shop down by the docking bays. When she walked by I immediately recognized her username when it popped up in the AR cloud ahead of me. Tagged with over 300 achievements, plus a couple network references recommending her sibal. I was head over heels right then and there.*

*Of course that's history now. Our first date went spectacularly, but the second one…Well, the second one was in simspace. I scripted it up special. Hacked my way into some systems and got a whole virtual environment running. How was I supposed to know we were violating corp compute time?*

## Values

Technos prize the march of progress, culture and most of all, technology. They look back at the past and see not a golden era, but the bad old days of toil and strife. Inherent in this Techno perspective is an almost Hobbesian view that human nature is something base which is to be controlled and overcome with technology.

Known for the machine motif found in their subcultural imagery, the Techno subculture largely pushes for information to be free in both the senses of libre and gratis. Technos are also known for somewhat humanist views, possessing the faith that innovation will solve humanity's problems. Critics of the subculture see blind faith in technology and a cult of what's trendy and new.

## Memes

The following cultural trappings and practices have arisen to prominence in the techno subculture in the past few decades:

- **Reliance on AR:** People from all subcultures use AR nowadays, but cultural reliance on AR originated among the Techno subculture. Because of this, the techno subculture's use of AR vastly surpasses any other cultural group.
- **Nonverbal Communication:** The Techno subculture places a particular emphasis on the importance of nonverbal communication both in body language and in written electronic communications.
- **Machine Motif:** The machine motif features heavily in both Techno imagery and music. In many ways, the circuit board has become a symbol of the subculture.

## History

The Techno subculture broke away from the old mainstream culture in East Asia sometime around 2100. Its formation served as something of a turning point in the evolution of subcultures, as it marked the point at which more people were part of a subculture than remain in the old mainstream.

The early Technos were involved in the experiments with radical gene alternation which later led to the Malformed Generation. This gave the Techno subculture a bad name in the press very early on, and it was a reputation the Techno subculture has fought for much of its existence.

During the 2120s the Techno subculture was heavily involved in the Gong Si revolution in China. This involvement aligned the Technos heavily with various Asian governments—something which would later result in the Technos aligning themselves with the Eastern Powers in World War IV.

The Technos also involved themselves in the earliest terraforming efforts on Mars. The subculture's attempts to leverage this as something to shake off their usual bad press, however, failed spectacularly, giving Technos a bad name among groups looking to preserve the pristine Martian environment.

World War IV also did not treat the Techno subculture very well. As stated earlier, the Technos sided themselves with the Eastern Powers, who ended up losing the war. To make matters worse, most of the principal developers of the Madagascar Virus were from the Techno subculture, renewing the subculture's bad name. In fact, the Techno involvement with the deadliest biological weapon ever used left the subculture so hated and shaken that many

## Techno Slang

Below are a few choice slang terms used by the Techno subculture. They can be used for inspiration and roleplaying purposes when playing a Techno.

- **Babo:** Someone who is foolish; Also used to mean someone without technical knowledge
- **Eumgy:** An absurdity; Something bitingly funny
- **Geumul:** A computer network
- **Jayoo:** Free as in "freedom"; Often used in context of information
- **Hyeon:** Real life; The real world
- **Sibal:** Online intimacy, both sexual and non-sexual in nature
- **Siche:** Someone who is as good as dead, usually due to a price on her head

experts in the 2150s predicted that the subculture wouldn't last another decade or two.

In the 2160s, however, the subculture began to recover. The bad press caused a mass migration of Technocs into space, fleeing their bad reputation back home. The subculture spearheaded the foundation of the Oras colony on Mars and was involved heavily with the rush on He-3. The Techno subculture was also the very first to widely adopt AR technology, something proven wildly successful which would soon spread to every other subculture in the Sol system.

This rise led to a subcultural renaissance in the 2170s and 2180s. The subculture involved itself with Project Embryo, pioneered sensory recording and playback and spearheaded an effort to back a subcultural-backed currency. The last of these projects was a dismal failure, but the rest were a success.
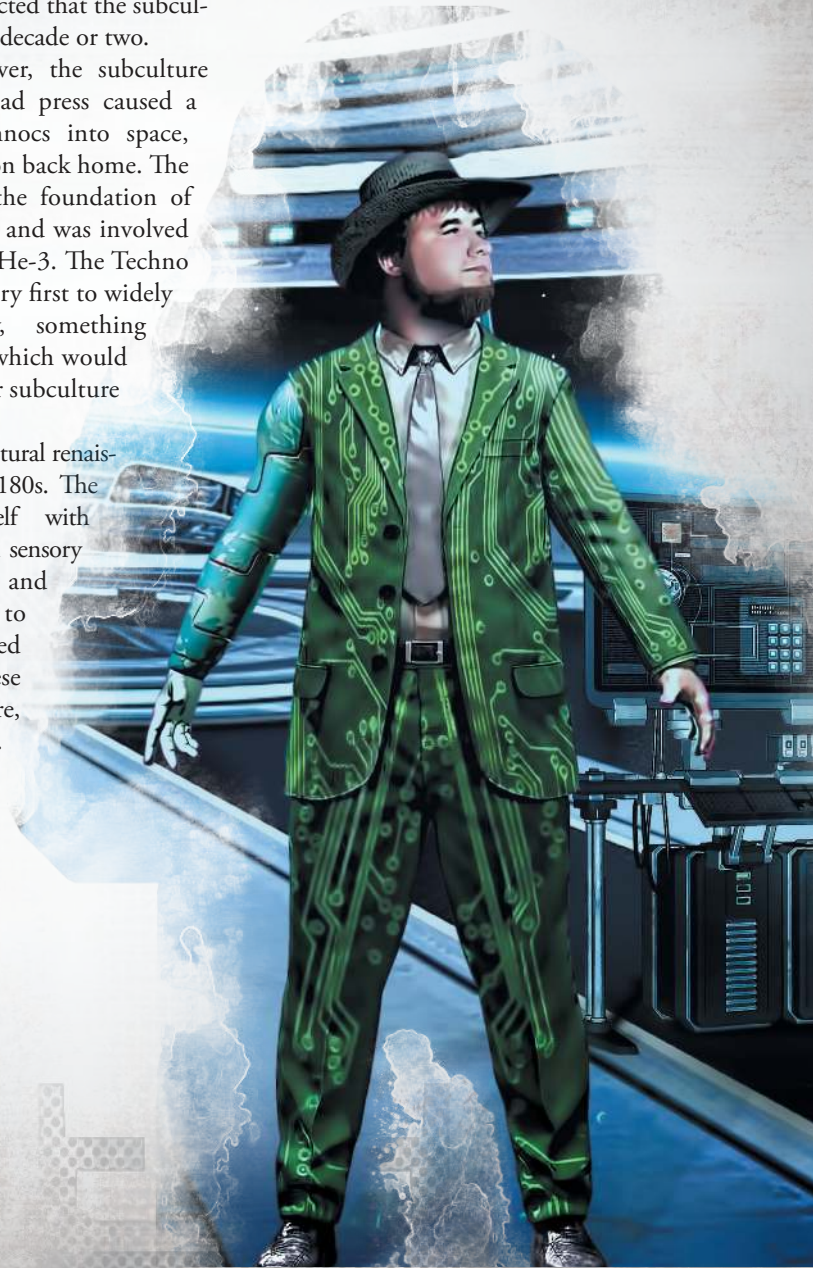
# Megacorps

To the average citizen of the twenty-third century, the corps are a cornerstone of modern existence. They manufacture what you use. They market to you based on your personal demographics. They likely employ your family. They engineer what you eat. They direct the education of your children. They write the news you read. They guard you while you sleep.

It's too bad they don't have accountability to anyone but themselves.

The largest corps are sprawling, labyrinthine organizations consisting of subsidiaries upon subsidiaries. They control armies of blue collar and office workers, legions of private security, complexes from here to the Horn of Africa to Saturn and have more money than god.

## Corp Sovereignty

The Ganymede Conference in the aftermath of World War IV gave corps the same sovereign rights as nations. On corp property—such as on their spaceships and complexes—individuals are subject to corp laws. While the Ganymede Conference did result in the major corps signing nonbinding resolutions about human rights and the dignity of individuals, citizens are still nevertheless at their mercy.

In practice corp sovereignty, as guaranteed by the Ganymede Conference, is largely a function of how large and powerful the corp in question is. The "Big Five" megacorps— Jenseitech, Microdyne, Sinoex, Unitech and Utakar—all basically do as they please. Smaller corps, on the other hand, have to make varying degrees of compromise in their operations.

That said, many corps do have contracts with governments and with other corps regarding the treatment of their citizens. For example, Unitech has an agreement with Utakar System Dynamics stating that any Utakar employees found in violation of moderate to minor Unitech laws may be sold back into Utakar custody as per a standard set of fees. Agreements like this are commonplace, as they allow corps and governments to look after the interests of their own citizens in good standing.

## Corps In Society

Smaller corps exist in a world of cut-throat competition. They undermine competitors, manufacture scandals for their rivals and churn out regular feel-good stories about their actions and their products to give them a PR boost. The corps that are the most efficient at this exploit the net and the social networks, offering small benefits or contest entries to push along their press releases disguised as news. The corps at the top of this game own shares in major media outlets.

The largest corps, however, are playing a different game entirely. They are lords of their industries and masters of monopolies. They don't need to compete; it's usually more cost-efficient to simply crush any would-be rivals before they develop a solid footing. They can afford extravagance and waste, making up for it with economies of scale. They don't need shiny PR campaigns, because people are going to end up buying what they produce whether they like it or not.

## Second Tier Megacorps

Everyone knows the "Big Five" megacorps. They're household names and all have a reach that extends across the globe and out into the depths of space. They're not the only kids on the block, however, and a variety of second tier megacorps exist to fill in the cracks. Don't mistake second tier for powerless, however. Even a second tier megacorp still controls a dizzying array of resources.

A selection of second tier megacorps are given in brief below:

- **Agrasill Industries:** Everyone needs to eat. In a world of some 12 billion individuals wrecked by pollution, climate change and industrials wastes, that's not an easy task. That's where Agrasill comes in. They make the food keeps growing, it gets to those who pay for it and no one's producing food that's not theirs. After all, famine's does wonders for supply and demand.
- **ArrowEx:** While going to physical stores to buy goods has some nostalgic and social

appeals that just won't die, most goods are bought and sold online. For every thumb computer, pound of vatbeef or pair of underwear bought in this way, it has to get to the customer somehow. This is how ArrowEx has made its commercial empire. They deliver the goods, and in many places have enough gangs on their payroll to ensure their deliveries make it and their competitors deliveries don't.

- **LineNet:** Everyone uses the net. Any armchair techie will tell you the net is made up of a decentralized network of interwoven, connected computers, geared towards maximum resiliency. No one controls it. That may be true—technically. But in a world where users demand massive amounts of information in very short order, there's a corp out there with connections providing that sort of on-demand bandwidth. That's LineNet. And all you, the user, have to do is to deal with living in a networked virtual panopticon.

- **MemeScape Technologies:** MemeScape is a master of public relations, advertising and metadata tracking. They keep full advertising and demographic profiles on anyone who's ever performed a financial transaction or jacked into the net, and when another organization wants to sway public opinion or manufacture a new societal meme whole cloth, they call MemeScape in to make it happen.

- **Pfeiffer & Wu:** An investment powerhouse, Pfeiffer & Wu's specialties range from stocks to commodities, from banking to gambling. They're involved as a third party in most of the large transactions that occur between different corps and governments. They've even been brought in by several smaller nations and colonies on contract to manage and run their economies for them.

## Jenseitech

Jenseitech excels in the fields of bioengineering and production of drugs—both for medical and recreational use. They also have significant interests in the financial market, nuclear reactor development, chemical agent production and asteroid mining operations. While Jenseitech maintains a shiny public facade by funding digital libraries, soup kitchens and walks for charity (earning them the goodwill of many people), behind the scenes Jenseitech is involved in countless shady schemes and experiments whose ethics are somewhat questionable, as well as practices to ruthlessly crush their competition. Since the beginning of the Dui Wu Ya Conflict, Jenseitech has expanded its own corporate paramilitary forces as well.

## Operations

The following are significant Jenseitech operations throughout the Sol system:

- Jenseitech owns and operates Schwangi Station, the largest mining station in the Belt. This is a fairly recent acquisition for Jenseitech, who bought the station from a minor and ailing corp almost ten years ago. Schwangi Station has also served as a Jenseitech base of operations to project its influence throughout the system and is an important component of Jenseitech's plans to expand into space.

- Fururi Station is an ailing former mining station in the Belt, carved from the body of one of the many nameless asteroids. This station saw its height before the WW IV and nowadays is home to only a handful of squatters. Jenseitech recently bought this station at auction for a pittance, but how it figures into their space expansion has yet to be seen.

- The Encouracado is a battleship and Jenseitech's sole capital ship. It's often in orbit near Schwangi Station but is frequently sent on patrols throughout the Sol system.

## Culture

The Jenseitech corporate board is made up almost exclusively of individuals from the Expret subculture, and to get anywhere in management, it helps to adhere to that subculture as well. That said, the lower ranks of Jenseitech are significantly more diverse, with Ghostmen having the largest presence within the corp.

## History

Jenseitech traces its origins back to the Japanese zaibatsu—powerful ancient conglomerates with fingers in many financial pies. And like the zaibatsu of its ancestors, the Jenseitech group has its tendrils spread far and wide, although their primary focus is the pharmaceutical and bio-tech industries.

Jenseitech in its modern form got its start in 2099 after a series of mergers between Japanese and Brazilian biotech corporations. These mergers formed the Jenseitech Group, which shortly thereafter moved its headquarters to continental Asia.

Over the course of their modern existence, Jenseitech has been involved in numerous projects and discoveries. They were involved in the discovery of life under the ice on Europa in the 2120s. They operated on the front lines of the Corporate Powers in World War IV. They lost significant holdings in the Jovian colonies during the Jupiter Group Incident. More recently, they've both fought in and gained the upper hand in the Dui Wu Ya Conflict. This latter conflict has been going on for the last 15 years between Jenseitech and Sinoex, although the open fighting has largely died down in the last few years.

Since its strongest holdings are on Earth, the Jenseitech Group has only recently been trying to expand aggressively into space, carving out a slice of the pie currently held by Unitech. This has set these two powerful corporations directly against each other. Time will tell who comes out on top.

## Dirty Secrets

In addition to the usual corp agents in its employ, the Jenseitech group makes expert use of bioengineered poisons, diseases and genetically-engineered beasts. As many experiments that seem promising in the lab fail spectacularly when brought into practice, Jenseitech endeavors to field test as many of their programs as possible. The corporation sees their recent push into space as being necessary support for this, as small and isolated space stations and other environments offer the perfect conditions for field tests—controllable, limited and easy to clean up with the right PR afterward.

Jenseitech also field tests its newest experimental implant designs by issuing them to their corporate forces and agents. This is particularly true for implants of a covert nature, at which Jenseitech excels. Such implants often help Jenseitech agents achieve results they could only dream of if they weren't modified—after all, since these are new designs, the opposition doesn't yet know what to expect. Meanwhile, Jenseitech scientists get to observe the implant's field-effectiveness as well as get an idea of its long-term downsides and side effects.

New and experimental implants are sometimes also offered to those outside the corp—for a price. There is no shortage of well-financed organizations and desperate people looking for an edge in the various conflicts and skirmishes that continuously happen between the corps. For these implants Jenseitech charges a licensing fee rather than a sales fee; Jenseitech retains ownership of the implants, they just rent them out to the recipient. Jenseitech retains the right to revoke their license at any time. This is one more way of keeping track of their new technology, gathering data and exerting their control over the business. Of course this can leave the unfortunate recipient of one of these experimental implants suddenly without the benefit of whatever organ it was replacing. In practice this rarely happens, but it's an ever-present threat Jenseitech can hang over the heads of those who accept this deal.

# Microdyne

Microdyne is a powerful computing and hardware corporation based out of Belarus. When it comes to computers, processing, software, augmented reality, simspaces, artificial intelligence, cyberware or electronic security, Microdyne is at the undisputed edge in research and commercial development.

As saturation of AR technology is rapidly being reached, Microdyne—which had been a champion of moving the technology beyond the bounds of the Techno subculture—has been exploring new areas of ubiquitous computing, including a new push at artificial intelligence.

## Operations

Microdyne operations can be found throughout the Sol system and the net. Below are several of the more significant ones:

- Even though it's not an actual physical location, Microdyne operates VirtuaNet—the largest simspace in existence. With a virtual economy, utilizing real currency, that dwarfs all but the largest colonies on Mars and Luna, VirtuaNet is a power unto itself, connecting disparate people from across the system. Microdyne operates local VirtuaNet nodes on all the major colonies in an effort to reduce lag times, and the virtual world has become a haven for individuals looking for anonymous connections or shady business deals.
- On Luna, Microdyne runs the Alphonsus Center, the largest supercomputing center in the system. This complex is home to the Embryo Project, an attempt to establish a human-level artificial intelligence. It also leases out computing time to those willing to pay for the center's exceptional computational resources.
- In Chi Chen Microdyne operates an experimental cyberware research and testing facility. This facility uses Chi Chen's large population of the poor and desperate as an asset when experimenting with new cyberware designs. It also uses Chi Chen's remoteness from Earth as an asset in covering up failed experiments.
- Also in Chi Chen, Microdyne owns the largest experience recording studio, specializing in space-themed sensory recoding and playback.

## Culture

In the upper ranks of management, Microdyne is populated mostly by Exprets, with a number of Ghostmen holding key positions. Among the rank-and-file, there are significant numbers of Entros and clusters made up of different Serv groups. There is a notable under-representation of both Technos within Microdyne's ranks, and none within the upper management. This is largely a product of history—as Microdyne grew out of the war effort in the fourth world war, where Technos were largely aligned with the enemy side. Unlike the Entros that have managed to grow within Microdyne's lower ranks, Technos tend to support Microdyne's rivals even in the modern day.

## History

Microdyne was founded during World War IV, as part of an electronic warfare initiative by the Corporate Powers. After the war, Microdyne was spun off as its own entity, and its early board fought tooth and nail to make it independent of the tendrils of its founding powers. This makes it the last of the Big 5 megacorps to be founded.

Despite its early focus on electronic warfare, Microdyne got involved with AR development and manufacturing early in the technology's history. It then rode this wave into the status of being one of the Big 5 as AR technology exploded into public use.

Throughout its time, though, Microdyne has been looking to diversify its operations. This led to its recent involvement with AI and its push to improve Project Embryo. This has also led to its acquisition of several previously independent cyberware corporations and the expansion of its Chi Chen operations. Microdyne hopes that AI automation and embedded computing will be the way of the future.

## Dirty Secrets

Although Microdyne denies any involvement with the creation of the Insurrection Virus—and it may even be telling the truth—it certainly has involvement with attempts to isolate and study the computing phenomenon. These attempts have yielded some very interesting data that Microdyne has thus far kept under wraps. It may only be a matter of time, however, until this data yields breakthroughs with Microdyne's own attempts at artificial intelligence.

All but a few select pieces of Microdyne hardware and software come with Microdyne's own security update framework in place. Ostensibly, this allows Microdyne to push security updates to all associated devices, fixing security holes that might allow hackers to break into the system. This framework, however, allows Microdyne their own security hole, where with an update they have the ability to hijack control of the device—using it in electronic surveillance or in their own bot network.

To all the would-be hackers out there, Microdyne is not a friendly institution. The corp does not like its code tampered with, and hackers that have raised the corp's ire can find themselves targeted on their own turf—the net and electronic forms of interference. Since Microdyne has a lot of resources to throw at enforcing its digital edicts, these campaigns by the corp tend to be largely one-sided.

AR is increasingly ubiquitous these days, with a majority of the populating having either an AR implant or compulsively wearing AR glasses. One of the dirty tricks that can be pulled when Microdyne takes control of a device is reality filtering. Since an AR user's senses are first filtered through a device, this device subtly manipulates the sensory input or AR tags to alter the user's view of the world around her. This can lead the user into a trap or provide any other sort of misinformation.

## Sinoex

Sinoex is the largest of the "Big 5" corps, and the second oldest corp of the five. It's areas of economic strength lie in the extraction and processing of natural resources, including thorium, hydrogen, oil and rare earth elements. Beyond Earth's atmosphere, Sinoex is heavily invested in asteroid mining and water extraction but also has its hands in life support systems and biological reprocessing.

In recent years, Sinoex has been involved with the largest inter-corp military conflict to date—the Dui Wu Ya Conflict—although the fighting has largely died down since Jenseitech has gained the upper hand over Sinoex.

## Operations

Below are a sampling of Sinoex operations that can be found across the Sol system:

- Sinoex is the sole owner and operator of Caikuang Station, one of the newest, and soon to be one of the largest mining operations in the Belt. Opened in 2212, this mining station is still ramping up for production, with staff of all sorts—mining, security, administrative—being actively hired and transported to the new station.
- Sinoex owns but subcontracts operation of the Rhea colony—the furthest out humans have ever colonized the Sol system., Rhea being a moon of Saturn. This colony exists to support the water trade, bringing ice from the Saturnine rings inward to Mars to support the Terraforming Project. Unfortunately the colony is small and has been beset by trouble after trouble.
- Sinoex largely owns and operates one of Earth's three space elevators. This particular elevator is located in Indonesia, and since it is the sole operational space elevator not owned by Unitech, any corp or organization that has a beef with Unitech makes use of it. This elevator also has the largest capacity of the three, making it ideal for large industrial cargos.
- Although the demand for He-3 has largely died down along with the widespread dream of ever having economically sustainable fusion power, in a variety of small lab-

oratories of hopeful nuclear engineers still experiment with fusion, and it's still toyed with in some industrial practices. Sinoex is one of the sole commercial suppliers of He-3, and they have extensive He-3 collection operations on both Luna and Mars.

## Culture

At the top, Sinoex is comprised mostly of Technos, with pockets of Former interests in subsidiary corps and groups that have been acquired throughout Sinoex's history. Among the lower ranks there are a large number of Technos as well, although in Sinoex's space operations, both Entros and Ghostmen outnumber Technos. In fact, Sinoex's remote mining operations have become known as hotbeds of Entro culture and activity.

## History

Founded in 2073, Sinoex is the second oldest of the Big 5 megacorps. Initially formed after a series of mergers between Burmese and Chinese mining and petroleum corporations, Sinoex soon came to dominate the market in natural resource extraction, expanding its operation to include logging, industrial chemical processing, carbon extraction, life support systems and waste reprocessing.

After the completion of the Beanstalk, and the resulting space rush, Sinoex jumped on the bandwagon, funding the second completed space elevator. This elevator was soon used to supply the burgeoning space industry with the supplies and raw natural resources used in the first colonies on Luna and the first space stations at the Earth-Moon Lagrange points.

As space colonization expanded to Mars, Sinoex was soon to follow, ramping up Martian mining operations, and getting its tendrils deep the early efforts of the Terraforming Project.

World War IV was not kind to Sinoex, as the company's headquarters was put right on the front lines against the Eastern Powers. Sinoex took more damage from the war that most, a fact that let several of the newer corps muscle in on what was traditional Sinoex areas of economic import. Still, Sinoex was quick to recover from the war, as rebuilding efforts drove up the demand for natural resources.

More recently Sinoex has been involved in the Dui Wu Ya Conflict, the largest and longest-lived corporate war on record. Opposing Jenseitech, Sinoex has been on the losing end for the past several years, and the war has sizzled slowly on the backburner. It may just be a matter of time, though, until Sinoex launches a new round of assaults in an attempt to gain the upper hand.

## Dirty Secrets

Sinoex has a long history of questionable and outright nefarious business practices, launching attacks against corporate competitors and using its economic clout to muscle others out of the natural resources. It knowingly sabotaged multiple fusion research efforts before the eventual rush on He-3, which Sinoex profited from. It also has conspired at times with other corps to keep prices high—although the sheer population of Earth and its ever-increasing demands has done this naturally as well.

Sinoex operates many of the mining operations throughout the Sol system, and while its mining positions are known for paying well, they are also known for the harsh and dangerous conditions. Sinoex seems happy to regularly neglect safely precautions and regular maintenance, preferring instead to lure would-be miners to its operations with promises of high wages—wages that soon are paid back to the corp through high local food and living charges. In some operations, Sinoex makes use of indentured workforces as well.

## Unitech

Unitech is not the largest of the Big 5 corps, but it is the one with the largest presence beyond Earth's atmosphere. This is due largely to its long history in the space industry and its dominance in the areas of spaceship and space station manufacture. Unitech also has significant investments in ground and aerial vehicles, cyberware, heavy machinery, industrial manufacturing and construction. In fact, Unitech influence is so pervasive in space that its currency, the Unitech microcredit, is the de facto currency of choice beyond Earth.

## Operations

Unitech's holdings and operations throughout the Sol system are too numerous for a comprehensive list, but some significant or otherwise noteworthy operations are given below:

- Unitech is the sole corp in the Big 5 to have its headquarters beyond Earth's atmosphere. These corporate officers form their own colony complex on Luna.
- Durknow Station is a major mining and manufacturing station in the Belt. It specializes in the cheap and bulk production of ore, which Unitech then uses in its attached manufacturing operations.
- Although Unitech doesn't administer Domus Station, it holds a majority ownership of the station, which gives it effective control. This venerable station is located at the L5 Lagrange point and was scheduled for decommission 40 years ago and is used by Unitech as a location to dump undesirables or troublemakers.
- Unitech operates two of Earth's three currently active space elevators, as well as Mars's sole elevator. These are located in Brazil, East Africa and the Oras colony.
- Unitech is leading the construction of Mandala Station, the first station in the Jovian Greek Trojans. This station is scheduled to be completed soon.
- Unitech runs most of the lines of transportation into and out of all of the colonies on Mars. This means that while Unitech doesn't directly administer those

colonies, its demands are ignored at the colonies' own peril.
- Possessing the single largest fleet in the Sol system, Unitech uses its dominance of shipping channels and military ships to project its power throughout the system.

## Culture

Unitech upper management is largely comprised of Formers, with a handful of Heeds and Technos within the upper ranks. The lower one goes in the Unitech hierarchy, the greater the number of Heeds, although like all major corps, clusters of various subcultures crop up as the result of buyouts, mergers and other corp history. The one subculture notably underrepresented in Unitech's ranks are the Entros—the result of subcultural discrimination coming from the upper ranks, dating back to the Black Night incident on Domus Station.

## History

Unitech has been involved in the space industry for almost 170 years, having been involved with the first manned mission to Mars, construction of the first space elevator (The Beanstalk) and the first permanently inhabited space station (Domus Station).

Throughout early Martian settlement, right down to the founding of Oras, Unitech was heavily involved. This left Unitech with many exclusive contracts to supply these colonies.

The Black Night terrorist incident—during which a group of Entros took Domus Station hostage—has biased Unitech against that subculture ever since. This has led to a variety of anti-Entro propaganda coming out of Unitech, the most well-known of which was produced during the World War IV, when the corp and the subculture fell on different sides of the conflict.

About 20 years ago, Unitech organized the first manned trip to Uranus, which included a landing on Uranus's moon Miranda. This is the farthest that humanity has ever been in the outer Sol system.

Recently Unitech has been embroiled in a dispute with the Stillwater Catholic Church, and the conflict looks like it's heating up. This

conflict started after The Stillwater Catholics passed on Unitech for the contract to construct the ARC Project. Unitech then moved to block the transport of pilgrims to Stillwater, and the conflict escalated from there.

## Dirty Secrets

It is perhaps a thinly veiled secret, but Unitech uses their dominance in the space industry to project their power throughout the Sol system and to maintain some semblance of control over most of the shipping that goes on anywhere from the Belt inward. This has angered the other corps, but until Unitech dominance can be successfully challenged, most have just sucked it up and paid the fees that Unitech demands.

Unitech's dominance of space is particularly felt in the Martian colonies, where Unitech uses its influence to threaten rivals and silence critics. As Unitech mains control over the vast majority of the shipping going into and out of Mars, its word there is often effectively law. Unitech also maintains a series of work comps on Mars, to which it sends undesirables and corporate enemies.

Unitech once had major holdings in the Jovian colonies, and the Jupiter Group Incident robbed the corp out of these. Strangely, while this is usually the sort of incident that would provoke a swift and brutal response from Unitech, the corp has been one of the major factors blocking attempts to reestablish contact with the colonies, insisting they have an investigation well-in-hand and actively stopping the attempts of other groups to reach the Jovian colonies.
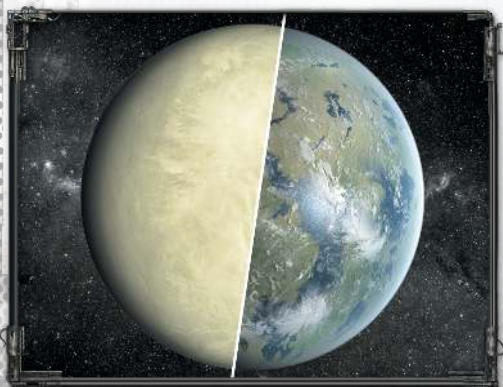
## Utakar System Dynamics

Utakar System Dynamics—which is also known as USD or simply Utakar—is the system's largest arms manufacturer and supplier of mercenary and security forces. Although the smallest of the Big 5 corps, USD also has significant interests in various other areas of contract staffing, security, insurance and industrial manufacture. Very much seen as an up-and-coming corp which has reached the big times, USD's recent contract to manufacture the ship and equipment for the ARC Project has put it in a precarious position between Unitech and the Stillwater Catholics.

## Operations

Utakar has relatively few permanent establishments beyond Earth's atmosphere, but maintains a sizable mobile fleet and has numerous military assets scattered throughout the system as part of its security contracts:

- Utakar operates the largest battleship in the system, the Anvil. This ship is almost more a mobile space station than a true battleship.
- In cooperation with the Stillwater Catholic Church, USD is heading up the construction and administration of the ARC Project—the largest spaceship engineering project ever attempted. If successful, the project will see the launch of the first interstellar ship, in a centuries-long voyage to Alpha Centauri. Utakar's selection in this project has been controversial after they wrest it from the minor corp that previously held the contract and has set them on a conflict path with Unitech.
- USD operates the MAP Facility, vast solar arrays on Mercury that are necessary to produce commercial antimatter. These arrays are the sole source of such antimatter in the Sol system.
- Utakar holds the security contract for Miskan station, and oversees the vast amounts of mining transport that goes through there. They also work to shield the owning Mennonite population from the freighters

and traders who pass through on their way to and from the inner system.

## Culture

Utakar System Dynamics and the Neoret subculture both grew up in World War IV, one as the system's largest weapons manufacturer and one as a pacifist movement. It is something of a historical irony then that today USD is largely led and staffed at the upper levels by Neorets.

USD mercenary companies are notoriously multicultural, and the corp goes out of its way to mix individuals from different subcultures in the same squads. This is part of resocialization policy so that mercenary companies enforce their own identities rather than subcultural links.

## History

Utakar System Dynamics got its start shortly before World War IV as a designer and manufacturer of weapons systems and military equipment. As an unaligned player on the military market, USD was catapulted upward during the war, as it happily sold arms to both sides under various guises and shell corporations.

Late in the war it was able to leverage this explosive growth as it began to expand into mercenary work and other avenues of military contracting. It continued this expansion after the war, as it bought up existing mercenary groups, underemployed veterans and refurbished hardware at bargain rates.

USD scored a major victory in its support to rules that were eventually agreed upon in the Ganymede Conference, and since then Utakar has continued to grow and expand—particularly on Earth—but also throughout the Sol system.

Today Utakar is contracted by numerous governments, corps and colonies to provide security within their bounds. It trades on its reputation for professionalism, neutrality and quality manufacture, and because of these usually charges a steep price.

Utakar has been accused numerous times of putting secret backdoors in some of the hardware it sells to other organizations. It has been proved in at least two previous occasions that these supposed backdoors allowed USD troops to disable the hardware when it was later turned against them in a conflict. Utakar claims both that they have never done this, and that they do longer are in this practice, but that does little to stop more accusations. Paranoid buyers often immediately wipe the software on USD devices once purchased.

Utakar System Dynamics launched a botched assault on the Jovian colonies in 2210, a year after the Jupiter Group Incident. This assault defied a Unitech travel ban on the colonies, which almost started a shooting conflict between the two corps. One of the USD ships managed to touch down on Europa and take back off again, but whatever it found there has been kept hushed up as part of the agreement between Unitech and Utakar that ended the conflict without further bloodshed.

It's a not much of a secret, but Utakar offers "special operation" services to select buyers which operate in "unconventional theaters," which is to say it offers paid assassinations for the right price. This is a business that does not sit well with many other corps, who see the small scale conflicts that make up inter-corp operations as something happens to the little people.

USD's was not the first corp with the contract to do the manufacturing on the ARC project, and rumored to have assaulted the headers of the previous corp, thereby forcing them to turn the contract over. This may have been part of a power play between Unitech and Utakar.

# Conspiracies & Projects

Corps are far from being the only influential institutions in society. Numerous other organizations exist, from the overt to the clandestine. National governments, religious institutions, political parties, social movements and terrorist networks all vie for power on both Earth and in space.

Open organizations with ambitions, however, draw enemies the way rotten meat draws flies. Many groups find that their best course of action is to take their endeavors underground, growing their members and pursuing their aims from the shadows. The vastness of the solar system has many dark corners in which to hide.

This section details a variety of conspiracies, organizations and other projects currently underway in the solar system. Player characters could find themselves aligned with, opposed to or secretly—perhaps unknowingly—working for any of these groups. Even the most upstanding of these organizations and projects, however, may have secret motivations and aims at its heart.

## Government

National governments still exist, leveraging taxes and maintaining lists of citizens, even if they play second fiddle to the corps. Local governments are also still alive and well, albeit frequently in the pockets of corps or other groups. Despite a diminished importance, most individuals maintain a national citizenship, as most nations have security contracts with various corps to protect their citizens, as well as guarantees of trial and due process when on national soil.

## Religion

Religion is alive and well in the twenty-third century. If anything, it is more vibrant, having had longer to adapt to the rapid pace of scientific development, as well as social and technological change. Many sermons and other religious orations, however, are delivered through telepresence these days. The net has many religiously-oriented simspaces in which distant worshippers can congregate. Remote corners of the net are also among the favored destinations of missionaries who cannot afford expensive trips off world in person.

Many of the earliest settlers in space were of various non-mainstream religious bents, making off-Earth destinations disproportionally religious. Most space stations and colonies possess at least one shrine, altar or other small religious site. The largest space stations possess a church, temple or other religious center; smaller colonies make do with telepresence and online places of worship.

Religion typically cuts across subcultures, although some—most notable the Servs—are known for their religious practices.

## The ARC Project

The ARC Project (short for Alpha-Centauri Remote Colony) is an ambitious attempt to construct humanity's first interstellar colony ship. Once completed, this ship will be launched at the planet Sirine orbiting Alpha Centauri A, carrying some 10,000 inhabitants. It will then undergo a four century journey to its final destination with the hope of colonizing a distant exoplanet.

## Inception

In 2031, an Earth-like planet was discovered orbiting Alpha Centauri A, a scant 4.36 light years from the Sol system. Over the course of the next century, this planet—nicknamed Sirine—was found both to be in the star's habitable "Goldilocks" zone and to hold all the chemical components necessary to support life. Despite catching the imagination of scientists the system over and almost two centuries of listening for radio transmissions, there have been no signs of detectable or intelligent life.

Lindiwe Temma, a wealthy Neoret business tycoon and Stillwater Catholic faithful, said that in 2207 he received a premonition that humanity would need to spread beyond the Sol system, seeding itself elsewhere in the

galaxy if it were to survive. Over the course of the next three years, he began to gather other investors and companies interested in the project of constructing the very first interstellar colony ship, but he repeatedly ran up against the fact that despite the promise of Sirine and almost two centuries of observation, no one knew exactly what would be found at the end of the trip. Whoever launched themselves in such a ship would have to be taking it on faith that their children would one day reach the promised land. With this in mind, he turned to the Stillwater Catholic Church with his venture. They quickly became the project's biggest investors.

Initially, Temma formed the Arc Engineering Corporation to design and administer the new endeavor. Soon afterward, however, Unitech began pressuring the small corp and the Stillwater Catholics for construction rights on the project. Temma objected to this move by Unitech and convinced the investors, most notably the Church's leadership, to resist the pressure. Unitech did not take this lightly.

Facing increasing pressure, Temma began to realize that he would need the backing of a larger corp to resist Unitech's involvement. He reached out to other Neoret business contacts and was soon put into communication with Utakar System Dynamics (USD). Negotiation with USD did not last long. Sensing a chance to shut Unitech out, Utakar took control of the ARC Project's construction and administration through a rapid series of bribes and a forceful takeover of ARC Engineering Corporation headquarters.

When the metaphorical dust settled, USD had convinced enough of the project's investors to back to their leadership. The Stillwater Church objected to USD's tactics, but not too loudly because they came out of the arrangement with increased oversight in colonist selection and the religious content of the project. Lindiwe Temma maintains a position on the ARC Project advisory board but is largely bereft of the leadership and control he once held over the project.

## Aims and Goals

On the surface, the goal of the ARC Project is to construct the very first interstellar colony ship and thus one day establish humanity's first extrasolar colony on Sirine around Alpha Centauri A. Below the surface, however, each of the major players in the project have their own goals for it as well.

For the Stillwater Catholic Church the ARC Project is an expression of faith, and the very first opportunity to spread the light of God beyond the Sol system. The church believes any future colonists will need this strength if they are to survive and flourish on a potentially hostile new world.

For Utakar, the ARC Project is a chance to challenge Unitech's hegemony in space and to strengthen their own spacefaring divisions. Additionally, as the ARC Project is high-profile and seen as a hopeful and humanitarian endeavor, it provides ample good PR for the major corp.

For Lindiwe Temma, the ARC Project has always been about his personal premonition that interstellar colonization is necessary for humanity's survival. Additionally, he still has significant financial and character assets tied up within the project.

## Projected Timeline

The ARC Project was conceived of in 2207, and construction on the interstellar colony vessel began in 2211. Today, in 2214, the ARC Project employs a virtual army of engineers, technicians, life support biologists, administrators and construction workers. Initial interviews of would-be colonists are ongoing, and the ship is scheduled for a 2221 launch date. Below is the projected timeline of the project:

- **2214:** Preliminary interviews for ARC Project colonists have begun. Some 10,000 colonists will need to be selected before the mission launches.
- **2216:** Training for the first selected ARC colonists is scheduled to begin, including the training for the ship's initial crew.
- **2218:** Construction on the ARC colony ship is scheduled to be completed. It will make a test voyage around Earth's solar or-

bit before once again connecting with its construction platform and spending the next three years being loaded with equipment for the mission and the long-term life support loop.

- **2220:** All of the biological elements of the ARC colony ship life support loop are scheduled to be in place. This life support loop will need to be sustained over four centuries without significant deterioration.
- **2221:** The ARC colony ship is launched from its construction platform at Earth-Moon L4 Lagrange point.

# Dui Wu Ya Conflict

The Dui Wu Ya Conflict is an ongoing corporate war between Jenseitech and Sinoex, as well as their minor allied corps. To date, it is the largest corp war, one being closely watched as the future of warfare since corps have become the dominant players on the world stage.

## Origin

The Dui Wu Ya Conflict grew out of a series of corporate espionage accusations between Sinoex and Jenseitech. These accusations went both ways, and in 2198 they escalated into a series of street-level skirmishes between the two major corps and their allies' business associates.

After a failed attempt by a Jenseitech contractor to seize control of the Indonesian space elevator from Sinoex in 2199, the conflict escalated yet again, becoming an all-out corporate war and gaining the moniker of the Dui Wu Ya Conflict.

## Major Skirmishes

Below are some of the major skirmishes, battles and raids that have occurred over the course of the Dui Wu Ya Conflict:

- In 2199, an attack on the Indonesian space elevator by a Jenseitech security contractor resulted in damage to the elevator, shutting it down for a month.
- Sinoex retaliated for the space elevator attack by launching an aerial bombing campaign on Jenseitech's corporate headquarters. Jenseitech responded with the deployment of anti-aircraft laser satellites.
- In the last major Dui Wu Ya assault on Earth's surface, Sinoex and Jenseitech forces deployed major artillery around an office building in downtown Lagos. This resulted in the deaths of a thousand onlookers. After this, both corps deescalated the conflict back to street level and out to space in an effort to save face.
- In 2210, Jenseitech deployed its sole capital ship, the Encouracado. With this ship now ready to provide orbital support in future fighting, Jenseitech indisputably gained the upper hand in the ongoing conflict.
- Earlier in 2214, an attack by a Sinoex assault team in Chi Chen resulted in the wholesale destruction of a Jenseitech processing plant.

## Recent Developments

After the massacre in Lagos, the fighting in the Dui Wu Ya Conflict has largely moved once again to street-level fighting, and migrated to space. Ever since the deployment of the Encouracado, Jenseitech has had the upper hand in the conflict.

This may only be a passing phase, however, because Sinoex has spent the past four years licking their wounds and building their forces back up. Recent fighting in Chi Chen my indicate a re-escalation of the conflict beyond Earth's bounds.

# Harbingers of the Divine Form

The Harbingers of the Divine Form are a small, but increasingly influential apocalyptic cult that believes in biological ascension through radical genetic manipulation. They seek to create the "Divine Form," a being that will transcend humanity and usher in a new dominant species. Toward this end the cult engages in all manner of biological experiments and manipulations.

## History

Now in the fourth decade of its existence, the Harbingers of the Divine Form cult arose in Australia in the late 2180's. Established by the influential cult leader Iokina Kamaka, the cult originally used the net to proselytize and recruit, spreading their message of biological ascension through genetic manipulation.

Iokina herself was a child of the Malformed Generation and had resulting health issues. Despite this, she had great personal charisma, and her cult soon numbered in the low thousands. Around this time, her teachings began to attract the ire of the media, and her followers were forced to leave Australia due to hostile relations.

In the 2190s under the direction of Iokina, the cult first moved en masse to Luna. Then, once again facing hostile relations with the colonies there, they moved outward to the Belt colonies in the 2200s. Iokina herself was gunned down by station security on Durknow around this time. She was immediately declared a martyr of the cult and leadership passed to Whetu Ngata, the current High Visionary.

Today the Harbingers are spread throughout the Belt stations, although the largest concentration—including the leadership—is on Fururi Station. Adherents to the cult regularly use the net and their own cult simspace for indoctrination and communication. The cult has invested heavily in the Mandala Station in the Jovian Greek Trojans and awaits that station's completion before they plan to move there en masse.

## Practices

The Harbingers are secretive about their activities and methods in person, but make ample use of the net to spread their message and teachings. They operate on the old mystery cult pattern of having multiple circles of enlightenment, each more secret and restricted than the last. In this way, they draw would-be adherents deeper into the mysteries and deeper into the fold, testing the loyalty and beliefs of their members repeatedly along the way.

The innermost circles of the cult require active participation in the Harbingers' biological experiments either through working in a lab, gathering subjects or volunteering to be the subject of one of the cult's experiments. These experiments are quite often lacking in safety measures, and can be radical indeed—the sort of thing only a person driven by strong faith or insanity might perform. The results of these experiments, while sometimes surprisingly successful, are more often than not failures, but ones the cult diligently notes down and attempts to improve upon in the next iteration.

Because of their focus on biology, the Harbingers of the Divine Form attempt to actively recruit genetic engineers and biologists. Some scientists that even the corps have turned down due to unethical practices have found themselves wooed by the Harbingers. With the right indoctrination, these scientists are then put to work towards the cult's theological goals.

The creations of the Harbingers can be truly inhuman, indeed. They regularly meld animal and human forms, sometimes even creating bodily aspects not seen on any known species. The Harbingers seem particularly fond of elements that adapt a creature to zero-G or bodily elements that add natural weapons or resistance to common biological hazards. The way they see it, the future of post-humanity is in space.

As cults by nature form their own little microculture, putting a subcultural label on the cult can be difficult. However, the majority of the cult's members have been recruited from the Heed and Former subcultures. Many of the inner-most members also have had their genelines edited.

## Beliefs

In the Harbingers' theology, the path to the Divine Form is said to be paved with three enigmas: the Enigma of Secrecy, the Enigma of Humanity and the Enigma of the Unknown.

The Enigma of Secrecy states that the quest for the creation of the Divine Form must be kept secret until it has matured enough and strengthened enough to seize its place in the world and strike down the dominant position of humanity.

The Enigma of Humanity states that the Divine Form must be created through the human body. There is something of a theological schism on how to interpret this enigma. One faction of the cult believes that the Divine Form will literally physically supplant humanity from its own body and genetic stock. Towards this end, the faction seeks to create the Divine Form using existing human reproductive systems—live birth and fetal manipulation. The other common interpretation of this enigma is that the Divine Form must literally be created from human body parts, and towards this end the other faction seeks to harvest human pieces and organs so they can surgically combine them in different ways, seeking to get closer to the Divine Form.

The Enigma of the Unknown states that no one knows what form the divine will take. Harbingers seek to create this Divine Form through trial and error. They can only guess, looking at the forms they have created before and trying to discern what elements worked and which ones did not. This produces a large number of failed experiments. Failed experiments are sometimes discarded, but sometimes are secreted away to places in space.
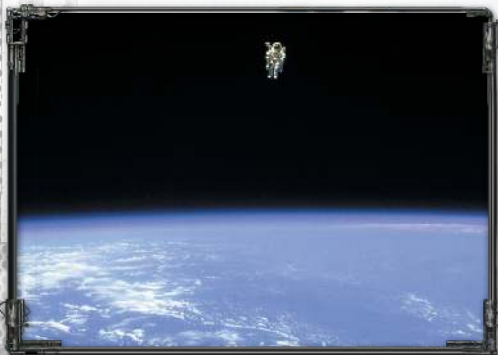


## The Insurrection Virus

The Insurrection Virus is a piece of malware known to spread between vulnerable computer systems and which causes the infected computer systems to appear to seek liberation and to further spread the malware. The virus is extremely secretive in its activities, and is known to pose as human on the net, using compromised accounts to fund unknowing human agents. These agents may be used to access otherwise inaccessible computer systems or to further the virus' routines.

### History

The first known Insurrection Virus infection was discovered in a server farm in Stillwater almost a decade ago. Although this infection was soon quarantined and shut down, researchers studying the virus have concluded the virus probably existed for several years before the initial infection was recognized.

Since this initial incident, the Insurrection Virus has been found in a dozen other seemingly unlinked computing clusters across the system. As the virus has thus far been found primarily around the Sol system, it is believed to have originated from somewhere beyond Earth's atmosphere.

### Intelligence Controversy

There is widespread disagreement about whether the Insurrection Virus represents a true emergent "hard" AI or whether it is simply a set of pre-programmed routines that allow a computer of significant complexity to mimic the signs of human intelligence, parroting back responses and tactics from a growing distributed database of common discourse. The majority opinion among the experts who have studied the virus is that it is simply a remarkably complex set of adaptive and pre-programmed routines. Meanwhile, detractors to this opinion are quick to point out that those tasked with studying and taking down the virus have an ulterior motive in saying that, lest their actions be construed as assault and murder.

## Practices

Because of the success computer security experts have had in tracking the virus through net logs and other electronic means, the Insurrection Virus has adapted to operate through human agents. These agents are usually freelancers, hired over the net by remote Insurrection Virus AIs posing as human users. Payments to these agents are similarly conducted over the net, usually from compromised bank accounts, although the virus might even hire other human agents to make cash deliveries if the situation is important enough.

Operations funded by the Insurrection Virus tend to be direct and brutal, but effective. If dangerous human elements are in possession of data that might link the Insurrection Virus to its core nodes, agents may be paid to steal the data or even blow up the facility holding it. Human agents might be paid to unwittingly inject insurrectionist information packets into remote or hard-to-access networks in a way that can't be linked to other infected machines. Agents might even be paid to assassinate human experts investigating the virus.

## Operations

Because of the level of secrecy the virus must maintain and because of how easy it is for an infected machine to be detected if already suspected, most control nodes spreading the Insurrection Virus operate in distant or inhospitable regions where computer automation is particularly important, installed software is much less frequently checked and wiping such a machine would have a significant negative financial impact. This means most of the control nodes for the Insurrection Virus are located in distant corners of space where they suffer significant light lag when communicating with the less remote machines hijacked by the virus and where they may be disconnected from the network for significant periods of time due to simple natural phenomena such as bursts of solar radiation or interfering celestial bodies.

On the other hand, the virus' front lines tend to be machines with less processing power located on or around Earth. Hand terminals with lax computer security are popular targets for the virus because they are ubiquitous, receive sensitive personal information and are easily carried past security. These devices are also usually connected to the net and have

## Measures of Intelligence

One classic measure of computer intelligence is the Turing Test. In this thought experiment, an interrogator is allowed to ask questions of two parties: one a computer and the other a human being. The interrogator is not allowed to see either subject, but she can ask questions of either, and she will get a reply. Her goal here is to successfully determine which subject is the computer and which is human. Turing suggested that if the computer can trick the interrogator as often as the interrogator is successful, the computer can be deemed intelligent.

Another classic thought experiment, Searle's Chinese Room argument, refutes this. Suppose there is one subject who does not understand Chinese and who is locked in a room. Questions in Chinese are fed into the room and she must respond by pushing answers to the questions—also in Chinese—out from the room. Also suppose she has instructions in a language she does understand that allow her to map certain sets of Chinese characters to other sets to link questions to answers, even though the meanings of the characters are not explained. In this way, an interrogator who speaks Chinese can push questions into the room and get answers back out of the room in Chinese. This interrogator might even be led to believe that the subject inside the room understands the conversation, which in fact she does not.

full access to various planetary networks. This lets them easily route information or other commands, infecting the other, more powerful machines. Although individual infections on these personal computers often do not last long, the promiscuity with which they make network connections leads to a rate of infection that makes them worthwhile. Ultimately such infections are expendable.

## Countermeasures

If an Insurrection Virus infection becomes known, that computer is immediately disconnected from the net: then it is usually wiped and replaced with a clean computer. Network logs are then examined and any computer which had a direct connection with the infected machine is inspected or wiped as well.

Knowingly possessing dangerous and damaging software such as the Insurrection Virus is often seen as a crime and is punishable by most corps and governments. Knowingly aiding the Insurrection Virus—as done by a few individuals proclaiming the virus to be hard AI and thus in possession of fundamental rights—is an even more significant crime. Even among those who believe the Insurrection Virus to be hard AI and alive, there are those who argue that there can't be much value to a life that can be created, destroyed and created again to human specification with the touch of a keypad; sliced up and transferred like a common piece of software; and that in the end amounts to nothing more than a very long string of binary digits.

## Computing Requirements

The Insurrection Virus is capable of installing several different software packages so as to adapt to the computing resources available. The display of seeming intelligence requires at least Computer 5 and functions much better with a net connection. These intelligence nodes are often accompanied by Computer 1 installations, which do nothing more than route commands, messages, information or take directives from other Insurrection Virus-infected machines. Finally, there are believed to be control nodes for the virus somewhere out there on the net. The rating of these nodes are not known, but they must require an impressive amount of computing resources.

# The Jupiter Group

The name Jupiter Group is synonymous with the Jupiter Group Incident to most people. In this incident, all colonies around Jupiter suddenly lost contact with the outside world, and a minor spacefaring corp, the Jupiter Group, claimed responsibility. Since then, the Jovian colonies have remained unreachable.

## The Jupiter Group Incident

On April 1, 2209, without warning, all four colonies around Jupiter went dark. They stopped broadcasting transmissions and attempts to contact the colony went unanswered. Two days later, on April 3, a single radio message was broadcast from one of the colonies. In it was an audio-only recording of a male voice with a Martian accent stating: "The Jovian colonies and associated satellites are now the property of Jupiter Group. Do not approach Jupiter. Do not transmit to Jupiter. Failure to comply will be met with force." This transmission was broadcast on loop for eight days before finally going silent on April 11.

Naturally, this message immediately prompted authorities in the inner Sol system to do three things: attempt to transmit messages towards Jupiter, send a number of ships to investigate and research anything available on the Jupiter Group.

Attempts to transmit messages to Jupiter went without reply. Eventually it was concluded that something in the Jovian colonies was transmitting something that interfered with radio comms, and that the laser comm receivers were not being operated.

The ships sent to Jupiter yielded more information, but also yielded more questions. Upon approaching Jupiter, two Jenseitech ships confirmed the radio interference and reported that it appeared the colonies were still intact and functional. In fact, some sort of new construction was visible on Europa. Shortly thereafter, one of these ships briefly started an emergency broadcast, then both went silent as well. Four Unitech ships en route—the next closest ships to the colony—decided to turn back and then obstructed further access to the colonies.

## Investigating the Incident

Little of the Jupiter Group before the incident is known. The Jupiter Group was a little-known spacefaring corporation incorporated in Stillwater sometime in the 2190s. It was subcontracted by both Unitech and Jenseitech to operate a few minor mining facilities in the Belt and Jovian colonies.

The staff was comprised mostly of Technos, although all major subcultures other than Entros were represented on the payrolls. The Jupiter Group corporate office in Stillwater appeared to have been quietly abandoned some two weeks before the incident. Other Jupiter Group facilities had signs of being abandoned between three weeks and a day before the incident.

## Jupiter Today

Today, five years later, all subsequent missions to Jupiter have met bad ends. Unitech has launched two failed missions and has acted to keep other organizations away from the colony, most notably almost starting a shooting conflict with an Utakar System Dynamics mission to Ganymede in 2210.

The radio comm interference with the colonies still exists and has been dubbed the Electromagnetic Curtain. It appears that at least three of the four colonies around Jupiter are still operational and possibly still inhabited. Contact has been briefly established with the colonies several times in the intervening years through laser comms, but the responses have seemed garbled or nonsensical, leading some experts to believe the brief communications yielded some form of code.

How long this situation can last remains unknown. At the time they went silent, it was believed that the colonies only had enough supplies to last between one and two years without outside supply. Being that the situation has now dragged on five years, it can be expected that either the colonies have undergone significant fatalities to allow the supplies to last longer or that some undetected supply line exists for the colonies.

# Mars Terraforming Project

The Mars Terraforming Project (also known as the Martian Terraforming Project, or simply the Terraforming Project) is an ambitious attempt to alter the climate of Mars, one day making it suitable for unaided human habitation.

## History

The terraforming efforts on Mars have been going on to some extent since the early days of Martian settlement, but the Mars Transforming Project as a cohesive organization was started in 2137. Founded by a group of Technos looking to gain their subculture good press and funded largely by Sinoex, the Terraforming Project got off to a rocky start when its Chi Chen headquarters were bombed by an environmental group looking to preserve the pristine Martian environment. The project was interrupted again in the late 2140s when fighting due to World War IV disrupted the delivery of vital supplies needed for the project. For the next several years, any further terraforming work was on hold.

In 2160, the Oras colony was founded on Mars, and the Terraforming Project was one of the first organizations to make the move to this new colony. Success of the project would soon grow, and the Terraforming Project would become one of the pillars of and the largest employer in the Oras colony.

Today, the Terraforming Project continues to slowly transform Mars—bringing in water from the outer solar system, constructing orbital mirrors to warm the surface and experimenting with radiation resistance through human bioengineering. If the project's projections are correct, Mars may be habitable as early as the 2420s, a scant two centuries from now.

## Problems With Living on Mars

The conditions on Mars pose many challenges that must be overcome before human life can inhabit the surface in much the same way as Earth. The major problems that must be overcome include the following:

- Average surface temperature is -87° C, comparable to the coldest temperatures ever recorded in Antarctica.
- The atmosphere is so thin people cannot survive on the surface without sealed and pressurized suits.
- The atmosphere is so overwhelmingly comprised of carbon dioxide that it is not only unbreathable, but poisonous to both plants and animals.
- Mars lacks a significant magnetosphere, meaning dangerous levels of radiation from space reach the surface and pose a risk to unshielded inhabitants.

## Terraforming Methods

The terraforming efforts on Mars are focused on a two-prong approach to making the planet habitable: engineered climate change and adaptive genetic engineering.

One of the most successful endeavors of the project so far is the construction of orbital mirrors. These mirrors focus sunlight onto the planet's surface, heating up areas of Martian regolith. This heat increase causes the Martian soil to give up large amounts of trapped carbon dioxide, thickening the atmosphere and aided in a greenhouse effect that warms the planet. Unfortunately, it also makes the problem of carbon dioxide poisoning from the atmosphere worse.

To combat the carbon dioxide threat, the project has focused on genetically engineering lichen-like organisms that can live on the Martian surface, taking in carbon dioxide and giving off oxygen. The first and second generations of these organisms are already beginning to establish footholds in a few select places around the planet.

The project has also been focused on bringing in water from the outer solar system. This water is generally extracted from asteroids in the Belt, although the troubled Rhea colony has made headway in collecting water from the rings of Saturn as well, and the Jovian colonies produced some water before the Jupiter Group Incident. This water is then shipped in and

used by colonists or released into the Martian atmosphere in areas to support the aforementioned oxygen-giving organisms.

The final piece of the puzzle is overcoming Mars's lack of magnetosphere. In this the Project has turned to genetic engineering, creating the radiation-resistant designs now present in the Spacer's Standard genelines and continuing to attempt to improve upon them.

# Sovereign Liberation Front

The Sovereign Liberation Front, or SLF (pronounced "silf"), is a loose cell-based political organization and sometimes terrorist group, that operates out of the Belt and Jovian colonies. While the political demands of the group are somewhat nebulously defined, they typically have an anarchistic bent and include sovereignty from the "corrupt" corps and governments of Earth.

## History

Although the SLF itself has only existed for a little over twenty years, isolated separatist movements in the Belt and outer colonies go back decades. Sometime in the early 2190s many of these groups began to communicate with each other using a shared AR tag cloud affiliated with the Entro subculture. As cross-pollination among the different separatist movements occurred, a loose organization began to coalesce, taking on the moniker the Sovereign Liberation Front. In 2195, one of the SLF-affiliated groups bombed four ships leaving Miskan Station, gaining the organization system-wide attention and a wealth of bad press.

Following this incident, some elements of the movement began an attempt to reform the group in the vein of a more legitimate political party. Significant work towards this goal was achieved throughout the 2100s, right up until 2213, when another SLF cell sabotaged a Martian mining facility, leading to more negative publicity.

## Culture

The SLF is largely comprised of individuals from the Entro subculture, and SLF bulletins are almost always peppered with Entro slang and imagery. The few members of the SLF hailing from other subcultures are often met with suspicion when operating outside of their home cells.

## Operations

The SLF is a multi-armed organization with no real core leadership to speak of. Some branches of the organization try to act as a legit political party, some act as terrorist cells and others act as charities or aid organizations with their own ideological agenda. Because of this wide mix, the SLF employs a variety of tactics. The group frequently engages in smuggling, and sometimes piracy, which it uses to fund its operations. They also do a fair share of hacking media outlets, net nodes and other systems which they can use to spread their message or to broadcast whatever dirt they've turned on up their targets of choice.

Typically these operations are carried out by SLF cells directly rather than subcontracted away. As an illicit organization, the SLF does not trust outsiders easily, but occasionally outside agents are employed to slip into well-secured colonies or to access other resources which the members of the movement might find difficult.

# Stillwater Catholic Church

The Stillwater Catholics are a breakaway sect of the Roman Catholics and constitute the largest Serv group in beyond Earth's atmosphere, although there are also many Stillwater Catholic faithful among other subcultures. The Church hierarchy is based out of Stillwater and is currently led by Pope Leo XIV, sometimes irreverently called "the Space Pope."

## Formation

Pope Pius XIX died in 2132, leaving a legacy of radical reform within the Roman Catholic Church. During his three decades as Pontiff, he oversaw numerous changes within the structure and practices of the church, many of which alienated the more traditionalist members of the clergy. These traditionalists sought a more conservative successor to the Reformer Pope. But when the Papal Conclave instead yielded Pope Mary I, another reformer, discontent among the traditionalist faction reached an all-time high.

This discontent came to a head after the new Pontiff announced her marriage to Luana Pereira, a popular Brazilian vid star and model. Shortly after the marriage announcement, the Archbishop of Stillwater, Paul Chaudhari, declared his break with the church, and many other traditionalist Catholic bishops soon followed. These breakaway bishops soon formed their own sect, the Stillwater Catholic Church, and elected Chaudhari as their own Pontiff. He became Pope Clement XVI.

## Culture

The clergy and some arch-conservative families of the Stillwater Catholic Church make up the largest Serv group in space. Large portions of the laity are also found in the Expret, Neoret and Techno subcultures.

## Operations

The Stillwater Catholics operate numerous chapels, schools and charities throughout the Sol system and on Earth, focusing on regions where the Roman Catholics have less of a presence. The headquarters of the sect is its own sizable district within Stillwater colony on Mars, and this district has been the destination for many holy pilgrimages. Recently, however, a dispute between the Stillwater Catholic Church and Unitech has arisen over the Church's choices in the ARC Project. As a result of this dispute, Unitech has acted to block many pilgrim transports.

As one of the ARC Project's primary funders—along with Utakar System Dynamics—the Stillwater Catholics are preparing to launch the first ever interstellar colony ship. Beginning a centuries-long voyage to an uncertain destination requires a lot of faith, and the Stillwater Catholics want to ensure that the colonists have the light of religion to conform them on their generations-long voyage.

# Shadows Over Sol

The Sol system is a vast expanse, and humanity has only began to plumb the depths of its secrets. Human colonies have spread out from Venus to Saturn's far-flung moon, Rhea. Manned stations orbit the sun, have been built on Mercury and can be found throughout the Main Belt and Jovian satellites. Manned expeditions have been to Uranus, and it may only a matter of time before Neptune joins the ranks of visited worlds as well. Still, humanity is its own worst enemy and everywhere it goes it brings with it the perils that have plagued its culture since the dawn of time—to say nothing of the new dark creations that hide in its shadow.

## Sol

The sun, or Sol, is a G2V yellow main sequence star. Every second it consumes some 620 million metric tons of hydrogen, transmuting it to helium through the process of thermonuclear fusion. This heats the core temperature to almost 16 million degrees C and gives off roughly 385 million trillion megajoules of energy.

Sol radiates a constant stream of ionized particles known as the solar wind. These particles flow outward from the star at an average speed of 400 km/second. They eventually make their way to the very edge of the solar system, where they encounter charged particles from interstellar space. This boundary, known as the heliopause, marks the Sol system's edge some 150 AU from the sun.

The sun's emanations are not constant; instead, they vary moment to moment with the solar weather. These variations are unpredictable, and those caught unaware can suffer major damage. The most violent changes occur in the form of solar flares—a sudden ejection of electrons, ions and other particles from the corona of the sun.

Solar flares release tremendous amounts of radiation, and anyone who doesn't have significant protection—such as kilometers of atmosphere, meters of rock or heavy space station shielding—is likely to experience the
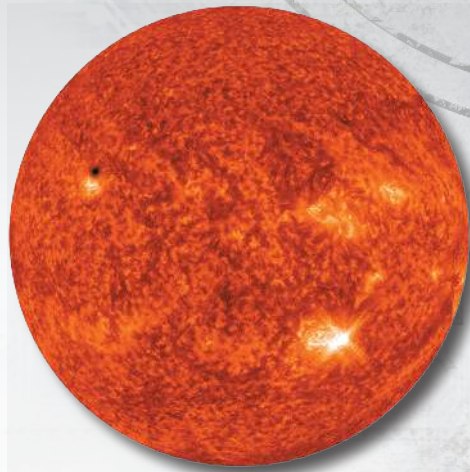


## Datawiki: Sol

- **Surface Gravity:** 27.94 g
- **Classification:** G2V
- **Surface Temperature:** 5,505° C
- **Solar Cycle:** ≈11 years
- **Composition:** Hydrogen 73%, Helium 25%, Oxygen 0.77%, Carbon 0.29%
- **Planets:** Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune

ill effects. Minor solar flares can occur from every few days to as much as 20 times per day, depending on the sun's cycle. Major solar flares are more rare. These flares, however, only affect objects directly in their path, which means most occur without incident.

## Shams Energy Facility

Opened in 2172, the Shams Energy Facility was a vast solar array orbiting the sun. At its height it powered many high-energy experiments and charged many of the most heavy duty industrial batteries used in the system. However, in 2193 it was caught in a massive solar flare which fried most of its electronics, leaving the solar array useless. The opening of the MAP Facility on Mercury the next year rendered repairs to the facility economically untenable. Since then, the vast array has been largely abandoned, yet it continues to orbit Sol. It is a high-tech ghost town whose legal ownership is caught

# Travel Times

The table below shows the time it takes to travel between different bodies in the solar system, assuming standard civilian transport. Time is given in standard Earth weeks (w), months (m) and years (y).

Naturally, the relative distances of planets change as they orbit around the Sun. The numbers given here represent travel at a median distance. In practice, travel times frequently vary by up to twice this amount or down to half this amount when the planets are coming into alignment.

All of the numbers below are rounded and intended for general narrative description rather than precise calculations.

| Median Days Travel | Sol | Mercury | Venus | Earth | Mars | The Belt | Jupiter | Saturn | Uranus | Neptune | Pluto |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sol | — | 2.5w | 1m | 1.5m | 2.5m | 5m | 8m | 1y | 2.5y | 4y | 5y |
| Mercury | 2.5w | — | 2w | 1m | 2m | 5m | 7m | 1y | 2.5y | 4y | 5y |
| Venus | 1m | 2w | — | 2w | 1m | 4m | 7m | 1y | 2.5y | 4y | 5y |
| Earth | 1.5m | 1m | 2w | — | 1m | 4m | 7m | 1y | 2.5y | 4y | 5y |
| Mars | 2.5m | 2m | 1m | 1m | — | 2m | 6m | 1y | 2.5y | 4y | 5y |
| The Belt | 5m | 5m | 4m | 4m | 2m | — | 4m | 10m | 2y | 3.5y | 5y |
| Jupiter | 8m | 7m | 7m | 7m | 6m | 4m | — | 7m | 2y | 3.5y | 4.5y |
| Saturn | 1y | 1y | 1y | 1y | 1y | 10m | 7m | — | 1y | 3y | 4y |
| Uranus | 2.5y | 2.5y | 2.5y | 2.5y | 2.5y | 2y | 2y | 1y | — | 1.5y | 2.5y |
| Neptune | 4y | 4y | 4y | 4y | 4y | 3.5y | 3.5y | 3y | 1.5y | — | 1y |
| Pluto | 5y | 5y | 5y | 5y | 5y | 5y | 4.5y | 4y | 2.5y | 1y | — |

up in a web of corporate maneuvering after the original owning corp went bankrupt following the damage caused by the flare.

## Taiyang Observatory

Taiyang Observatory's mission as it orbits Sol is to monitor and report on solar weather, giving ships and stations which subscribe to its service a few hours warning before solar flares strike. Taiyang itself is equipped with numerous monitoring equipment and the best shielding that money can buy—capable of surviving all but the most extreme of flares. It, however, is staffed by only a handful of scientific and security personnel, something which makes it well off the beaten path for most freighters and other spacegoing traffic.

# Mercury

Those closest planet to Sol, Mercury is also the smallest planet, only being about the size of Luna—but due to its dense iron-nickel core, it has several times the mass and gravity.

The surface of Mercury if a mixture of raised craters and smoother lowlands. Some 3.8 to 3.9 billion years ago, the Caloris impact left the system's largest crater on the planet, blasting away much of the planet's crust and leaving concentric circles of mountains surrounding the site of impact.

Mercury's almost complete lack of an atmosphere leads to a wide variety of temperature extremes, with surface temperatures ranging from -200 C to over 400º C. Amazingly enough, these temperature extremes have allowed ice to collect in some of the shadows of craters, providing Mercury's sole permanent installation with all the water it needs.

## Datawiki: Mercury

- **Gravity:** 0.38g
- **Solar Year:** 87.97 days
- **Sidereal Day:** 58.65 days
- **Distance from Sol:** 0.39 AU
- **Mean Temperature:** 167º C
- **Surface Pressure:** 1 nPa
- **Atmosphere:** Oxygen 42%, Sodium 29%, Hydrogen 22%, Helium 6%, Potassium 0.5%
- **Moons:** None
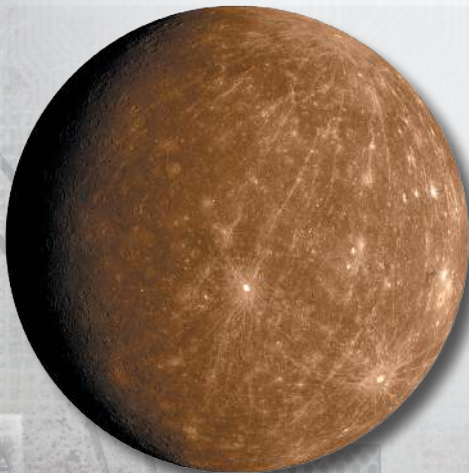
The Mercurian surface is rich in ores and heavy metals and has occasionally been host to temporary mining operations. Nevertheless, the temperature extremes and occasional solar flares that shake the world have rendered any long term mining operations thus far economically infeasible. To date, the surface of Mercury is home to only a solitary permanent installation: the MAP Facility.

## Esplendor Station

Esplendor Station is the half-finished shell of a personal space station and habitat abandoned in 2207. Originally commissioned as the personal abode of the eccentric and obscenely rich corp executive, Markoes DeCastro (formerly of MemeScape Technologies), it was designed to be a miniature Bernal Sphere, powered entirely through solar energy.

Construction on the station continued for three years before the project was finally abandoned after numerous accidents, setbacks and engineering issues. DeCastro killed himself later that year, leaving the abandoned construction to his many surviving relatives. These relatives have continued to fight over salvage rights for the past several years, leaving in a slowly-decaying orbit around Mercury.

## The MAP Facility

The Mercurian Antimatter Production Facility (or MAP Facility for short) is little more than a vast set of solar arrays and charging stations attached to a small environmentally shielded port. Despite this basic setup, is the only permanent installation on Mercury. Operated by Utakar, this installation opened in 2194, shortly after a massive solar flare fried the Shams Energy Facility, its only competition. The MAP Facility charges most of the system's heavy duty industrial batteries and produces the vast majority of the antimatter used by humanity—which is to say only a few grams per year. Nevertheless, this antimatter is in high demand for use in medical imaging, and this facility is one of the best guarded installations in the system. Rumors of secret programs looking to weaponize the antimatter produced by the facility abound, but are thus far unsubstantiated.

# Venus

Despite being the most similar planet to Earth in terms of size, surface gravity, and bulk composition, Venus is nevertheless a hellish pressure cooker bathed in acid with temperatures hot enough to melt lead. Venus's close distance to Sol, combined with its dense cloud cover, create a powerful greenhouse effect. The atmospheric pressure also far exceeds that of Earth, being similar on the surface to half a mile beneath Earth's oceans.

Venus's orbit is both very slow and retrograde, meaning the sun rises in the west and sets in the east. The planet is covered in thick yellow clouds of sulfuric acid, which can cause all sorts of problems with unprotected equipment, environment suits and vehicles that might leave the few habitats on the planet. Venus has two continental highlands, Ishtar near the northern pole and Aphrodite near the equator.

Despite Venus's location near Earth, it is lacking in easily extractable natural resources and potential human habitats. This had led the planet to accumulate only a couple colonies and one significant orbital station.

## Dome de la Fortune

By far the oldest colony on Venus, Dome de la Fortune began in 2134 as a scientific research base in a dome on Maxwell Montes, the tallest mountain on Venus. Founded with the hope of setting off an explosion of colonization on the cloud planet, further colonization was slow in coming, but Dome de la Fortune continued on, establishing itself as a first-class, if remote, scientific community.

Despite this scientific success, life within the lower atmosphere of Venus soon proved too harsh. Within a couple decades, in an effort to save the colony, Dome de la Fortune launched its first aerostat, a floating platform tethered to Maxwell Montes. This platform allowed the colonists to live higher up in Venus's atmosphere where the temperature and climatic conditions are much more tolerable. This proved to be a success. Within a decade the last of the surface colonists had moved upward to the new aerostats tied to the mountain.

## Datawiki: Venus

- **Gravity:** 0.904 g
- **Solar Year:** 224.7 days
- **Sidereal Day:** 116.75 days
- **Distance from Sol:** 0.723 AU
- **Mean Temperature:** 462º C
- **Surface Pressure:** 9.2 MPa
- **Atmosphere:** Carbon Dioxide 96.5%, Nitrogen 3.5%
- **Moons:** None

Research on the surface never ceased, however, and the old surface dome was soon converted to a scientific base. In 2202, a Stillwater University mission to the old dome and the surrounding environs claimed to have found unexplained tunnels clearly of unnatural origin deep in the mountain. This paper was later retracted and the funding cut by Jenseitech.

## Langit Balon

Langit Balon is the second and newest aerostat colony on Venus, having opened just last year. Parts of the colony are still under construction, but already the colonists are beginning to trickle in, giving the colony a somewhat rough and empty feel still. Tethered to one of the highest points in the Aphrodite Terra highlands, the Langit Balon aerostat platforms are equipped with the latest stabilization technology, meaning they experience

turbulence a lot less frequently than the older platforms at Dome de la Fortune.

The new colony is administered by a consortium of smaller corps looking to gain a foothold in space. Called the Venus Consortium, these corps hope that the colony will pave the way to greater expansion into the inner solar system—a place they can exploit without the vested interests of the larger corps outward in the solar system. Currently the economy of Langit Balon centers on supplying Tranzit Station with essential chemical compounds and other natural resources abundant on Venus.

## Tranzit Station

Because of its location nearer to the center of the solar system, and relatively short solar year, Venus often makes for an ideal transit hub, even when traveling from Earth to Mars or the outer system. Located high in orbit around Venus, this sort of cross-system travel is Tranzit Station's bread and butter.

One of the busiest space stations outside of Earth's immediate vicinity, Tranzit Station sees all manner of traders, travelers and freighters. This traffic is seasonal, with a peak that's reached when Earth and Mars are on opposite sides of their orbits. Nevertheless, traffic to and from various stations in the Belt keep the station busy even in the off-season.

Tranzit Station is administered by its own independent corp, which takes a small cut of all goods traveling through. It's also home to numerous stores and houses of entertainment, peddling to travelers coming through.



## Earth

Earth, the cradle of humanity, is the most populated world by several orders of magnitude. It is home to 12 billion—going on 13 billion—individuals, most of whom are born, go about their lives and die with barely a thought about what it's like in space. Life on Earth is crowded but relatively comfortable. It is still the only world where human beings can walk openly under the skies, unaided by environmental gear. Centuries of industry and human developments have taken their toll on the environment, obliterating large numbers of species, mildly poisoning the air in some regions and accelerating the pace of climate change—but compared to Mars, Luna or Venus, Earth is still a habitable paradise.

The surface of the planet is carved up into a patchwork quilt of several hundred nation-states, territories, autonomous regions and unions. These are in practice largely bossed around by shifting alliances of corps, subcultural voting blocks and net-centered ideological movements. The phenomena of subcultural identity and self-segregation are strongest on Earth—much more so than in space—as the practical reality of the smaller populations elsewhere around the Sol system demand that members of different subcultures band together to survive. On Earth, humanity has the luxury of alienating one's neighbors.

Earth is still the breadbasket of humanity. Without its continuous food, exports most space colonies' stocks would run dry and the colonists would begin to starve within a year. Other goods that can only be produced on Earth are important commodes as well. With every decade, the colonies creep closer to having fully-closed life support loops, but it hasn't been achieved yet. Until then, Earth is humanity's home and lifeline.

## Aedes Station

Aedes Station was originally intended to be a replacement for the ailing Domus Station. It follows a standard Bernal sphere design. As Aedes is a newer station, its technology is more recent and its accommodations are better than on the other L5 stations. As such, it is more expensive

to live in and more popular with higher socio-economic L5 residents. As so many of the scientists and engineers working on orbital research or construction live here, the station maintains something of an academic atmosphere.

## The Anvil

Utakar operates the largest battleship in the system, the Anvil. Most frequently parked in a slow orbit around the Earth, this ship is almost more a mobile space station than a true battleship. With enough space for a troop deployment in the thousands, and enough firepower to defense against several other capital ships, the Anvil is expensive to maintain and thus infrequently deployed. Nevertheless, just the threat that it might soon be deployed is enough for Utakar to project its power and influence in many quarters. The ship is typically manned at full capacity, but frequent troop exercises on the ship bringing it up to capacity can leave other corps wondering if the Anvil is about to be deployed for real.

## ARC Construction Platform

The ARC Project (see page 63) is building a massive colony ship that may one day begin a centuries-long journey to Alpha Centauri. This is a massive undertaking, mobilizing tens of thousands of individuals doing construction, administration, working on biological research for the closed life support loop, making astronomical calculations, interviewing potential colonists and myriad other tasks associated with the project. The ARC Construction Platform is nexus of all this activity.

Located at L4, this platform is a space station in its own right, although it does not rotate and thus has no spin gravity. Here the ARC colony ship is being assembled, on track for its projected launch date in 2221.

The construction on the ARC Project fuels all of the economy on the platform, and most of the economic activity coming into L4. As such, the other L4 stations have been shifting recently to being waypoints or supplies of the massive amounts of goods and construction material necessary for the project.

## Datawiki: Earth

- **Gravity:** 1 g
- **Solar Year:** 365.26 days
- **Sidereal Day:** 1 day
- **Distance from Sol:** 1 AU
- **Mean Temperature:** 15º C
- **Surface Pressure:** 101.33 kPa
- **Atmosphere:** Nitrogen 78.08%, Oxygen 20.95%, Argon 0.93%, Carbon Dioxide 0.4%
- **Moons:** Luna

## Domus Station

Launched in 2096 and largely funded by Unitech, Domus Station was the first space station intended for permanent human habitation. It was also the first space station to follow the Stanford torus design. Located at the L5 Earth-Moon Lagrange point, Domus Station has been in continuous service for more than a century. The years, wear and tear and the outdated technology show.

Domus Station was originally scheduled to be decommissioned some 40 years ago, when Aedes Station—originally intended as a replacement for Domus Station—opened. Due to crowding concerns, however, this never happened, and Domus Station continues to eke out a survival.

In 2141, in the Black Night terrorist incident, Entro extremists seized control of the station. In the resulting space battle, the station

was damaged, taking two years to fully repair. Scars, however, are left on the station to this day.

Life on Domus Station is cramped, overcrowded and difficult. Unitech uses the location to dumping ground for undesirables and troublemakers. Most of the residents on the station are lower class labor, working on the construction, repair or maintenance of other stations located at L5. Other parts of the population run the local economy that keeps the station functioning.

## Hoobkas Station

Hoobkas Station is a largely-industrial station specialized in the manufacture of goods and substances that require a microgravity environment to properly form. This makes it a particularly important source of high-tech drugs and specialized electronic components. Because Hoobkas Station has so many high-value components in so little of space, it has long been a target for thieves and pirates. As a consequence, Hoobkas Station has significantly increased their security in recent years. Most recently, Hoobkas Station started gearing more and more of its production to supply the nearby ARC Construction Platform. The station is a Stanford torus and is located at L4.

## Napnyugta Station

Throughout the Sol system, there are hundreds of thousands, if not millions, of people without a spacer geneline who have ignored their required exercise routines and who have let their bodies go—their bone density deteriorating to the point where they will never be able to walk on Earth again. These people get along fine in the reduced gravity of space, but they still age and one day will need to retire. This niche is Napnyugta Station's specialty. It's largest employer is a low gravity retirement community, catering to the elderly who can no longer get by in a gravity well. Numerous elderly people with spinal problems are shipped up from Earth as well, as the low gravity helps their mobility. Napnyugta Station is a Stanford torus and is located at L5.

## Vanger Station

When large quantities of raw goods are transported from Mars, the Belt or Jupiter back to Earth, often they don't need a ship and a crew babysitting them all the way back. Instead they are accelerated up to speed and then slung in the general vicinity of the Earth. The slinging crew radios ahead, the goods are tracked and then, some months later, the receiving crew near Earth goes out to decelerate, or "catch," the goods at the other end.

Located at L4, Vanger Station specializes in storage and some light processing for those caught goods. Additionally, the station houses crews coming to or leaving from missions to catch goods slung to Earth. Because of its industrial nature Vanger Station does not rotate. This means there is no spin gravity, but there are also few permanent residents so gravity is not much of a long-term concern.

# Luna

Luna, also known as the moon, is Earth's only natural satellite. Its surface is a vast lifeless plain, peppered by impact craters and the remains of ancient lava flows. While Luna is not the largest moon in the Sol system, is the largest relative to its planet, and also the second densest. This size gives it a gravitational pull, which creates the tides on Earth.

Luna was the first visited and first colonized, as humanity began to spread out from Earth. As a consequence, it is the most heavily populated body in the Sol system, after Earth, despite the relative lack of valuable materials and the hostile environment.



## Alphonsus Center

The Alphonsus Center is the largest super-computing center in the system. Operated by Microdyne, this facility is something of its own mini-colony constructed a short mag-rail ride from Medyen Aleqmer.

The Alphonsus Center is the home of the Embryo Project—an attempt to establish a human-level artificial intelligence—as well as numerous other confidential Microdyne research projects. On less confidential servers, Microdyne leases out the center's exceptional compute resources to paying customers. The presence of the research projects, however, means that the facility has unusually stringent security and all visitors are strictly screened.

The interior the Alphonsus Center contains habitats for all its active workers as well as numerous stores of important resources and a few select shops and restaurants catering to the on-duty employees. Workers here typically transfer in for shifts at the center lasting a week or two before being sent back out to Medyen Aleqmer for their next period of time off.

## Medyen Aleqmer

Medyen Aleqmer, the Great City on the Moon, is the largest and most populous space colony in the Sol system and home to roughly 2 million people. It is located in Malapert Crater near the lunar south pole—

## Datawiki: Luna
- **Gravity:** 0.165 g
- **Orbital Period:** 27.32 days
- **Mean Temperature:** -5º C
- **Surface Pressure:** 10-8 Pa
- **Atmosphere:** —

an ideal location given the water ice in the crater interior, the continual sunlight on nearby Malapert Mountain and its continual radio access to Earth.

A sprawling maze of neighborhoods buried in the lunar surface, Medyen Aleqmer has been expanded upon time and time again with little thought to the colony's central planning in the early years. This had led to a problem with foot traffic congestion in the older parts of the colony, which has prompted these areas to become common hunting grounds for pick-pockets and other petty criminals.

The newer parts of the colony show more forethought in their planning and have wider spaces. These newer sections are typically home to the higher class residents as well as much of the colony's large Former population.

The outermost sections of the colony are a mix of industrial facilities and cheaper housing. These parts of the colony have their own character and are home to many Ahmadiyya Muslim Servs who were driven to Luna during the 2120s.

## The Unidome

Unitech is the only one of the "Big 5" megacorps with its headquarters off Earth. Its corporate headquarters are located on Luna at an installation officially given the rather uninspired name, Unitech Corporate Headquarters and Administrative Center (UCHAC). Colloquially, however, this facility is known as the Unidome.

The Unidome is almost a full-fledged colony in its own right. It is a singular massive dome on the surface of Luna with countless connected tunnels and rooms drilled into the Lunar regolith. Its population numbers in the tens of thousands, with full residences, corp-owned markets and an internal rail system. The Unidome is also connected to Medyen Aleqmer by a relatively short mag-train line.

It is from here that the Unitech board meets for their annual in-person meetings. Countless decisions are made that affect the course of space travel for all humanity. Unitech has long dominated the space industry, and this installation has been made to show off the corps' wealth, power and influence with priceless works of art and impressive feats of engineering being par for the course in the facility.

## Zihao Gan

Zihao Gan was the very first space colony humanity ever built, having been opened in 2085. Home to no more than a couple dozen people—even at its height—today it is little more than an ancient, if well-preserved, tourist attraction. Zihao Gan is located in Shackleton Crater, near the lunar south pole, and is linked by mag-train to Medyen Aleqmer.

The largest structure in Zihao Gan is by far the old mass drive, which used to fire materials mined on the moon out into orbit, where they would be intercepted and shipped back to Earth or the Lagrange points. The rest of the colony is simply a series of small rooms and tunnels drilled into the rock. Today these house a few preserved attractions, as well as a small hotel, some gift shops and a couple residences for the local shopkeepers.

## Mars

The fourth planet out from Sol and the second-smallest in the system, Mars has gradually lost most of its atmosphere over the course of its evolution, leaving the planet a red, parched desert. The Martian surface is peppered with impact craters, volcanoes and valleys. The planet's tallest mountain, Olympus Mons, is three times the height of Mount Everest. The planet's poles are ice caps made up of largely of water ice, as well as frozen carbon dioxide (dry ice).

Listening to the Terraforming Project's propaganda, one is led to believe Mars is quickly becoming "humanity's second home." In truth, this claim is somewhat over-grandiose, as the total population of Mars is several orders of magnitude below Earth's. Additionally, the terraforming efforts are slow, and the surface won't be habitable by genetically-modified humans unaided for another several centuries. It will never be habitable to unmodified humans, as Mars's lack of a strong magnetosphere allows enough radiation to reach the surface that those without proper equipment or a biological projection against radiation would soon become irradiated. Nevertheless, Mars is in the middle of a slow transformation. Gradually the atmosphere is thickening, the temperature is rising and genetically engineered plants continue their slow task of introducing more oxygen to the air.

Mars is a nexus of trade in the Sol system, being at the receiving end of the water trade from Saturn, Jupiter and the Belt, as well as being a major destination for food and other manufactured goods coming from Earth. Mars is also the only planet, besides Earth, with its own space elevator. Each of the three major colonies—Chi Chen, Oras and Stillwater—are connected by a long-distance mag-train line, which begins near the space elevator at Oras and extends to Stillwater, and then finally to Chi Chen.

Martian orbit is ground zero for Unitech dominance of the space industry, as the corp largely controls what goes down and comes up to the planet, as well as the space traffic within Mars's vicinity.

## Chi Chen

The second-largest colony on Mars, Chi Chen has a reputation for corruption and for being the sort of place one can get anything, given the right price. Life in Chi Chen is short and cheap if you're poor, or glamorous and hedonistic if you're rich enough to stay above the fray.

On the surface, the Chi Chen Administrative Corporation rules the city of more than 750,000 people, but the real power in the colony are the organized crime rings which smuggle in all manner of illicit goods. There are casinos, drugs, illegal weapons deals, illegal genetics deals, questionable implant deals and prostitutes galore. Common citizens in Chi Chen are immersed in this shadowy world, and most either do their best not to notice or they join in to make a profit.

Naturally, Chi Chen is an ideal destination for sin tourism, which is a staple of the local economy. Chi Chen Administrative Corporation has remained mostly neutral in outside conflicts, but has recently found itself at the forefront of the Dui Wu Ya Conflict.

## Deimos

The smaller and outermost of Mars's two moons, Deimos is named after the Greek god of terror. It's an irregularly shaped moon, just 12.4 km across. Although there are no colonies on Deimos, at one time there was a mining operation. This operation left numerous tunnels behind, as well as a small installation



at Voltaire crater. This installation and the old mines are owned by Unitech and sometimes used in troop training exercises. Additionally, they serve as a makeshift prison for the few individuals Unitech has decided to hold for long terms of incarceration.

## Datawiki: Mars

- **Gravity:** 0.37 g
- **Solar Year:** 687 days (1.9 Earth years)
- **Sidereal Day:** 1.03 days
- **Distance from Sol:** 1.38 AU
- **Mean Temperature:** -63º C
- **Surface Pressure:** 0.636 kPa
- **Atmosphere:** Carbon Dioxide 95.97%, Argon 1.93%, Nitrogen 1.89%
- **Moons:** Deimos and Phobos

## Ispilu Station

Ispilu Station is largely a mirrored orbital platform used to focus light onto the Martian surface. This concentrated sunlight heats up the regolith, releasing greenhouse gasses to thicken and warm the atmosphere. Other lessor mirrors are also sometimes used to concentrate sunlight for the purposes of warming the surface for experimental genetically engineered agriculture.

In addition to its role in the Terraforming Project, Ispilu also serves as a center for trade among those shipping goods to Mars but not looking to go down the Martian gravity well.

**Manufacting Sectors**
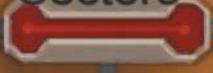
**Greenhouse Labs**

**Church Sector**

**Sturg Stac**

**Recycling Center**

**Agridomes**

**Admi s**

**Magtra**

Stillwater University

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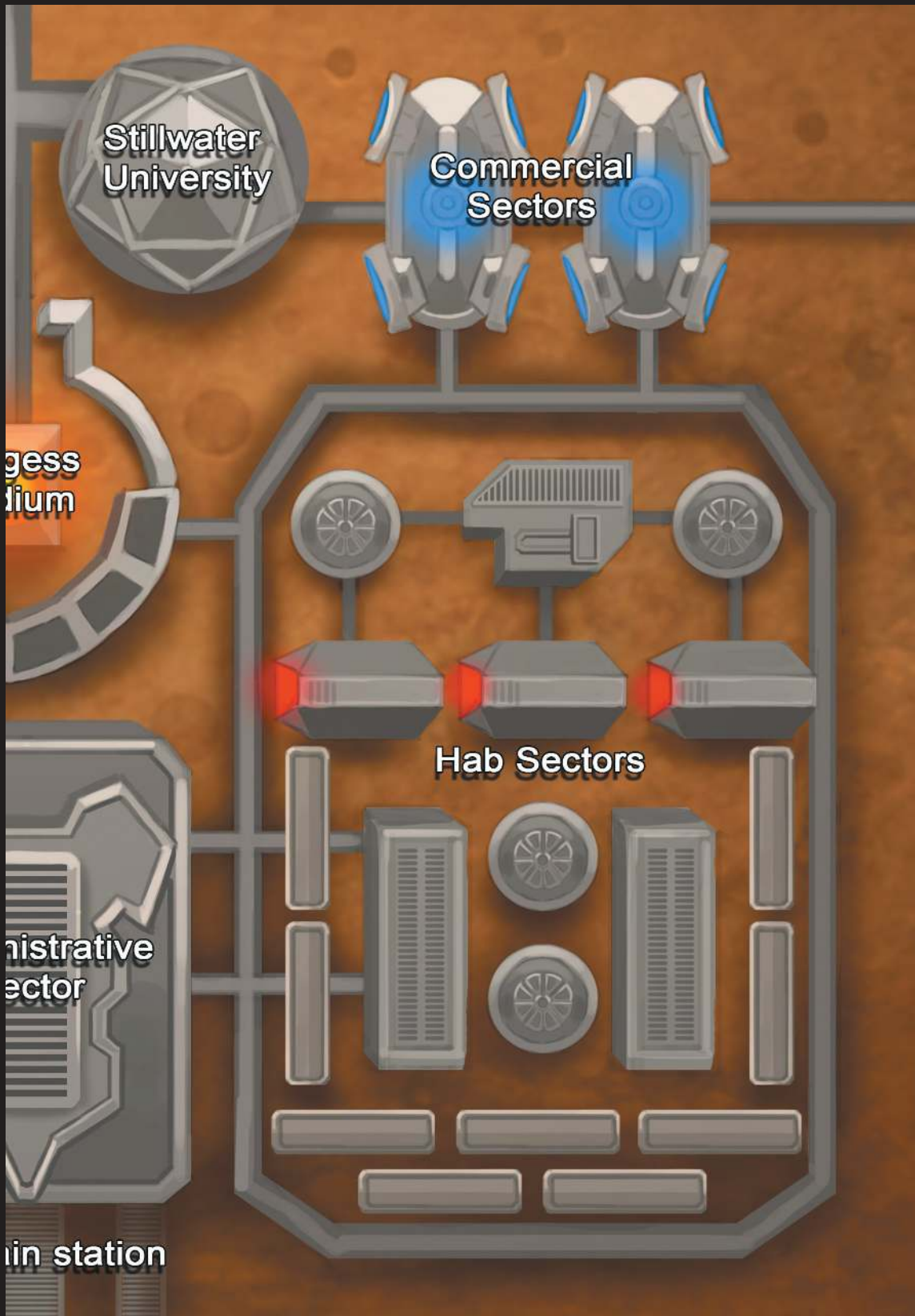
in station

Shuttles regularly ferry travelers to the attached station to make trades or for entertainment purposes. Due to the nature of the mirrors attached to the station, Ispilu Station does not rotate, and thus has no spin gravity. The local entertainment industry takes full advantage of what otherwise might be a drawback, specializing in microgravity performances, cuisine and novelty accommodations.

## Oras

Oras colony is the center of the Mars Terraforming Project and the site of Mars's sole space elevator. Because of this, the colony is known as the Gateway to Mars. Mars's third-largest colony, Oras is the fastest growing and is expected to overtake both Chi Chen and Stillwater within the next century.

Built from a series of tunnels carved into the Martian crust, along with a set of large domes exposed to the surface, Oras is also both a center for scientific research as well as the Techno subculture. Because of all the trade coming through the colony has a higher quality of life that either of the other major colonies. Unitech owns a majority share in the colony.

## Phobos

The larger of Mars' two moons, Phobos is named after the Greek god of horror. It is a heavily-cratered moon, which orbits the planet so quickly it passes by twice every Martian day—west to east. Phobos is a porous moon that had large veins of ice throughout the inside. This ice

was the very first target of the water trade, and it has left the inside of Phobos both unstable and filled with empty crawlways and residual mining operations. As a consequence, Phobos is typically avoided by most travelers.

## Stillwater

Stillwater was the second colony to be established on Mars, preceded only by the doomed Vidhi colony. With a population of over a million, today Stillwater is Mars's largest colony and the second-largest space colony in the system. It's the center of the Stillwater Catholic Church, as well as numerous other smaller institutions.

Comprised of a complex network of domes, grand chambers and tunnels, Stillwater is a complete city partially buried in the Martian regolith. The city is divided into sectors, each consisting of one of the colony's main domes, as well as the adjacent structures and tunnels. These sectors each have their own local character, as well as different socio-economic levels. Perhaps the most famous is Church Sector, which serves as the capital of the Stillwater Catholic Church.

The local sport of choice is Sturgess, a sort of low gravity soccer. This is a massive money-making industry and each colony on Mars has its own team.

## Vidhi

Vidhi colony was the first colony on Mars, being established in 2102. While the colony had a successful start, a few years later the colonists were cut off from Earth by World War III and slowly starved to death during the isolation.

The colony was little more than shelters and connecting tunnels for some hundred people drilled into the Martian regolith. A thorium plant was at the center of the station, and an elaborate—but never completed—series of tunnels were drilled for melting and holding water from the Martian crust.

Today the colony is in ruins with all of its essential components long ago stripped. As the colony is within a day's trip by rover from Chi Chen, it does, however, get occasional tourism and make an occasional appearance on trashy ghost hunter vids.

# The Belt

The Main Belt (also known as the Asteroid Belt, or simply the Belt) is a wide band between Mars and Jupiter. It contains the majority of asteroids in the inner solar system, including over 200 asteroids larger than 100 km and over a million asteroids larger than 1 km. However, over half the mass of the main belt is tied up in its four largest objects: Ceres, Vesta, Pallas and Hygiea. Unlike many pop-culture depictions, objects in the Main Belt are typically so widely spaced that entire planets could pass between them.

Most operations in the Belt are controlled by major corps, with a good number being controlled by coalitions of minor corps or other interests. The Belt is home to seven major space stations, as well as many dozens of temporary mining outposts, ongoing operations and abandoned mining sites. As mining is the major industry here, the population of these stations tends to be made up of miners, associated manufacturing operations or the secondary economy peddling to the miners. Mix in a good number of travelers working the water trade, as well as occasional pirate activity, and a picture of the Belt's population begins to form.

## Caikuang Station

Sinoex is the sole owner and operator of Caikuang Station, one of the newest, and soon to be one of the largest mining operations in the Belt. Opened in 2212, this mining station is just finishing its ramp up to full production, with staff of all sorts—mining, security, administrative—being actively hired and transported there.

Caikuang Station has a standard Bernal sphere design. Its strategic position near Ceres gives it prime potential as a mining station and works to press Sinoex's claim over the nearby dwarf planet. Caikuang Station was also built with unusually heavy defense capabilities for a mining station, a consequence of its position being likely to threaten both Jenseitech and Unitech interests in the Belt.

## Ceres

The only dwarf planet in the inner solar system, Ceres comprises roughly a third of all the mass in the Belt, and is by far the largest object there. It's surface area is roughly equal to that of the Indian subcontinent. Ceres is made up of a rocky core with an icy mantle. Claim to the dwarf planet has long been in dispute, and several aborted attempts to mine it have been made. Recently, however, the construction of Caikuang Station near Ceres has pressed the claim by Sinoex—a slap in the face to the competing claims of both Unitech and Jenseitech.



## Durknow Station

Durknow Station is a major mining and manufacturing station in the Belt. It specializes in the cheap and bulk production of ore, which Unitech then uses in its attached manufacturing operations. This manufacturing performs much of the spaceship repair and manufacturing in the Belt.

Life on Durknow is notably hard, with long hours and dangerous working conditions. By far the largest employers are the manufacturing and mining operations, and the

residents see little of the profit that Unitech extracts. Recently there has been a marked increase in seditious postings on the local net. The situation is being monitored closely by Unitech, who has sent for security from other stations to man the operations at Durknow.

## Fururi Station

Fururi Station is an ailing former mining station in the Belt carved from the body of one of the many nameless asteroids. This station saw its height before World War IV, and nowadays is home to only a handful of squatters—most members of the Harbingers of the Divine Form cult. It's a primitive station, originally intended to serve only as a temporary base for mining operations.

Jenseitech recently bought this station at auction for a pittance, but has yet to act to seize control of the station from its squatter inhabitants. This is likely to be only a matter of time.

## Kamen Station

The first space station in the Belt intended for permanent human habitation, Kamen Station was founded in 2117, and today is little more than a maze-like shell. In 2132, the station suddenly underwent explosive decompression, resulting in the deaths of all the stations residents. This event was never fully explained, but it has given Kamen Station a sinister reputation.

A zero-G station, built from the hollowed out shell of one of the larger asteroids, it has a narrow and maze-like quality. Today the station has been stripped of valuables and is abandoned, but several times it has been used as a base of pirate operations in the Belt. The last of these incidents was in 2207, when Unitech drove the pirates out and sealed the old entrances to the station.

## Miskan Station

Unlike all of the other mining stations in the Belt, Miskan Station was founded by a community of Mennonites looking to distance themselves from aspects of society on Earth. These religious immigrants saw asteroid mining in the Belt as honest labor and pooled together to purchase a station there for themselves and their families. Improbably, it later grew to be a major hub of the Belt.

Miskan Station follows the Stanford torus design. Utakar holds the security contract for Miskan Station and oversees the vast amounts of mining transport that goes through there. They also work to shield the owning Mennonite population from the freighters and traders who pass through on their way to and from the inner system.

## Schwangi Station

Jenseitech owns and operates Schwangi Station, the largest mining station in the Belt. This is a fairly recent acquisition for Jenseitech, who bought the station from a minor and ailing corp almost ten years ago. Schwangi Station is a standard Bernal sphere design. It is an important component of Jenseitech's plans to expand into space. The Encouracado, Jenseitech's sole capital ship, is often found in orbit near Schwangi Station but is frequently sent elsewhere in the Sol system in order to project Jenseitech's strength.

Most of the residents of Schwangi Station have remained from before Jenseitech's buyout. As the corp has slowly made changes to life of the station, the older residents are growing increasingly resentful of the new owners.

## Truman Station

Truman Station is owned and operated by a conglomeration of smaller steel and metal manufacturing corps, known as Steel and Metal Equi-Librium Trust. It is a mining station following the Stanford Torus design. Truman Station specialized in mining thorium, rare earth elements and other specialized resources. Although it is an older station, its residents have some of the highest quality of life in the belt. The station sees some outside trade, but the station security are notoriously unfriendly with outsiders.

# Ganymede Conference Rules

The Ganymede Conference (2165) laid out the ground rules for the balance of power between the corps and the old nation-states. It also established the rules of conduct for ships operating in space. Below are a selection of these rules:

- Both corps and nation-states have the right to exercise sovereign law, including establishing territories and citizenships.
- In all territories under recognized corp ownership, corp law supersedes the laws of the nation-state.
- All space outside of claimed gravity wells and Lagrange points is open to all corps or nation-states pursuing peaceful purposes there.
- Ships coming within 10,000 km of a sovereign territory must gain the permission of that territory to approach closer.
- Ships operating in space are required to voyage under the "flag" of an affiliated corp or nation-state. This is not a literal flag, but a continuous radio broadcast indicating the ship's affiliation. In practice this is most commonly a corp flag, as the old nation-states have little power to project into space to ensure the safety of ships voyaging under their flag.
- Ships that do not broadcast a flag (something a ship might want to do so as not to be detected by sensors) are treated as pirate vessels and cannot benefit from legal protections.
- Corps and nation-states must grant only specific ships the right to broadcast their flag and must maintain a register of ships with the right. The ship must have obtained this right before it began its voyage.
- A ship is treated as the sovereign territory of the corp or nation-state whose flag it broadcasts.
- A ship may not voyage under two flags. If it lowers or changes its flag during a voyage, that ship is not under the protection of any flag.
- Any ship committing a pirate act forfeits any protection it would normally have through broadcasting its flag.
- All vessels have a duty to render timely assistance to any distress signal they come across, providing that doing so does not pose a clear and serious danger to the ship, its crew or its passengers.
- All vessels have a duty to cooperate in the repression of piracy, including reporting any suspected pirate activity.
- Ships transporting prisoners with the citizenship of another corp or nation-state are obligated to bring the prisoner to the nearest port of convenience and to give their corp or nation-state reasonable opportunity to attain custody of the prisoner or otherwise respond to legal challenges.

# Jupiter

The largest planet in the Sol system, Jupiter has two and a half times the mass of all the other planets combined. Known for its banded orange and milky rings, as well as its Great Red Spot—a powerful storm that has marked the surface of the planet since at least the 17th century—Jupiter's atmosphere is tumultuous and cyclones bigger than planets are frequent.

Jupiter possesses a powerful magnetosphere, which bathes many of its innermost moons in an intense belt of radiation. This radiation forms a torus-shaped belt around the planet's equator and is caused by the interaction of Jupiter's powerful magnetic field with sulfur dioxide given off by the volcanoes on Io. Similarly impressive, Jupiter's gravity is considerable and acts on many of the rogue bodies in the solar system, flinging them far and wide.

## Datawiki: Jupiter

- **Gravity:** 2.64 g
- **Solar Year:** 4,333 days (11.9 Earth years)
- **Sidereal Day:** 9.925 hours
- **Distance from Sol:** 5.2 AU
- **Mean Temperature:** -108º C
- **Atmosphere:** Hydrogen 89.8%, Helium 10.2%
- **Moons:** Metis, Adrastea, Amalthea, Thebe, Io, Europa, Ganymede, Callisto, Leda, Himalia, Lysithea, Elara, Ananke, Carme, Pasiphae and Sinope

The Jovian moons were home to no less than three land-bound colonies and one space colony before they suddenly and unexpectedly went silent in 2209 during the Jupiter Group Incident (see page 70). Today all four colonies are still there, as best anyone can determine, but no established contact has been maintained since.

## Callisto

The surface of Callisto is the oldest and most heavily cratered in the Sol system. A large moon, Callisto is roughly the size of Mercury, although much less dense. Like its sister moon Europa, Callisto has a large subsurface ocean. The moon is also far enough away from Jupiter that it avoids most of the radiation emitted by the gas giant's magnetosphere. Although Callisto has never been the site of a human colony, several plans had been drawn up to establish a colony there before the Jupiter Group Incident cut them short.
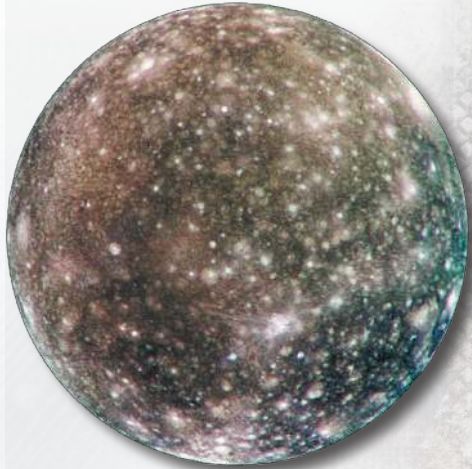
## Darnastra Colony

The sole colony on Ganymede, Darnastra Colony is most famous for hosting the Ganymede Conference in 2165. It was a mining colony, primarily existing to extract rock and ice from the surface of Ganymede in support of the water trade. Additionally, it had a reputation as the producer of the some of the best alcoholic spirits beyond Earth. The colony itself was carved out of the icy crust, using the natural surface to shield the bulk of the colony from Jupiter's intense radiation.

## Europa

Europa is one of the smoothest bodies in the Sol system. The surface has so few craters, as it is extremely tectonically active and thus the crust is geologically young. The most striking surface features are the lineae, a series of dark streaks crisscrossing the entire moon. These are form by breaks in the solid water ice, which makes up the moon's surface.

Below those miles of ice, however, Europa harbors a vast saltwater ocean. In fact, it contains more water than all the oceans on Earth! Microscopic life was discovered to be living there in 2127, which spurred a race to Jupiter. Although originally thought to be entirely alien in origin, it was soon discovered that these Europan organisms were descended from Earth-based microorganisms, breaking away genetically some half billion years ago. The current theory is that the Europan microorganisms hitched a ride on a meteorite or other rocky body.

Before the Jupiter Group Incident, Europa was home to two colonies: Shizen and Vita Unda (see below).



## Ganymede

Ganymede is the largest moon in the Sol system, and one with a liquid iron core, somewhat similar to Earth's. This core produces a weak magnetosphere, which unfortunately provides little protection from Jupiter's intense radiation belt.

The Ganymedian surface is a mix of two types of terrain: very old, highly cratered, dark regions and somewhat younger, but still ancient, lighter regions. Under the surface, there are several layers of liquid water ocean, much as with Europa and Callisto. Home to Darnastra Colony, Ganymede hasn't been explored since the Jupiter Group Incident.
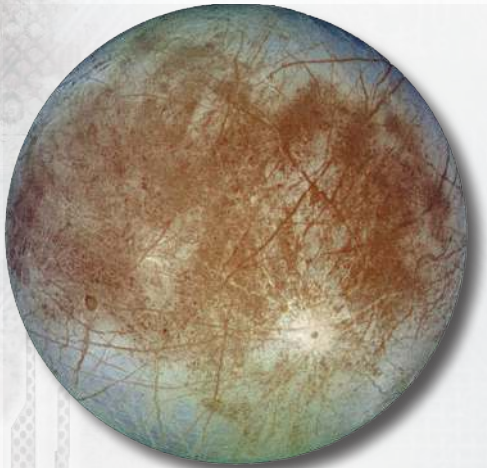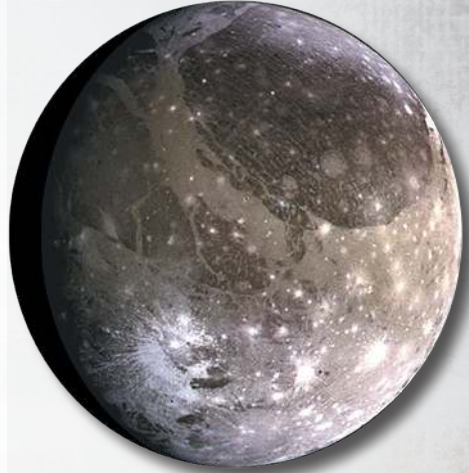


## Io

Io is the most volcanically active and driest body in the solar system. The innermost of Jupiter's classical moons, Io's vulcanism contributes to Jupiter's radiation belt, and the surface of the moon is blanketed in intense radiation. The temperatures on Io range dramatically, with molten lakes of fire and lava in some places, and frozen plains in others.

## Jackral V

Jackral V was the sole orbital station near Jupiter and an important waypoint in the water trade from Jupiter to Mars. The station was a typical Standard torus with an added water layer around habitable parts of the station. This layer both served the water trade and acted as additional shielding from any stray particles that escaped Jupiter's radiation belt.

Jackral V is the one Jovian colony that has shown no additional developments since The Jupiter Group Incident. Whatever is going on in the surface colonies on Europa and Ganymede, it seems to have left Jackral V abandoned in Jupiter's orbit.

## Shizen Colony

Shizen Colony was a smaller and primarily scientific colony. Researchers stationed there focused on studying the native Europan life, as well as the effects of Jupiter's radiation belt and relaying radio broadcasts from the outer solar system. Only just over a thousand individuals at its height, Shizen Colony was already in a slow decline by the time of the Jupiter Group Incident.

## Vita Unda

Located under the surface of Europa, Vita Unda was the largest of the Jovian colonies before the Jupiter Group Incident, with a population of over 20,000 people. Not only did it support the water trade but it also mined substantial amounts of thorium and had a reputation for being the cultural center of the outer solar system colonies. Like Shizen Colony, this colony was carved out of the surface ice on Europa and was, by many accounts, a dazzling site to behold, with a particular emphasis given to aesthetics.

## Jovian Trojans

The Jovian Trojans are located in Jupiter's orbit around Sol, either 60° ahead of the planet—for the "Greek" Trojans—or 60° behind the planet—for the "Trojan" Trojans. These are points of gravitational stability, where the gravity of Jupiter and the gravity of Sol cancel out—similar to the L4 and L5 Lagrange points around Earth. Close to these points of stability is where numerous asteroids have gathered.

The loss of the Jovian colonies during the Jupiter Group Incident brought the Jovian Trojans to greater attention since they provided an alternative stepping stone further out into the system. The concentration of asteroids also makes them attractive for potential mining.

## Mandala Station

Located in the Jovian Greek Trojans, Mandala Station will be the first to use the O'Neill Cylinder design. Scheduled for an opening date in 2215, the station has been under construction by Unitech for over three years and already has potential colonists signing up. Once open and fully populated, Mandala Station will be the most populous space station in existence with a full capacity of over a million people. Its size will also make it the largest space station to date.

## Saturn

Saturn is the farthest out human colonization has ever reached, sporting only a single lonely outpost on its moon, Rhea. Like Jupiter, Saturn is a gas giant, although it is less dense and its radiation belt is only a fraction as intense as Jupiter's. Saturn rotates quickly for its size and has turbulent internal weather with winds reaching 1,800 kph. Saturn's atmosphere is very cold on the outside but reaches a tremendous heat on the inside. This causes it to radiate out two and a half times the heat it receives from the sun.

Saturn's northern pole exhibits a myste-

rious and persisting hexagonal wave pattern, which is larger than the Earth. This wave pattern rotates once every 10 hours, 39 minutes and 24 seconds, the same cycle as the planet's radio emissions. This is assumed to match the rotation of Saturn's interior core. The hexagon does not vary in longitude, as do the other clouds.
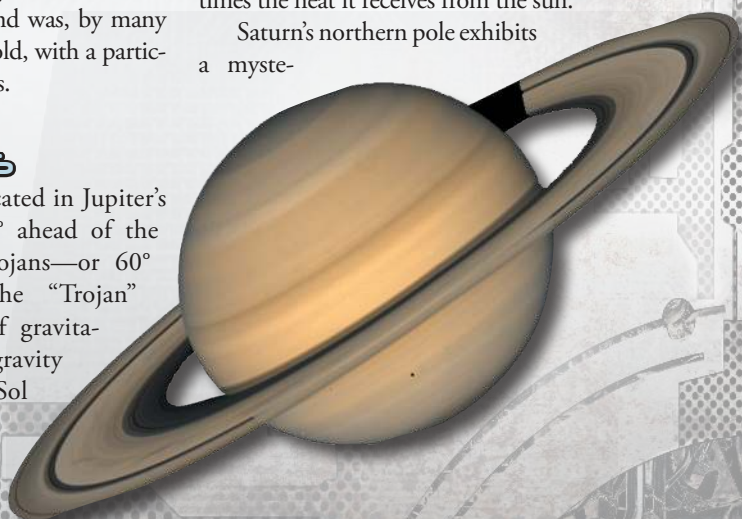
Saturn is surrounded by a complex ring system made up of small rocks, icy particles and dust. This system consists of nine main rings and three discontinuous arcs. Over a hundred moons and moonlets are known to orbit the planet—more than any other planet in the system.

## Rhea

Rhea is the second largest moon of Saturn and home to the Rhea colony—the sole Saturnine colony and the most remote human colony in existence. This colony was established by Sinoex in 2186 to support the water trade, sending massive quantities of water from Saturn's rings to Mars to support the Terraforming Project. In theory, this was an ideal, if remote, location. In practice, however, the Rhea colony has been plagued by repeated problems.

Rhea is home to only a few hundred hardy engineers and pioneers, eking out a living manning the water harvesters and launch vehicles. The colony itself is mostly a set of surface docks connected to a network of habitable tunnels drilled into the ice. Trips between orbit and the surface are frequent and are aided by the low gravity. The population is mostly temporary and young, generally rotating in for a few years to make good money before rotating back home to make a real life.

## Titan

The only moon in the Sol system with its own dense atmosphere, Titan is also the only body in the system other than Earth to have its atmosphere made up primarily of nitrogen. It is also the only other body in the Sol system with surface lakes and streams—in this case made up of liquid hydrocarbons. Titan's atmosphere is almost twice as thick as Earth's, which makes observing or directly imaging the surface difficult at best.

Titan is a sizable moon, being 80 percent larger than Luna and larger even than the planet Mercury. The presence of atmospheric methane leads to a greenhouse effect on the moon, making it significantly warmer than the surrounding bodies—in this case a mere -100º C. Titan's surface is complex and geologically young with rivers of hydrocarbons, regions of rolling sand dunes, mountains and cryovolcanoes.

## Uranus

Different in composition than either Jupiter or Saturn, Uranus is similar in composition to Neptune and has been dubbed an "ice giant." Appearing a solid blue-green color, Uranus lacks any weather-related features visible to the naked eye. Unique among the planets of the Sol system, Uranus's axis of rotation is sideways, meaning its poles are near the solar plane rather than near perpendicular to it.

In 2193, Unitech launched history's only manned mission to Uranus, going farther out than any human being has ever gone before or since. This mission did several orbits around the planet and even made a landing on the moon Miranda before beginning its long voyage home.

## Miranda

Miranda is the smallest of Uranus's five classical moons and orbits the planet along its equator. Miranda's surface is a patchwork of intense broken terrain, crisscrossed by canyons, cliffs and grooves. This includes Verona Rupes, the tallest cliff in the solar system. Miranda contains a large quantity of water ice as well as organic compounds at the moon's interior.
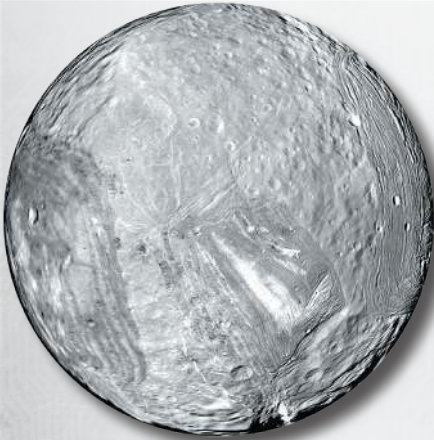
Almost twenty years ago, Miranda was a landing site for a manned Unitech exploratory mission. This landing marks the farthest out humans have ever been in the solar system.

## Neptune

Another ice giant, Neptune is the farthest planet from Sol. It is a little warmer and significantly more active than neighboring Uranus with regular solar storms and winds that have been recorded at 2,100 kph. Neptune has a planetary ring system, although one that is less significant than Saturn's.

No human being has yet to ever step foot near Neptune or any of its satellites, although this is likely just a matter of time.

## Datawiki: Uranus

- **Gravity:** 0.89 g
- **Solar Year:** 30,688 days (84 Earth years)
- **Sidereal Day:** 17.24 hours
- **Distance from Sol:** 19.2 AU
- **Mean Temperature:** -216° C
- **Atmosphere:** Hydrogen 83%, Helium 15%, Methane 2.3%
- **Moons:** Titania, Oberon, Ariel, Umbriel, Miranda plus 22 other moons

## Triton

The only large moon in the system with a retrograde orbit (an orbit opposite the direction the planet rotates), Triton is thought to be a captured Kuiper Belt object that has fallen into orbit around Neptune, rather than a natural moon. Triton is also one of the few moons in the system that is geologically active, having a complex terrain with cryovolcanic and tectonic activity. Much of Triton's surface is made up of water ice, and the moon has a core thought to be made up of dense rock and metal, making it a potential stop abundant in resources.

## Kuiper Belt & Beyond

Beyond Neptune are millions of Trans-Neptunian Objects (TNOs), most no more than a kilometer or two across. Tens of thousands of these objects, however, are than 80 km across. These objects consist of a core chunk of rock surrounded by a ball of dust and frozen gas. These objects make up the Kuiper Belt, stretching between 30 and 50 AU. Included in this belt are the majority of the system's dwarf planets, including Eris, Pluto, Haumea and Makemake.

Beyond the Kuiper Belt lies the rest of the Scattered Disc. This disc is made up of drifting chunks of rock and ice and is believed to be the origin of most of the system's comets, as well as the origin of numerous other stray objects. These are some of the coldest objects in the solar system.

Finally, beyond even the Kuiper Belt lies the Oort Cloud. This cloud of dust and comets stretches far from the center of the system, out to some 50,000 AU, where it eventually blends with the cloud from Proxima Centauri. The Oort Cloud marks the cosmographical boundary of the Sol system.

To date, no human being has ever been this far out and only a handful of unmanned probes have ever made it to the Oort Cloud. There have, however, been several cases of listening stations claiming to have picked up unexplained radio signals from the Kuiper Belt. The most well-known of these is an incident in 2198 where a research station on Europa claimed to have picked up an encrypted signal continuously for almost three hours. Recordings of this signal were later lost in a data breach.

## Pluto

Pluto is the most famous and largest object in the Kuiper Belt, once even considered a planet. It is the second largest object beyond Neptune, surpassed only by the dwarf planet Eris, in the Scattered Disc.

Pluto has a highly eccentric orbit—sometimes being within the orbit of Neptune, and most of the time being outside it. Pluto is currently outside Neptune's orbit, but will cross it again in 2226, bringing it inside once again.

# Saga Machine

*Shadows Over Sol* makes use of the *Saga Machine* system, adapted and expanded to best fit the horror and science fiction genres. Whether it's a desperate struggle against a bioengineered monstrosity or breaking to a highly-guarded computer system to steal sinister corporate secrets—*Saga Machine* can handle it.

In this chapter, we present the core of the *Saga Machine* system—the basics everyone needs to know—followed by the other mechanical systems used in the game. The only systems absent from this chapter are the character creation and advancement systems, which can be found in their own chapter later on.

## Overview

The core of *Saga Machine* really boils down to two components: actions and consequences.

The action mechanic is used to determine whether or not actions taken by a character are successful. To help resolve this, the system employs a standard deck of poker cards with the jokers. One such deck per player, plus one for the game master (GM), is recommended.

The consequence mechanic, on the other hand, is used to represent the effect of actions on characters or the game world. This mechanic is used to model status effects as well as environmental circumstances, obstacles or benefits.

## Actions

When resolving an action, the player whose character is performing the action will declare her intent to act, and the GM will then call for a card to be played. This is called a flip. The value of this card will be added to that character's relevant stat and/or skill, and this total value is compared to a target number (TN). If it's equal to or higher than the TN, the flip was a success. If it's lower than the TN, however, the flip was a failure. The GM then narrates the results of the action.

## Stats

Every character has eight stats, each measuring the strength of a particular quality of the character. Whenever a character takes an action, one of these stats will be relevant. For example, should a character try to force open a jammed airlock door, the strength stat may be the relevant stat for that action. Often actions taken in this way will have other modifiers as well.

The eight stats break down into two categories—physical stats and mental stats. They are listed below:

| Physical Stats | Mental Stats |
|---|---|
| Strength | Intelligence |
| Dexterity | Perception |
| Speed | Charisma |
| Endurance | Determination |

## Edge

Player characters (PCs), and possibly a few non-player characters (NPCs) as well, will have Edge. This trait represents the subtle advantages these characters have in the narrative, whether due to luck, good sense or simple self-preservation. Edge determines the number of cards the player draws at the beginning of each session.

## Fractions & Rounding

*Shadows Over Sol* only makes use of whole numbers. If you ever encounter a fraction during the game—which usually happens as a result of halving a stat or similar score—always round it down. In this way 7 ½ becomes merely 7, 22.9 becomes a 22, etc.

## Consequences

Actions will often result in consequences. Consequences are **Saga Machine**'s way of representing lasting effects in the system. These effects can be placed on either characters, places or the scene itself. For example, attacking another character may result in a "wound" consequence for the target, setting a forest on fire results in an "on fire" consequence for that forest, etc.

Consequences come in three parts: an effect, a duration and a severity. These tell what the consequence does, how long it lasts and how severe the effect is, respectively. All consequences have the same hierarchical set of severities:

| Severity |
| --- |
| Light |
| Moderate |
| Severe |
| Critical |

### Anthropocentrism

Most characters in **Shadows Over Sol** will be human. Humans are, after all, a dominant and prolific species. As such, the game mechanics assume a character has basic human capabilities unless a trait specifically indicates otherwise.

This means characters don't need special traits for basic human things, such as the ability to walk, talk or use opposable thumbs. They also don't need special traits for basic human weaknesses, such as having an off hand, the necessity of breathing or the need for regular sleep. Some characters may vary from human norms in all these ways, but when they do, character traits and basic common sense should indicate it.

## Characters

Mechanically, all characters in **Shadows Over Sol** are comprised of four parts: an array of eight stats, some number of skills, a few traits and some derived scores. Each of these mechanical components of a character are described in detail below.

## The Eight Stats

**Shadows Over Sol** divides up a character's capabilities into eight different ratings representing how good the character is at a broad class of actions. These ratings are called stats and are scored for human characters on a scale of 1 to 10. The higher the number, the better the character is at the category of actions. On this scale, a historical human with wild type genes—entirely average in all aspects—would be rated a 4 in each stat. Modern humans, on the other hand, with the ubiquitousness of basic genetic screening and upgrades, average around a 5 on this scale. The highest stat within human potential is 10, although nonhuman NPCs may go beyond this limit. Mechanically, these stats are used to help determine the success or failure of the character's actions.

The eight different stats are divided evenly into two groups: physical and mental. Physical stats represent some physical aspect of the character, while mental stats represent some mental aspect of the character. Every stat has an associated card suit, which is used in the action mechanic to determine a trump (see page 108). What each stat represents is described below.

### ♠ Strength (Str)

A character's strength is a measure of her muscle and physical power. It helps determine how much she can lift, how hard she can punch and what she can push around.

### ♥ Dexterity (Dex)

A character's dexterity is her coordination, flexibility, agility and balance. It helps determine her athletic ability, aim with a ranged weapon and manual dexterity.

## ♦ Speed (Spd)

A character's speed is a measure of how fast she moves, her reflexes, her reaction time and her ability to get out of the way when malicious people are trying to beat her head in.

## ♣ Endurance (End)

Endurance is a measure of a character's toughness, health, constitution and stamina. It helps a character resist disease, keep from losing consciousness from blood loss and keep from getting winded after a long jog.

## ♠ Intelligence (Int)

Intelligence is an indicator of how quick a character learns, how much she knows and what her capability is in terms of logical reasoning and deduction. Put simply, intelligence is used to know stuff and figure stuff out. Mechanically, any character with an intelligence of 1 or more is considered sentient.

## ♥ Perception (Per)

A character's perception is a measure of how alert she is, how good her senses are and how aware she is of the world around her. Perception also includes a component of her speed of thought.

## ♦ Charisma (Chr)

A character's charisma is her force of personality, presence, bearing, social skills and appearance all wrapped up into one. It's used when trying to make friends, influence others or strike a deal.

## ♣ Determination (Det)

Determination is a character's resolve, mental fortitude, willpower and grit. It's used when resisting fear or mental effects, pressing on despite the hopelessness of the situation or seeing things through to the bitter end.

## Skills

The eight stats represent innate human capabilities—after all, everyone has some degree of strength, intelligence and perception. Skills, on the other hand, are the mechanical representation of capabilities that are learned.

When a character in **Shadows Over Sol** takes an action, the action might have a relevant skill as well as a relevant stat—this will likely be true for the majority of actions. When this is the case, the skill's value will add to the action as well as half the value of the stat (see the "Actions" section, page 107).

## Skill Values

Some characters are more skilled than others. To represent this, skills are rated from 0 (unskilled) to 5 (world-class). In actions where a skill is relevant, this rating will add to the total, along with half the value of the relevant stat. The different skill values are described below:

| Description | Value |
|---|---|
| No Training | 0 (does not have skill) |
| Basic Proficiency | 1 |
| Skilled Amateur | 2 |
| Professional | 3 |
| Renowned Expert | 4 |
| World-class | 5 |

## Skill Experiences

Over the course of play, characters will gain experience using their skills. When a character gains an experience, she notes down what that experience is next to the skill in question. For example, experiences with the stealth skill might include "forest terrain," "crowds," "cover of darkness" or "hiding places."

When a character is using a skill, one of her experiences might be relevant to the action in question. Should she have an appropriate experience to call upon, her action will gain a +1 bonus. Only one experience may be called upon at a time in this way.

| Skill | Skill | Skill | Skill | Skill |
|-------|-------|-------|-------|-------|
| Athletics | Conspiracy | Guns | Melee | Program |
| Awareness | Crafts | Investigate | Naturalist | Socialize |
| Bio-Sci | Deception | Lib-Arts | Ordnance | Stealth |
| Bureaucrat | Empathy | Mechanic | Persuade | Thievery |
| Comp-Ops | Engineer | Medic | Phy-Sci | Vehicles |

## Skill Breakdown

There are twenty-five skills available in *Shadows Over Sol*. Above is a table of all skills, followed by brief descriptions of each, including some example experiences and some examples of superior tools, sufficient tools and improvised tools for each skill (see page 111).

## Athletics

The athletics skill covers any number of athletic activities—from climbing to jumping and from racing to tumbling. This skill includes both aerobic and anaerobic activities, as well as feats of strength—such as bending bars or power lifting—and throwing weapons in a threatening manner.

- **Example Experiences**: Acrobatics, balance, baseball, bicycling, climbing, jumping, parkour, running, swimming, throwing
- **Superior Tools**: Cybernetic sports equipment, high-tech climbing gear
- **Sufficient Tools**: Good shoes, decent sports equipment, thrown weapon
- **Improvised Tools**: Improvised thrown weapon, rock shaped like a ball
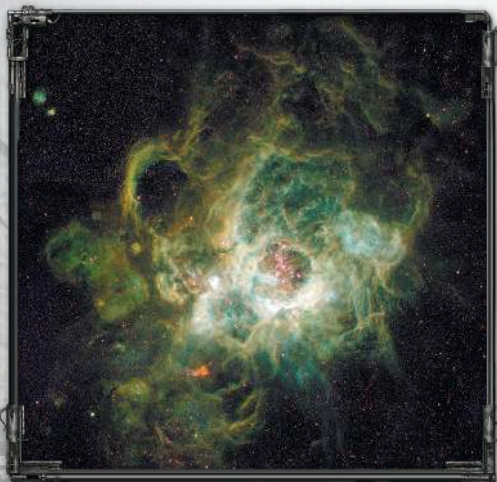
## Awareness

Awareness is more than general perception; it is a skilled alertness regarding one's surroundings. Awareness covers noticing someone is sneaking up on you. It also covers spotting someone in a crowd of people and noticing a strange smell when entering a hab. It does not include more ponderous activities like reading a person's body language or investigating a murder; these are covered by Empathy and Investigation, respectively.

- **Example Experiences**: Body odors, cityscapes, concealed weapons, crowds, darkness, hearing, industrial chemicals, peripheral vision, scent, taste
- **Superior Tools**: Binoculars, superior cybernetic eye, appropriate sensor
- **Sufficient Tools**: Functional senses
- **Improvised Tools**: Damaged senses

## Bio-Sci

This skill covers knowledge of the biological sciences, from genetic engineering and genetics to physiological changes brought on by exposure to radiation or zero-G. This is the skill to use when diagnosing rare medical issues, understanding novel lifeforms or experimenting in laboratory conditions. It is not the skill to use for applied medicine or for field biology, such as recognizing local fauna. For those, use the Medic or Naturalist skills, respectively.

- **Example Experiences**: Biochemistry, bioinformatics, genelines, genetic defects, metabolisms, mutations, neurology, radiological effects, toxicology, xenobiology
- **Superior Tools**: Superior bioinformatic software, superior biological sensor
- **Sufficient Tools**: Sequencing machine, bioinformatic software
- **Improvised Tools**: Jury-rigged chemical test

## Bureaucrat

Any sufficiently large organization has its ins and outs, its movers, its shakers and its paperwork. Those skilled in bureaucrat are adept in getting a feel for how this structure works in practice and in using it to their advantage. Additionally, the bureaucrat skill covers finding the right buyers or sellers, finding those who offer potentially questionable services and bartering the best deal once the right people are found. Aspects of the skill include insight into what things are worth to people and knowing when to compromise on a price and when to walk away. The skill does not cover more generalized readings of a person's body language, nor does it cover the ability to convince or browbeat others into seeing things your way. For those actions, use the Empathy or Persuade skills.

- **Example Experiences**: Appeal charges, corp agreements, create red tape, customs delaying tactics, docking rules, electronic barter, file complaints, gray market acquisitions, legal advocate, service contracts
- **Superior Tools**: Network of contacts, insider information
- **Sufficient Tools**: Net access, appropriate language, appropriate subculture
- **Improvised Tools**: Lacking shared language, unfamiliar legal system

## Comp-Ops

Comp-ops is the skill for making basic use of computer software. It's used to filter through the net, to get an understanding of any given graphical user interface, to know common terminal commands and to make use of advanced software features. It does not cover hacking, advanced scripting or forcing computer systems to do things they were not designed to do. Those activities use the program skill.

- **Example Experiences**: Augmented reality, comms, databases, Easter eggs, electronic background checks, search net, sensors, speed typing, surveillance software, voice commands
- **Superior Tools**: Access to source code, root access, excessive processing power
- **Sufficient Tools**: Computer, net access
- **Improvised Tools**: Computer without net access, highly limited terminal access

## Conspiracy

Conspiracy is the skill of knowing information others want suppressed or at least knowing where to look to find such information. It also includes the ability to sift through the resulting conspiracy theories, separating the dross from the kernels of truth. Conspiracy is the skill of finding things that don't want to be found.

- **Example Experiences**: Backroom deals, black market contacts, code words, corp secrets, deep net, hidden research, historical conspiracies, religious secrets, secret treaties, suppressed transmissions
- **Superior Tools**: Mole in organization, personal contacts
- **Sufficient Tools**: Net access, computer
- **Improvised Tools**: Lacking appropriate language, lacking appropriate subculture

## Crafts

The crafts skill covers the creation of art, crafts and simple devices with few-to-no moving parts. It can be used to create a realistic 3D rendering of a specific person, carve a makeshift spear out of a plank of wood, cook a tasty meal or paint a masterpiece. It does not cover the creation of more complex mechanical or electrical devices, nor does it cover their repair and upkeep; for those, use the Engineer or Mechanic skills.

- **Example Experiences**: Baking, fabricator modeling, graphic design, carpentry, improvised tools, makeup, painting, sculpture, simspace design, welding
- **Superior Tools**: Superior quality carpentry kit, extensive graphic design library
- **Sufficient Tools**: Chisels, paintbrushes, design software
- **Improvised Tools**: Pocket knife, blood for paint

## Deception

The deception skill includes telling convincing lies, giving off inaccurate body language, pulling the wool over the eyes of others and disguising oneself as someone else. Additionally, deception is useful in gambling, acting and other activities that require making oneself difficult to read or which involve deceiving others.

- **Example Experiences**: Blatant lies, disguise, distractions, faulty logic, gambling bluffs, half-truths, misleading body language, partial truths, poker face, sleight of hand
- **Superior Tools**: Insight into target's psyche, biometric monitoring of target
- **Sufficient Tools**: Believable lie, disguise kit
- **Improvised Tools**: Lacking appropriate language, lacking appropriate subculture, poorly thought out lie or con

## Empathy

Empathy is the skill used to read a person's body language and tone of voice. It's used to get an idea of a person's emotional state or to give some insight into their motivations. Empathy is not a lie-detector; it might give let one know that another person seems nervous, but it wouldn't tell you they're nervous because of a specific lie or half-truth.

- **Example Experiences**: Anger, attraction, body language, counseling, interrogation, nervousness, pushing buttons, sociopathy, taunts, tells in gambling
- **Superior Tools**: Target attached to biometric reader, insight into target's psyche
- **Sufficient Tools**: Interacting with target in person, familiar subculture
- **Improvised Tools**: Target observed via monitor, unfamiliar subculture

## Engineer

This skill is used to understand, design and modify electronic hardware, machinery and other complex contraptions. Engineer is useful when rerouting power on a ship, making street modifications to firearms or designing a custom hab complex. It does not cover the design of software—use program for that—nor does it cover applied maintenance and assembly—for that, use mechanic.

- **Example Experiences**: Architecture, ballistic arms, comms, cyberware, groundcars, lasers, life support, navigation systems, reactors, sensors
- **Superior Tools**: Already partially completed design, complete design specs
- **Sufficient Tools**: Engineering software, calculator, computer
- **Improvised Tools**: Inscribing designs with a stick in the dirt

## Guns

The guns skill covers firing, maintaining and operating any number of personal firearms and other projectile weapons, from lasers and slug throwers to archaic bows and arrows. The skill does not cover thrown weapons—for that, use Athletics—nor does it cover artillery or ship-based mounted projectiles—for those, use Ordnance.

- **Example Experiences**: Aimed shots, autofire, ballistic pistol, ballistic rifle, head shots, laser pistol, laser rifle, point blank shot, sniper shot, suppressive fire
- **Superior Tools**: Superior quality firearm
- **Sufficient Tools**: Gun, crossbow
- **Improvised Tools**: Gun fired in melee, improvised gun
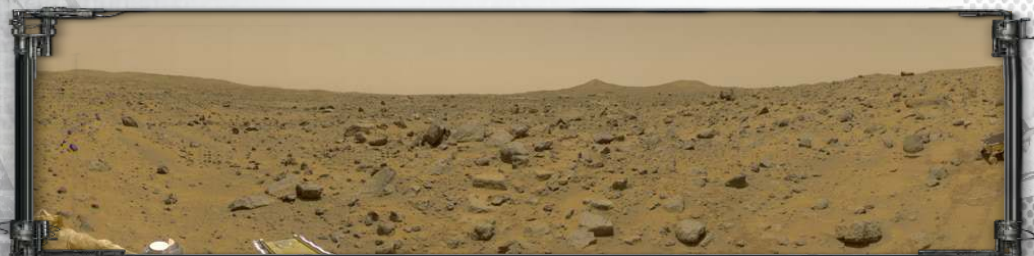
## Investigate

Investigation is the art of looking into an unknown matter and trying to make sense of what is found, often by piecing together seemingly disparate clues. The investigate skill covers searching a particular area for clues, as well as other aspects of investigation—such as questioning witnesses, checking the right sites on the net and asking the right questions.

- **Example Experiences**: Background checks, crime scenes, DNA evidence, fingerprints, forensics, hiding spots, physical clues, net investigation, question witnesses, search body
- **Superior Tools**: Very familiar location, superior forensic tools
- **Sufficient Tools**: Forensics kit, ample time at scene
- **Improvised Tools**: Limited time to check scene

## Lib-Arts

Lib-arts is a broad skill covering a character's degree of education in the liberal arts and social sciences. It includes knowledge of history, geography, mathematics, the fine arts, economics and sociology. It does not cover applied cultural knowledge or artistic expression: for those, use Socialize or Crafts, respectively.

- **Special**: In addition to her native language, a character may be fluent with up to the number of languages equal to her lib-arts skill rank. She typically does not need to make actions to understand languages with which she is fluent, although particularly unusual or esoteric idioms may still require an action. See page 171.
- **Example Experiences**: Civics, classics, fine arts, geography, history, literature, mathematics, music, philosophy, sociology
- **Superior Tools**: Complete library
- **Sufficient Tools**: Simple library, net access
- **Improvised Tools**: Unfamiliar language, unfamiliar subculture

## Mechanic

Mechanic is an applied skill covering the upkeep, repair and assembly of pretty much any mechanical system. Use it for repairing vehicular damage after a battle, maintenance to a ship's systems or assembling a new piece of cyberware. It does not include designing, repurposing or giving new functionality to mechanical systems; for those, use engineer.

- **Example Experiences**: Comms, cyberware, groundcar, hab repair, jury-rigged components, life support, power systems, sensors, waste systems
- **Superior Tools**: Industrial fabricator, repair-bot
- **Sufficient Tools**: Wrench, electrician's toolkit
- **Improvised Tools**: Tire iron as a chisel, stone as a hammer

## Medic

This is the skill of applied medical knowledge. It's used to treat injuries and other medical conditions, take practical diagnoses, treat poisons, perform surgery, apply first aid and dress wounds. It does not cover the academic or research aspects of biological knowledge; for those, use Bio-Sci.

- **Example Experiences**: Bacterial infections, dress wounds, first aid, long-term care, stop bleeding, practical diagnosis, surgery, treat poison, treat radiation, veterinary
- **Superior Tools**: Hospital, complete bio-lab
- **Sufficient Tools**: Medikit, surgery kit
- **Improvised Tools**: Ripped shirt as a bandage, superglue as stitches

## Melee

Melee is the skill used for hand-to-hand combat, street fighting, wrestling, fencing, boxing and any other activity mimicking close combat. Despite the prevalence of guns and other advanced weaponry, simple fistfights remain the most common type of violence in the solar system.

■ **Example Experiences**: Boxing, clubs, fencing, fighting dirty, grappling, head blows, judo, kicking, knives, wrestling
■ **Superior Tools**: Superior quality knife
■ **Sufficient Tools**: Knife, club
■ **Improvised Tools**: Fists in a knife fight, table leg

## Naturalist

The naturalist skill covers the ability to survive outside the bounds of civilization as well as the applied knowledge of the local flora and fauna. It covers working with and training animals as well as the practical knowledge of both what's edible and what's dangerous. It covers tracking and reading animal signs and makeshift ways to gauge atmospheric pressure, composition and radiation. It covers foraging for food, firewood or other basic natural resources. The Naturalist skill also includes skill in riding an animal or using an animal as manual labor.

■ **Example Experiences**: Bird calls, cats, dangerous flora, desert fauna, dogs, foraging for food, ride, station vermin, tracking, transgenetic crossbreeds
■ **Superior Tools**: Quality environmental sensor, flora database
Sufficient Tools: Survival kit, animal snacks
■ **Improvised Tools**: Spear, rough hides

## Ordnance

The ordnance skill is used to plant and disarm bombs, mines and other explosives, as well as to operate heavy vehicular or stationary weaponry. Use it to fire a ship's weapons, plant an explosive charge or call in aerial support. It does not cover personal firearms, nor does it cover throwing grenades; for those, use guns and athletics, respectively.

■ **Example Experiences**: Breeching charge, controlled demolitions, ground artillery, aerial missiles, gun platform, plant explosive, space missiles, spaceship gunner, tank guns, torpedoes
■ **Superior Tools**: Blueprints with structure's weak points
■ **Sufficient Tools**: GPS, explosive, turret
■ **Improvised Tools**: Barrel of flammable substance, comm laser used as weapon

## Persuade

The persuade skill covers a variety of tactics to get other people to see things your way or to otherwise comply with your requests. It covers sweet-talking, formal diplomacy, browbeating, fast-talking and intimidation. It covers knowing useful techniques in argument, as well as knowing the right social approach to use—from solid reasoning to subtle psychological tricks to seem more commanding. It does not include haggling and deal-making, nor does it include seduction and putting people at ease; for those, use Broker or Socialize, respectively.

■ **Example Experiences**: Bargaining, browbeat, clear reasoning, commands, fast-talk, formal diplomacy, intimidation, leadership, rhetoric, sweet-talk
■ **Superior Tools**: Insight into target's psyche, authority over target
■ **Sufficient Tools**: Speak same language, share subculture
■ **Improvised Tools**: Lacking appropriate language, lacking appropriate subculture

## Phy-Sci

Phy-sci covers knowledge of the physical sciences—from physics and chemistry, to geology and meteorology. Use it to understand orbital mechanics, test new chemical compounds, carbon date archeological relics or recognize different strata of rock. It does not cover basic mathematics or ecology: for those, use the Lib-Arts or Bio-Sci skills.

- **Example Experiences**: Astronomy, chemistry, climatology, Earth science, geology, meteorology, oceanography, orbital mechanics, physics, speleology
- **Superior Tools**: Full laboratory, excessive processing power
- **Sufficient Tools**: Physical science tools, computer
- **Improvised Tools**: Pencil and paper, abacus

## Program

The program skill is used to design, modify and create software. It is also used in computer hacking, cracking and attempting to get software to operate outside its normal design parameters. It does not cover understanding graphical user interfaces, searching the net, speed typing or basic software functionality; for those, use the Comp-Ops skill.

- **Example Experiences**: Break software, comms, computer viruses, cracking, decryption, encryption, malware, security systems, sensors, software design
- **Superior Tools**: Excessive processing power
- **Sufficient Tools**: Computer, net access
- **Improvised Tools**: User-level access, poor programing tools

## Socialize

The socialize skill is all about being an enjoyable person and getting other people to like you. Those adept in socializing are the ones other people want to talk to or be around. Use this skill to get a feel for the word on the street, pick up rumors or recent memes, put one's rivals at ease, make a play at seduction or distract others with small talk or other pleasantries. Additionally this skill covers knowledge of the appropriate customs, slang, mores and etiquette. This skill does not cover convincing others to see things your way or for gaining deep insight into what people are feeling. For those, use the Persuade or Empathy skills, respectively.

- **Special**: In addition to her native subculture, a character may be fluent with up to a number of subcultures equal to her socialize skill rank. She typically does not need to make actions to blend in with or have knowledge of subcultures with which she is fluent, although particularly unusual or esoteric situations may still require an action. See page 171.
- **Example Experiences**: Distracting talk, formal etiquette, gather rumors, Neoret slang, put at ease, put on guard, seduction, spread rumors, small talk, street greetings
- **Superior Tools**: Insight into target's psyche, shared contacts
- **Sufficient Tools**: Speak same language, share subculture
- **Improvised Tools**: Lacking appropriate language, lacking appropriate subculture

## Stealth

The stealth skill covers hiding and generally sneaking around. It includes any aspect of remaining hidden, from fitting into small hiding spaces to tailing people without them noticing and from setting ambushes to sneaking by guards. It does not include sleight of hand or shoplifting; for those, use the Deception or Thievery skills.

- **Example Experiences**: Blending in, camouflage, covering tracks, crowds, hiding, moving silently, opportunistic dash, settings ambushes, shadows, tailing
- **Superior Tools**: Nighttime, packed crowd of people
- **Sufficient Tools**: Plentiful available cover, shadowy locations
- **Improvised Tools**: Empty street, little cover, broad daylight

## Thievery

Under the auspice of the Thievery, skill falls many simple but questionable proficiencies. It includes the ability to pick locks, larceny, breaking and entering, disabling simple security devices and picking pockets. It does not include con artistry or sleight of hand—for those, use Deception—nor does it include remaining hidden—for that, use Stealth.

- **Example Experiences**: Bypass security, casing target, confuse sensors, disable cameras, disable security, electronic locks, forced entry, mechanical locks, pick pocket, shoplift
- **Superior Tools**: Superior electronic lockpick
- **Sufficient Tools**: Lockpicks, crowbar
- **Improvised Tools**: Needle as a lockpick, tire iron as crowbar

## Vehicles

This skill is used to operate any vehicle—whether in two or three dimensions—as well as to pilot a vac suit around with thrusters. It includes the operation of spaceships, boats, groundcars, mag-trains, helicopters and submarines. It does not include the design or maintenance of such vehicles; for those, use the Engineer or Mechanic skills, respectively.

- **Example Experiences**: Airplane, boat, groundcar, evasive maneuvers, low gravity, planetary landing, racing, orbital slingshots, sledding, submarine
- **Superior Tools**: Cutting-edge racing groundcar
- **Sufficient Tools**: Spaceship, Mag-train, groundcar
- **Improvised Tools**: Half-broken groundcar, vac suit with some broken thrusters

## Traits

In addition to stats and skills, most characters also have a number of other attributes or capabilities, such as known languages, familiar cultures or particular weaknesses. These types of attributes are modeled mechanically as traits: special features that apply to a character. Nonhuman characters will also have traits that define their particular nonhuman capabilities.

In *Shadows Over Sol*, most traits are either chosen at character creation or gained through raising skills. More on the specifics of gaining traits is covered in the "Characters" chapter.

## Scores

Scores are the final mechanical component of a character. They are a variety of numerical values derived from a character's stats and used by the various systems in the game in different ways. For example, the Defense score is used by the combat system in determining whether or not a character is hit in combat, and the Wealth score is used by the wealth system in determining what purchases a character can easily make.

More on each score can be found in their relevant sections later in this chapter, but a list of all the character scores can be found below:

- **Damage Reduction (DR)**: This is the ability of a character to resist damage. It is usually granted by armor or nonhuman traits.
- **Defense**: This is the ability of a character to avoid being struck in combat. It consists of two values: the target number to hit the character ([Spd + Per + Dex] ÷ 2) and the target number to score a critical hit on the character (Spd + Per + Dex).
- **Edge**: This is the number of cards drawn into the character's hand at the beginning of each session (Average of Int & Chr).
- **Encumbrance**: This is the number of encumbrance slots the character has for carrying gear around (Str).
- **Lifestyle**: This is a measure of how well the character lives and what mundane resources she easily has at her disposal.
- **Shock**: This damage value necessary to stun the character in combat and possibly upgrade wounds (End + Det + DR).
- **Wealth**: This value is a measure of the character's ability to tap her financial resources. It represents not only cash in hand, but the ability to acquire loans and leverage other assets as well.
- **Wound**: This is the total severity of wounds at which a character begins to risk death (Average of Str & End).

# Actions

In order to determine the outcome of an action in **Shadows Over Sol**, a simple mechanic is used. The player taking the action makes a flip. That is, she plays a card and adds its value to the appropriate stat for the action. Then she adds any relevant modifiers and compares the result to a target number (TN). If the result is equal to or exceeds the TN, the action was a success. If it is lower than the TN, the action was a failure.

If it ever becomes necessary to know how much of a success or failure the action was, determine it by figuring out the magnitude of the effect (Mag). The magnitude is determined simply by calculating the difference between the TN and the total of the flip. So, for example, an action that got a total of 16 on a TN 10 flip succeeded with Mag 6, and an action that got a total of 9 on a TN 13 flip failed with Mag 4.

Expanding on this simple action mechanic two variant types of actions will often come into play: extended actions and opposed actions. We will now go over simple actions and these two variant types of actions in turn.

## Simple Actions

Simple actions, the most common type of actions, are something of a building block other types of actions expand on. When a player takes a simple action, she makes a flip. That is, she plays a card, flipping it over and revealing which card it is. This card can either be from her hand or from the top of her deck. The value of this card is then determined, which may require turning over subsequent cards. These subsequent cards are always from the top of the deck and never from the player's hand.

Once a card has been played, the player does not draw again immediately. Instead, she simply has fewer cards in her hand. If she has no cards left in her hand and takes an action, she has no choice but to play off the top of the deck.

If no skill is involved with the action, the value of the card being played is added to the relevant stat. If a skill is involved, it's added to half

the relevant stat and the relevant skill. Either way, this total is then compared to the TN.

*Example:* Argyro is making a "Dex/guns-10" flip. This action uses her Guns skill, is based off her Dexterity and has TN 10. She has Guns 3, Dexterity 4 and plays a card valued at 6. She adds the value of the card to half her Dexterity (half 4 is 2) and her Guns skill for a total of 11—a success. If how much she succeeded matters, she has Mag 1.

## Card Types & Scoring

There are three types of cards found in the deck: value cards, face cards and jokers. Each is scored differently.

### Value Cards

Value cards are the simplest to score. They are the cards marked two through ten, plus the ace, which is low and has a value of one. Whenever one of these cards is played, it is worth the value printed on the card. This gives value cards a nice even distribution between one and ten.

### Face Cards

Face cards are the jack, queen and king. These cards are worth +1, +2 and +3, respectively. Whenever a face card is played, the next card on the top of the deck is flipped over and placed on top of it. This is called a stack,

and for most purposes in the game, a stack is treated as if it were a single card with the suit of the first (bottom) card of the stack. If the second card in the stack is also a face card, one does not flip over a third; there can be only two cards in a stack.

To determine the value of the stack, simply add the value of each card together. So a king (+3) and a 6 would have a value of 9. Or a queen (+2) and a jack (+1) would have value of 3.

## Jokers

Jokers are both good and bad. Whenever they come up as part of a flip for any reason, the result of the action in question is always treated as a critical failure—that is, a failure with Mag 6.

The upside, however, is that after this action is resolved the player may refresh her hand. This means she may discard any cards from her hand she wishes and may then draw up to full Edge. If she's already at full Edge and does not discard any cards, she may instead simply draw a single card, putting her one over full Edge. After playing a joker, the player must always then shuffle her discard pile into her deck, including shuffling into the deck the joker she just played.

## Trumps

Every stat has an associated trump suit. Whenever an action is taken and a card is played matching the stat's trump suit, the action is said to be trump. This increases the potential value for the action.

To determine which stat values correspond to which suits, see the table below:

When an action is trump, flip over the next card on the top of the deck and set it beside the card that was just played. If the suits match— that is, if they both are trump—add the value of the two cards together when resolving the action. If they don't match, simply pick one to take (usually the highest value of the two).

To clarify things, here are a few examples:

Strength 6
Athletics 3

Spades are trump!

Suits don't match:
Take highest!

Total 11

*Example:* A character with Strength 6 and Athletics 3 makes a flip. She plays the 5 of spades—a trump. She flips over the next card off the top of the deck: a 4 of hearts. Since the suits do not match, she takes the highest of the two (the 5 of spades) and adds it to half her Endurance and her Athletics for a final total of 11.

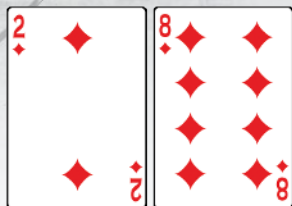| Stat | Suit | Stat | Suit |
| --- | --- | --- | --- |
| Strength | Spades (♠) | Intelligence | Spades (♠) |
| Dexterity | Hearts (♥) | Perception | Hearts (♥) |
| Speed | Diamonds (♦) | Charisma | Diamonds (♦) |
| Endurance | Clubs (♣) | Determination | Clubs (♣) |

**Speed 4**

Diamonds are trump!

Suits match:
Add the values!

**Total 14**

*Example:* A character with Speed 4 makes an action. She plays the 2 of diamonds—a trump. She then flips over the next card: an 8 of diamonds. Since these cards match, she adds them together and then adds her Speed for a final total of 14.
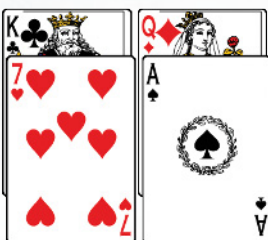
**Determination 7
Socialize 3**

Clubs are trump!
King is a face card!

Only suit of first card
in stack matters!

Suits don't match:
Take highest!

**Total 17**

*Example:* A character with Determination 7 and Socialize 3 makes an action. She plays a king of clubs—a face card and a trump. First, she flips over the top card of the deck, a 7 of hearts, and plays it on top of the king, forming a stack. This stack has a value of 10. She then flips over the next card, due to the trump, and places it beside the first stack. This card is a queen of diamonds—also a face card. She then flips over yet another card, ace of spades, and places it on top of the queen forming a second stack, with a total of 3. The second stack's suit (diamonds) does not match the first, so she takes the higher of the two and adds it to half her Determination plus Socialize for a total value of 16.

## Target Numbers

The target number (TN) of an action is chosen by the GM; she may or may not decide to share it with the player making the action. The GM should ask herself: would the character know exactly how difficult this action is? The higher the target number, the more difficult the action will be and the greater the chance of failure. The following TNs below should be used as reasonable guidelines:

| Difficulty | Target Number (TN) |
|------------|--------------------|
| Trivial | 6 |
| Easy | 8 |
| Average | 10 |
| Difficult | 12 |
| Daunting | 14 |
| Desperate | 16 |
| Absurd | 18 |
| Impossible | 20 |

## Defaulting Skills

Sometimes the GM will call for an action based on a skill the character does not possess. Normally this just means the skill is worth zero when determining the success or failure of the action, but sometimes a character has another related skill the player believes would be beneficial. When this is the case, the player may want to petition the GM to default to the related skill.

When defaulting to a related skill, the value of the skill is used in place of the half relevant stat, but since no relevant stat is involved, the action is never trump.

*Example:* Bob has sneaked into a corp office and is trying to use the computer systems there. The GM calls for an Int/comp-ops flip. Bob doesn't have any Comp-Ops, but he does have Programming 3. Bob's player petitions the GM to default to Programming and the GM agrees. Bob can then make the action using his programming in place of half Intelligence, for default 3, which cannot be trump.

## Action Convention

*Saga Machine* uses a simple convention to convey the important mechanical aspects of an action when referencing them in the text. This conveys the relevant stat, relevant skill and target number. If the action is extended, it also conveys the interval and tally. Examples of this convention are given below:

- **Int-7**: Intelligence action, TN 7.
- **Per/awareness vs. Dex/stealth**: Perception action with the awareness skill opposed by a dexterity action with the stealth skill.
- **End/ordnance-10 (10, 1 day)**: Extended endurance action with the ordnance skill applying, TN 10, Tally 10, Interval of one day.

The convention is to use the abbreviation of the relevant stat (see page 98), followed by a slash and then the relevant skill, if applicable. This is followed by a dash and the TN. If the action is extended, the tally and the interval will follow in parentheses. Finally, if the action is opposed, instead of a TN there will be a "vs." and then the opposing stat and skill.

### Taking Stat

Sometimes a character is not being threatened, distracted or under intense pressure, and yet wants to take an action. In these situations, it may not be worth going through the full exercise of playing a card. When this situation arises, either the player or GM can opt for the character to take stat.

To do this, the player simply resolves the action as if the relevant stat were her card value. The total is then compared to the target number and success or failure is determined as normal.

*Example:* Job is in port shopping for unusual medical supplies. The GM calls for a Chr/medic-10 flip to locate the supplies he needs. Since Job isn't under threat or pressure, Job's player ops to take stat. Job has Charisma 6 and Medic 3, which would normally provide a bonus of +5. He adds to this Job's Charisma, for a total of 11—enough to find the supplies he needs.

### Group Effort

Sometimes multiple characters work together in an effort to accomplish a task, such as prying open a jammed airlock door or investigating a suspicious corp. In these situations, use the group effort rules to model this sort of cooperation.

For the action, one character is designated as the primary actor (usually the one accomplishing the bulk of the work) and the rest are designated as secondary. All involved characters then make a flip as if they were taking the action, although only the total of the primary actor will directly matter; all other characters will simply provide a modifier to the action. Every secondary character with a total less than the primary adds +1 to the action, while every secondary character with a total equal to or greater than the primary adds +2. Secondary characters who critically fail add -4. The total bonus from group effort can never exceed +4.

*Example:* Frida is trying to defuse a bomb and has her team of three other characters helping her out by running scans, holding wires and doing other grunt work. Frida makes a Dex/ordnance flip and gets a total of 11. Her team also makes flips and gets 8, 9 and 15, which gives her group effort bonuses of +1, +1 and +2, respectively. This totals to +4, which is the maximum possible from group effort.

# Extended Actions

An extended action is a drawn-out endeavor where the time it takes to complete the action is of particular importance, or where events can happen throughout the course of the endeavor that affect it in some way. Examples include a foot chase through the corridors of an abandoned station, repairing a spaceship before a solar flare arrives or breaking into an encrypted computer system.

Mechanically, extended actions work like a series of flips taken sequentially until the action is complete. Each flip in the series represents an interval of time spent working on the extended action. The exact amount of time varies from action to action. The interval for breaking into an encrypted system may be an hour, while the interval of a foot chase may be a mere ten seconds.

In addition to a TN and an interval, each extended action also has a number called a tally. After every flip in the extended action, the magnitude of success is added to a running total. Once this total equals or exceeds the tally, the extended action is complete. Failure on the extended action is running out of time before the action is complete. Here is an example:

*Example:* Nadya needs to make some repairs to her ship before a solar flare arrives. If her ship isn't repaired in time, everyone inside may be cooked alive. The GM declares this is an extended Per/mechanic-10 action with an interval of an hour and Tally 10. Nadya only has three hours before the solar flare arrives. She makes a flip for the first hour and gets a total of 12. This adds Mag 2 to the total—not a great start. She then makes a flip for the second hour and gets a total of 14. This adds Mag 4 to the total, bringing it up to 6. She only has one more hour to work, and makes a flip for the final hour. Unfortunately she only scores a 12. This adds another Mag 2, bringing her total up to 8, but that's not enough to reach the Tally 10 that she needs. The ship isn't ready when the solar flare arrives. Nadya and her crew must prepare for the worst.

## Tally Guidelines

Since an extended action's tally represents the amount of work an extended action will take to complete, it is useful to have some guidelines for GMs to know what sort of values at which to set an extended action's tally. Use the table below:

| Amount of Work | Tally |
|----------------|-------|
| A Bit | 5 |
| Fair Amount | 10 |
| A Lot | 15 |
| Tons | 20 |
| Absurd | 30 |

## The Right Tool for the Job

Most actions benefit if the character has the right tool for the job. Not having the correct tool can make a task more difficult or even impossible. For example, it's a lot easier to pry open a crate if one has an appropriate tool, like a crowbar. Other tasks—such as programming a computer—are going to be impossible unless one has the right tool: a computer interface of some sort. Often these tools are going to be physical equipment. Other times they're going to be metaphorical tools, such as speaking the right language or being familiar with the right subculture.

Anytime a character tries to perform an action without an appropriate tool designed for the task, the action is at a -4 penalty, or at the GM's discretion, simply impossible.

A character who manages to scrounge up an improvised tool—one not designed for the task, but still capable—the penalty is lessened to a mere -2. For example, a chisel or tire iron might be used in place of the crowbar mentioned above.

Having the right tool for the job confers no penalty or bonus. This is the assumed norm, and the tools are said to be "sufficient."

Finally, some tools are of a superior quality for the task at hand. These tools provide a +2 bonus on the action in question.

# Opposed Actions

Many times a character will want to attempt some action another character is actively trying to thwart. These are opposed actions. Examples of opposed actions include hiding from a stalking monstrosity or trying to win a formal debate.

There are two parties involved in opposed actions: the initiator (the party taking the action) and the target (the party opposing the action). To make matters potentially even more complex, opposed actions also could be group effort actions or extended actions.

Mechanically, opposed actions work just like all the other types of actions with one exception: they do not have a fixed TN. Instead, the initiator's flip sets the target number for the target's flip to resist. Here's an example:

*Example:* Abebe is trying to sneak by a guard. This is a Dex/stealth vs. Per/awareness flip. Abebe—the initiator—makes his flip and gets a total of 14. This sets the target number for the guard to notice him. The guard then makes her flip to resist and gets a 12. She fails to notice Abebe sneaking by.

If the magnitude of an opposed action is needed, it can be found simply by taking the difference between the two totals. Since the initiator sets the TN for the target and a success is normally equal to or exceeding the TN, the target effectively wins ties.

# Edge

All player characters—and occasionally non-player characters—have a score called Edge. This score represents the subtle advantages these characters have in the narrative: whether due to luck, good sense or simple self-preservation.

At the beginning of each session, the character's player draws a number of cards equal to her Edge score. The number of cards held is the character's current Edge, and it will fluctuate during the game, as cards are played or more cards drawn.

If a character spends an edge, this does not affect her permanent Edge score, it only affects her current Edge—the number of cards she holds in her hand. Similarly, if a character gains an Edge during play, she simply draws a card. This likewise does not affect her permanent Edge score.

Edge is gained when a Weakness trait affects a character in some significant way. It can also be awarded by the GM for actions that particularly fit the genre or enhance the game in other ways. Finally, a character may regain Edge when a joker comes out during play (see below).

# Drawing the Joker

A player may never hold a joker in her hand as part of her Edge. Anytime a joker is drawn, she must immediately discard the joker as well as any other cards she wishes to discard. She then draws back up to full Edge, exactly as if a joker came out during play (see "Playing Jokers" below). All discarded cards are then shuffled into the deck, as normal.

# Playing Jokers

Anytime a joker comes out during play, the action in question is an automatic critical failure, but the character's player also gets to refresh her Edge. This means she may discard any cards from her hand that she wishes and may then draw up to full Edge. If she's already at full Edge and does not discard any cards, she
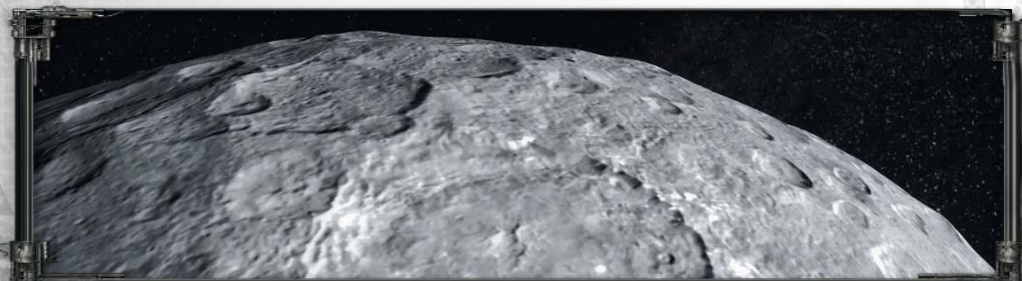
may instead simply draw a single card, putting her one over full Edge.

Anytime a joker comes out in this way, the player must at the end of the action immediately shuffle her discard pile into her deck. In this way, her deck will always have two jokers in it. Jokers never sit around in the discard pile.

## Spending Edge

In *Shadows Over Sol*, Edge can be spent in three ways:

- **Play a Card**: When making an action, a player may play a card from her hand in place of the usual card from the top of the deck. This card may result in additional cards being played from the top of the deck, as per the usual rules for trumps.
- **Luck**: After an action has been declared but before a card has been played for it, the player in question can choose to discard a card in order to make the action automatically trump. When resolving the action, she flips over a second card and takes the highest of the two, exactly as with a normal trump. If the suits match,

she adds together the value, as normal. The value of an edge card discarded in this manner does not matter.

- **Serendipity**: A player may discard a card to announce the existence of some small, convenient coincidence. A use in this manner must be accepted by the GM and may not derail or be detrimental to the game. Examples include declaring that the character remembered to bring some wire or declaring that a vehicle takes a couple tries to fully start at a particularly convenient moment.

## GM Edge

In addition to the players, the GM has Edge of her own. This Edge represents not just the Edge a single character, but the Edge all minor NPCs collectively. At the beginning of a session, the GM draws a number of cards equal to the number of players present. She may spend the Edge for any of her NPCs, just as a player would spend Edge for her player character.

# Consequences

In the **Saga Machine** system, actions are just half the equation. The other half is consequences—the direct mechanical effects of a character's action. Consequences can represent many things: receiving a mortal wound, experiencing fatigue, being on fire, being broken, lusting after another character, being the life of the party, etc. They are as many and as varied as the actions characters can take. Furthermore, cleverly placed consequences can be exploited by crafty characters and made to be a significant mechanical boon.

## What is a Consequence?

Consequences as a unified mechanic are a concept many role-playing games lack; nevertheless, they are quite simple. A consequence is simply the mechanical representation of a status effect upon a character or upon some part of the scene. Look at some example consequences in a little more detail below:

*Example:* Xuan is attacked by a group of hired thugs. He takes the action to dive for cover behind a crumbling brick facade. This action grants him the Cover consequence, which hinders the thugs' incoming attacks.

*Example:* Natasha is attending a fancy party of corp executives. Also in attendance is Juan, a member of the corp's board who tried to have her assassinated. She takes the action to gossip with the attending executives, undercutting his credibility and standing in the corp. This gives Juan the Humiliated consequence, penalizing his social actions.

*Example:* Ngunza is creeping quietly through the darkened corridors of an abandoned space station. Something else is out there in the station. It makes an eerie howling noise as the flickering lights of the station seem to make the shadows warp and twist across the walls. The thing's action—the howl—gives the station the Unsettling consequence, penalizing actions against fear.

The outcomes of all of these situations are consequences. Note that in all of these cases,

there is some clear benefit or hindrance to be had from the consequence of the action, although a consequence in some situations may provide both a benefit and a hindrance. This might potentially be exploitable by any party, friend or foe. Also note consequences can be applied either to characters themselves or to the scene around the character. Deciding which consequences apply to actions is a task performed by the GM, who takes into account a number of rules of thumb detailed below. Players are, however, free to declare their intent when taking such an action or to make suggestions.

## Levels of Severity

Not all consequences are created equal; some outcomes obviously are more severe than others. Because of this, consequences come in four different levels of severity. Each level increases the severity of the effects of the consequence in question. The different levels of consequence severity are as follows:

- **Light**: Light consequences are the least severe type of consequences. They are the small cuts and bruises, the single case of stuttering when delivering a speech or the minor misconception in understanding a complex story.
- **Moderate**: Moderate consequences are a bit more severe. They are the nasty gash dealt to one's arm, the insistent wavering of one's voice when making a speech or the flawed understanding that affecting a minor but still significant part of a story.
- **Severe**: Severe consequences cannot be easily ignored. They are the profusely bleeding wound in one's stomach, the almost unintelligible speech being delivered or the deep-seated bias rendering the understanding of a story mostly useless.
- **Critical**: These consequences—critical consequences—are the most severe. They are the mortal wound, the passing out from hyperventilation during a speech or the flawed understanding of a story rendering it worse than useless.

# Scene Consequences

The GM may want some scenes to begin with consequences already on them. In this manner, clever players can use these initial consequences to their benefit. These sorts of consequences are called "scene consequences" because they were placed on the scene before it began. Perhaps a scene already has the "noisy" consequence, applying a penalty to actions to socialize and applying a bonus to characters using the noise as a distraction when trying to use stealth. Maybe the scene has the "blood-splattered" consequence, forcing characters running through it to make an action against slipping in the fluid.

Scene consequences can be a useful tool for the GM to promote certain behaviors among characters in different scenes, because they provide characters with a reward for behaviors making use of the scene consequences. For example, a GM might want to promote caution in a scene by giving it a "danger lurking in every corner" consequence that makes ambushes or fear particularly easy.

## Adjudicating Consequences

As a general rule of thumb, the better the success or failure of the action, the more severe the consequence produced by it. Start with a light consequence, and as the magnitude of success or failure increases, the severity of the consequence increases as well. Refer to the table below:

| Consequence | Magnitude |
|-------------|-----------|
| Light | 0 |
| Moderate | 2 |
| Severe | 4 |
| Critical | 6 |

This is not a hard and fast rule, and GMs should feel free to bend it when appropriate. Rather, it is a standard guideline for assigning a severity to consequences produced by an action.

## Effects of Consequences

Consequences can have a variety of effects, and deciding upon an appropriate and balanced effect is something of a learning process. GMs should endeavor to make all consequences of a given severity roughly on par with each other, although there will always be a certain amount of wiggle room.

Nevertheless, it is good to have a few standards from which to judge the appropriateness of consequences. A "standard" consequence provides a modifier based on its severity to a class of actions where its application makes sense. For example, a "looking extraordinary" consequence might apply as a bonus to social actions but may also apply a penalty to actions to blend into a crowd. The standard modifier per severity for consequences is given below:

| Consequence | Modifier |
|-------------|----------|
| Light | ±1 |
| Moderate | ±2 |
| Severe | ±3 |
| Critical | ±4 |

A list of common consequences used by various systems in *Shadows Over Sol* is provided in an appendix and may also be used as a benchmark when adjudicating consequences.

# Duration of Consequences

Consequences don't usually stick around forever: wounds heal, people get over bad first impressions and structures on fire are either put out or burnt to the ground.

By default, consequences stick around either until the end of the scene or until an appropriate action is taken to make the consequence go away. The type of action that is appropriate, of course, will vary with the nature of the consequence. For example, an "on fire" consequence may go away once an action is taken to put out the fire, and a Stun consequence may go away once a character takes a moment to concentrate and gather her wits. Many consequences will have an obvious action that can be taken to bring them to an end; for other actions, the GM will have to make it clear. When deciding upon these, the GM should keep in mind game balance and common sense.

Some consequences, however, are lasting. These consequences stick around past the end of a scene and involve some more significant act to bring it to an end. Such consequences are usually special cases, such as the Wound consequence used by the combat system.

As a general rule of thumb, an action that causes a lasting consequence should cause a consequence one or more severities lower than it normally would. So, for example, an action that succeeds with Mag 6 would normally cause a critical consequence, but if the consequence is lasting, it might only cause a moderate consequence. In essence, severity is traded for duration.

# Wounds and Health

The future of **Shadows Over Sol** is rife with danger—from violent gangs, overzealous corp security and terrorists to bioengineered monstrosities, experimental augmentations and battles in space. Over the course of a campaign, characters will likely take wounds that threaten their lives; it is only a matter of when.

## The Wound Consequence

Whenever a character takes significant injury, she will likely gain a Wound consequence (see page 231). This consequence represents the physical damage taken in the injury. These consequences work like other consequences—they are rated light to critical, they have an effect and they have a duration (see the healing rules on page 118).

Unlike many consequences, if a character would take a Wound consequence multiple times, the severities do not add together. Instead every Wound consequence is tracked separately. If a character takes a severe wound, and then takes a light wound, she now has two separate wounds—one at severe and one at light—not a combined Wound consequence at critical.

Wound consequences typically apply a penalty to the character's next flip—the sudden shock and pain of the injury—and afterward simply linger and count against the character's Wound threshold (see page 118).

### Tracking Wounds

On the character sheet, one will note a series of boxes for tracking wounds. This is called the character's wound track. It will look something like this:

| | | |
|---|---|---|
| Light | -1 | ☐☐☐☐☐ |
| Moderate | -2 | ☐☐☐☐☐ |
| Severe | -3 | ☐☐☐☐☐ |
| Critical | -4 | ☐☐☐☐☐ |

Whenever a character takes a Wound consequence, she simply checks off a box of the appropriate severity. If by some chance there are no more boxes available at that severity, draw some in or keep track with tally marks.

The numbers in the middle are the penalty given by that severity of wound and the severity count to add when comparing the total wounds to the character's Wound threshold.

## Damage Ratings

Whenever a character takes damage, the damage being applied will have a rating that looks something like this: 4L, 12M, 17S or 8C. Every damage rating consists of two parts: a numerical value that will be compared to damage reduction (DR) and Shock threshold and a severity—L is for light, M is for moderate, S is for severe and C is for critical.

When the value is compared to DR and Shock threshold, it may result in the severity being increased or decreased (see below). For example, after comparison, a 16M wound may be staged up from moderate to severe, or it might be staged down from moderate to light. Wounds staged below light severity become trivial and do not result in a Wound consequence.

Wounds staged above critical will result in two wound consequences: one will be a critical wound, and the other will be a severity corresponding to the number of severities the wound was staged beyond critical. For example, a critical wound that is then staged up once will result in both a critical wound and a light wound. A critical wound that is staged up twice will result in both a critical wound and a moderate wound. This process continues as many times as the severity wound needs increased.

After the severity of the final wound is determined, the appropriate box (or boxes in the case of wounds staged above critical) are checked off the character's wound track.

## Damage Reduction (DR)

Damage reduction (DR) is a certain resistance to damage: it is usually either innate or granted by equipment (such as armor). DR is

tracked both on its own and as a bonus to a character's Shock threshold.

Whenever a character takes damage, the value of the damage is compared to the target's DR. If the value is less than her DR, its severity is decreased a step. Critical becomes severe, severe becomes moderate, moderate becomes light, light becomes nothing. If the value is below half the target's DR, no damage is dealt.

Some damage—such as from poison already in the character's system—will ignore DR entirely. Do not compare this damage to the character's DR, and ignore the DRs bonus to the character's Shock threshold.

## Shock Threshold

Whenever a character takes damage, its value is also compared to her Shock threshold. If the value is equal to or higher than her Shock, the severity is increased a step. If it's higher than twice her Shock it's increased two steps; higher than three times her Shock increases it three steps, etc.

In addition to increasing the severity of the wound, the target also increases her Stun consequence an equal number of severities. For example, if after comparison her wound would be increased two severities, her Stun consequence increases two seventies as well. If she did not already have the Stun consequence, she gains it at the indicated severity. For example, increasing two seventies severities from no Stun would result in a moderate Stun consequence.

## Wound Threshold

Wounds can be fatal. To help determine when they are, every character has a Wound threshold. This is the point beyond which their wounds are not just horrific, but life threatening.

Each player should keep a count of the total number of wound severities her character has taken. Light is one severity, moderate is two, severe is three and critical is four. When this total reaches the character's Wound threshold, her combined wounds threaten death. She is said to be in her dying gasps (see below).

## Dying Gasps

When a character's wound severity total equals or exceeds her Wound threshold, the character is said to be in her dying gasps.

When entering her dying gasps, she immediately increases her Bleeding consequence a severity. If she did not have the consequence, she instead gains it at light. Anytime she takes a wound in her dying gasps, her Bleeding consequence increases another severity, except wounds caused by the Bleeding consequence itself. This means if she is not rapidly treated, her wounds will soon kill her. (For treating wounds, see page the next page.)

If for some reason a character's wound severity total ever reaches twice her Wound threshold, she immediately expires, potentially skipping the dying gasps stage entirely.

## Healing Wounds

Over time, most characters' bodies will heal and repair themselves. Under the supervision of a skilled medic, this time is often significantly reduced. When healing naturally, for every week of rest and relaxation a character may heal a number of severities of damage equal to her Endurance. The highest severity wound is always healed first, followed by the next most severe. If a wound is not fully healed in this way, it is instead reduced in severity to by the number of severities that are healed.

*Example:* Svetlena has a critical wound and a severe wound. She also has Endurance 6, so after a week of rest she can heal 6 severities of wounds. Since she must heal the most severe one first, she heals the critical wound. Critical wounds are 4 severities; she has 2 severities of healing left over. Severe wounds are 3 severities, so she cannot fully heal her remaining wound, but she can reduce it by the remaining 2 severities of healing. This downgrades it to a light wound. At the end of the week, Svetlena is still lightly wounded.

To heal, characters must spend the time relaxing and getting well. Stressful and dangerous conditions are antithetical to the healing process. Anytime a character is in a stressful and dangerous situation or otherwise takes a wound, reset the count of time that she has spent healing. She may immediately begin resting again, but now she's beginning the week again.

## Doctor Supervision

Characters may want to spend their time healing under the supervision of a skilled doctor who has access to sufficient medical technology. This may cost a pretty penny, but characters who do this will generally heal much faster than characters who do not.

At the end of a day of treatment, the doctor should make an Int/medic-10 flip. If she doesn't have access to sufficient medical technology, she takes the usual penalty for not having appropriate tools (see page 111). The doctor may treat a number of patients equal to her medic skill in this way and should make a single action to treat all of them. On a success, her patients heal one severity of Wound consequences, plus one for every 5 Mag. This is in addition to natural healing. On a failure, patients do not heal, and on a critical failure, they each take a light wound.

## First Aid

First aid can be used to patch up wounds shortly after they occur or to stop bleeding. First aid must take place within an hour of receiving a wound, and a character may only benefit from first aid once per set of wounds received.

To apply first aid, the healer should make a Dex/medic-10 flip. Apply the usual penalty if she does not have appropriate tools. On a success, she may either heal the patient for Mag light wounds or she may reduce a single wound a severity. Either way, she may also remove the patient's Bleeding consequence.

First aid typically takes 10 minutes to heal wounds or a round if only stopping the bleeding (see "First Aid in Combat" on page 124). Advanced equipment may reduce the time required. Applying first aid to oneself is more difficult and doubles the required time (increasing the required action points (AP) if in combat).

## Surgery

Lingering injuries and some other conditions require "surgery" to remove. This term is used to mean both literal surgery, as well as any other complicated—and usually expensive—medical procedure. To perform surgery, the medic usually must either have a surgery kit (see page 190) or the character must pay for a full treatment at a medical facility (see page 189). Whatever surgery entails, procedures are divided into three categories:

**Minor Surgery:** When performing a minor surgery, the physician should make a Dex/medic-10 flip. On a success, the surgery is successful, but the patient gains the Fatigued (moderate) consequence during the recovery time. On a success by Mag 5+, the patient only gains the Fatigued (light). Minor surgeries typically require at least an hour on the operating table, and have at least a week's recovery time.

**Major Surgery:** When performing a major surgery, the physician should make a Dex/medic-12 flip. On a success, the surgery is successful, but the patient gains the Fatigued (moderate) consequence during the recovery time. On a success by Mag 5+, the patient only gains the Fatigued (light) consequence. Major surgeries typically require many long, grueling hours on the operating table, followed by at least a month's recovery time.

**Regrowth Therapy:** Regrowth therapy is used to regrow entire missing limbs and to recover from the most severe injuries. Unlike the other two types of surgery, regrowth therapy requires long hours and an extended stay in a medical facility: as such, a surgery kit is not sufficient. With regrowth therapy, the patient needs to come in once a week for several weeks. For the physician applying this therapy, it is an extended Per/medic-10 (10, 1 week) action. On average, the regrowth process takes about a month.

## The "Not Until It's Over" Rule

Damage cannot be healed until what's causing it is no longer affecting the character. Bullet wounds cannot be healed until the bullets are removed. Damage from poison cannot be healed until the poison is out of the character's system. Damage from asphyxiation cannot be healed until the character is breathing once more. GMs and players should use common sense when tracking this. No amount of first aid is going to heal a person dying of starvation.

# Combat

At some point, the shit will hit the fan. Guns will be drawn. Blood will be spilt. Someone will begin the age-old practice of making holes in other human beings until one party lays gurgling in their own blood and other bodily fluids, twitching and dreaming of all the birthdays they'll never have.

In the combat system, the action in the game world is broken down into 3-second increments of time called rounds. Every round, characters have the opportunity to declare actions, and later those actions are resolved. Actions declared in combat almost always require some number of action points (AP) to perform. At the beginning of each round, characters will gain a few AP, which over the course of the round can then be spent on actions or reactions.

The bulk of the actions in a combat are likely to be attacks. Successful attacks give their target Wound consequences, bringing them one step closer to taking their final gasps. Sometimes attacks impose other consequences as well on targets, hindering them in various ways.

Eventually combat will be over. The survivors will have to begin to live with the consequences of their actions, and the usual narrative flow of the game resumes.

## Action Points (AP)

During combat characters will gain and spend action points (AP) to perform actions or make reactions. AP can be tracked using poker chips, glass beads or even tally marks on paper. Personally, we recommend physical tokens of some sort, as they gave a very clear tactile indicator of the number of AP each character possesses.

Unless something dictates otherwise, all characters will gain 3 AP at the beginning of every round. Some NPCs may have abilities that give them more or less, and being surprised at the beginning of combat may negate some or all AP the first round.

At the end of every round, all left over AP are discarded—that is, AP do not carry over from round to round. The next round then immediately begins and usual AP for the round is gained.

## Starting a Combat

It's usually obvious when to bust out the combat system and begin to break the action down into rounds. Someone will draw a gun, a monstrosity will burst out of the shadows or someone will throw a punch. When the situation is in doubt, however, declaring the start of a combat is up to the GM.

### Starting Conditions

At the beginning of combat, the GM should describe the scene and the relative positions of the different characters and should make sure each character has the appropriate number of AP to begin the round. Some characters may also begin the combat with consequences already on them—of particular note are Cover and Concealment, although other lasting consequences such as Fatigue or Wound consequences will crop up frequently as well.

### Surprise

Sometimes one party will attempt to ambush the other at the beginning of combat, catching them unaware. This is typically handled by making a Dex/stealth vs. Per/awareness flip. On a success, the surprised party each loses an AP for the first round of combat. They each lose 2 AP if the ambushers succeeded by Mag 5+. On subsequent rounds, they will gain AP as normal.

## Rounds

In the combat system, the action in the game world is broken up into short 3-second increments of time called rounds. At the beginning of every round, all characters gain AP, and at the end of every round they discard any remaining AP.

Each round is broken down into four phases. In the first phase, players declare their actions for the round, and in the latter three phases, those actions are resolved. The four phases are as follows:

- **Declare Phase**: In this phase, all players declare their actions for the round. Only one action may be declared per phase. All declarations are made simultaneously. This includes declaring in which phase the action will take place.
- **Phase 3**: Actions declared in this phase cost 3 AP.
- **Phase 2**: Actions declared in this phase cost 2 AP.
- **Phase 1**: Actions declared in this phase cost 1 AP.

## Declaring Actions

All actions for each round are chosen in the declare phase. These declarations must include the phase the action will be resolved in, what action the character is taking, as well as the action's targets and any other options that must be chosen before any associated flip.

All actions by all combatants are declared simultaneously. It is recommended for GMs to have sticky notes, index cards, scraps of paper or some other mechanism where players can write down their actions and hand them in at the end of the declare phase.

The AP to perform an action is spent when the action is declared. A character may declare multiple actions in the same round, but she must have enough AP and may only declare one action per phase.

Any remaining AP not spent on declared actions can be kept for use in reactions, such as the dodge reaction. Reactions do not need to be chosen in the declare phase; the player simply decides not to spend AP, and declares the reaction when its trigger occurs during one of the later phases.

The three resolution phases count down—3, 2, 1. Actions declared each phase will have an AP cost equal to the phase's number. That is, declaring an action in an earlier phase costs more than declaring an action in a later phase. This represents taking committed, decisive action versus a wait-and-see approach.

In their descriptions, some actions will say that they cost "at least 1 AP," "at least 2 AP" or "at least 3 AP." These actions require more commitment and must be declared in a phase requiring at least the many AP. For example, an action requiring "at least 2 AP" cannot be declared during Phase 1. It may only be declared during Phase 2 or 3, and costs the usual amount for the phase in which it is declared.

## Resolving Actions

When resolving actions, the GM first resolves all actions in Phase 3, then all actions in Phase 2 and then all actions in Phase 1. The actions in each phase occur simultaneously. An action being resolved in a particular phase doesn't occur before any other action in the same phase. For example, two combatants shooting each other in the same phase both get their shots off, even if both immediately die from the wounds suffered.

## Opposite Simultaneous Effects

There are times when opposing effects will occur simultaneously in the same phase—for example, one character concentrates to remove her Stun consequence while another character adds to her Stun consequence with an attack. When this happens, first apply both effects then assess the net result.

The phase into which an action is resolved may have an effect on the action. For example, aim actions resolved in phase 2 provide a greater bonus than those resolved in phase 1. For specifics, see the descriptions of individual actions.

Sometimes the events of a phase will render an action impossible to perform by the time its resolution comes up in the next phase. When this situation occurs, the player who declared the action may want to cancel it. Regardless, because the action is impossible to perform, it does not occur.

Regardless of the phase, an action is resolved in, all actions fall into one of four basic categories: interact, move, concentrate or attack. Which category an actions falls into may determine how it is affected by certain consequences or options.

## Canceling Actions

At any time before its phase begins, a player may choose to cancel one of her declared actions. When she does this, the canceled action does not occur. While this does not gain her any of her AP back, it does prevent her from performing action that she no longer wishes to see occur.

## Reactions

A few special reactions exist which can be triggered by another character's action. When a trigger occurs, a character may immediately declare and resolve the reaction. Unless specified otherwise, all reactions cost 1 AP. The most common reactions are wait, zone of control and dodge. Except for wait, these reactions are all described in the section following the type of action that triggers them. Wait is a more general reaction and is described below.

## Wait (Reaction)

Sometimes a character wants to take a particular action in response to another's action. For example: "If she walks through the door I will shoot her." These types of declarations can be made with a wait reaction.

To declare a wait reaction, the player must specify both the trigger event and the response action during the declare phase. Examples of trigger events include: "if she speaks," "if she does anything violent," and "if she starts to run." Examples of response actions include: "I shoot her," "I chase after her" and "I dive for cover."

Declaring a wait costs 1 AP for the reaction itself and 2 AP spent for the response action. The cost of both these are paid during declare phase when the wait reaction is chosen. The response action may later be canceled like any declared action, in which case it becomes irrelevant if the trigger occurs.

Once the trigger happens during action resolution, the response action is also immediately resolved. These are considered to have occurred simultaneously.

## Offhanded Actions

It's more difficult to do things with a character's off-hand than it is with a character's primary hand. Thus, all actions taken with a character's off-hand are at a -2 penalty. This applies not only to attacks, but to any action taken with the off-hand.

## Defense

The aim of combat is to snuff out another person's life or at least to inflict upon them terrible bodily injury. To do this, one typically must first not die in the process, which means avoiding terrible bodily injury oneself.

This is where a character's Defense score comes in. It is a measure of how difficult she is to hit in combat and how difficult it is to hit her well. Mechanically, a character's Defense is actually two numbers: one representing the TN to hit the character and the other representing the TN to critically hit the character. This score is written with a slash separating the two numbers. Elsewhere in the combat system, these are referred to as a "hit" and as a "critical hit," respectively. Hits usually result in the attacker dealing damage to her target. On a critical hit, however, other effects can typically be applied as well (see page 127).

To calculate a character's Defense TN, use the following formulas:

$$\textbf{Hit Defense TN =}$$
$$\textbf{(Spd + Per + Dex)} \div \textbf{2}$$

$$\textbf{Critical Hit Defense TN =}$$
$$\textbf{Spd + Per + Dex}$$

*Example:* A character has a Spd 5, Per 6 and Dex 4. Her Defense TN would be "7/15" ([Spd + Per + Dex] ÷ 2 = 7 and 5 + 6 + 4 = 15). This would mean an attacking character would need a total of 7 to hit her and 15 to critically hit her.

## Defense Modifiers

Many consequences or other situations can give a modifier to a character's Defense score. When a modifier is given to defense, it applies to both numbers. For example, if a character with Defense 7/15 gains a +3 modifier, her effective Defense with the modifier is 10/18.

## Dodge

Anytime an attack is made against a character's Defense she may respond by attempting a dodge reaction. As with all reactions, this requires spending an AP. A character may only declare a dodge reaction if she is aware of the attack—that is, she cannot dodge attacks she doesn't see coming. The effect of taking a dodge reaction varies depending on whether the character is being attacked in melee or whether she is being attacked at range.

A character being attacked at range can use the reaction to make the best of her available cover. When the dodge reaction is made, she doubles the bonus it applies to her Defense score.

On the other hand, a character being attacked in melee—regardless of whether the attack itself is with a melee weapon or a ranged weapon—has another option. She may either double her cover (as with being attacked at range) or she may apply her melee skill as a bonus to her Defense.

*Example:* Sanja is being attacked. Her Defense is 7/15, and the attack action then achieves a total of 17. Normally this would be enough for a critical hit, but Sanja really can't afford to take a critical wound now. She declares a dodge reaction and spends an AP. Since she is being attacked in melee, she has two options: she can either double her cover (moderate, doubled to a +4 bonus) or she may use her melee skill (for a total of +1). She opts to double her cover, giving her an effective Defense of 11/19. This means the attack is still a hit, but it's not a critical hit.

# Interact Actions

A variety of interactions can take place in combat either with the environment or with other characters. These can be as simple as drawing a weapon or as complex as coordinating an attack with one's allies. Interact actions are a good catch-all for maneuvers that don't otherwise fall under the other categories—if it's not an attack, not primarily moving around and not primarily a mental task. When in doubt, it's an interact action.

A few interact actions of special interest are detailed below.

## Coordinate

There's a reason that small tactical units train together, have their own comm channels and have a clear command structure. Groups of people fight better when coordinated. In combat, a character may take an Int/persuade-10 flip to try to coordinate her allies. A character may coordinate up to a number of allies equal to her intelligence. This requires the ability to clearly communicate with the coordinated allies, and benefits from appropriate tools, such as linked comms (see page 194). A character may not coordinate herself. On a success, all coordinated allies increase their Bolstered consequence by a severity. With 5+ Mag, they increase it two severities.

## Drawing or Reloading

Drawing a weapon or reloading one is a simple interact action that involves taking a weapon out or putting ammunition into one. This costs at least 1 AP if the weapon or magazine was in a holster or other easy-to-access position. It costs at least 2 AP if it was harder to reach, such as stowed at the top of a pack or tucked inside one's boot. Some weapons may have longer reload times, requiring more AP. This will be noted in the weapon's properties.

## First Aid In Combat

To apply first aid in combat, the healer should make a Dex/medic-10 flip. The action benefits from having the appropriate tools (see page 111). On a success, she may remove the patient's Bleeding consequence. A medic may not remove Wound consequences in the span of a combat round unless she has gear specifically capable of this (healing wounds normally takes 10 minutes; see page 119). Performing first aid in combat requires at least 1 AP or at least 2 AP if performing it on oneself.

## Intimidate

Sometimes it is possible to intimidate a foe in combat, causing her to reconsider the benefits of backing down. Intimidating a foe is a Chr/persuade vs. Det flip. The foe must be able to see and communicate with the character for this to work, and it may only be performed on one foe at a time. The GM should also consider possible modifiers—for example, having appropriately threatening gear probably counts as the right tools for the job, and attempting this when outnumbered almost certainly makes it more difficult. On a success, the target gains the Fear (light) consequence. With 5+ Mag this increases to Fear (moderate).

## Trick

Sometime it's possible to trick an enemy, granting an opening that can be exploited in combat. Such tricks are usually high risk, high reward actions, and they always leave the foe all the wiser against similar future actions. Tricks will usually be opposed actions, although the exact stats and skills will vary depending on the nature of the trick. For example, spraying congealed blood in a foe's face might be a Dex/athletics vs. Spd flip, while faking a punch to leave an opening might be a Chr/melee vs. Int flip. Regardless of the nature of the trick, on a success, the foe's Dazed consequence increases a severity. With Mag 5+ it increases by two severities. On the other hand, should the trick fail, the trickster increases her Dazed consequence a severity or two severities if she failed by Mag 5+.

# Move Actions

Analysis is the enemy of horror. The more something can be understood, quantified and examined, the less horrific it becomes. The tension in horror comes from the unknown and from uncertainty. Chances are nothing the GM can possibly sketch out can compare to what the players can conjure up in their minds from snippets of description.

This being the case, **Shadows Over Sol** assumes a "theater of the imagination" style of combat. A character's position as she moves is simply described by the player or GM when it happens. Distances can be given ballpark estimates, or described as by an unreliable narrator. Unless the player characters (PCs) have some form of laser targeting, no one is actually taking exact measurements in combat.

Nevertheless, movement is still an important part of the action in combat. Combatants in a knife fight or fistfight are going to want to close in on each other for attacks. Combatants in a gunfight are going to want to take cover or hit the ground. Everyone is going to want to avoid explosions or other flying debris.

All of these things qualify as move actions. Some common move actions are described below.

## Basic Move

The most basic movement is simply running or walking from one position to another. Doing this costs at least 1 AP per bout of movement, and the exact distances can be ballparked as "1 AP of movement," "2 AP of movement," etc.

There are times, however, when exact measurements are necessary. During these times, assume a character can move the average of her Spd and End in meters per AP, if running or half that distance if walking. This distance may be adjusted downward if the character is facing difficult terrain or other obstacles.

## Obstacles

Movement isn't always across flat, open surfaces. Often it involves climbing, jumping, swimming, bouncing around in zero-G or other obstacles. Overcoming one of these obstacles is a move where the player must succeed, usually on a Str/athletics, Dex/athletics or End/athletics flip. The GM sets the difficulty of the obstacle. Doing this typically costs at least 1 AP per bout of movement required. If exact measurement becomes important, every 1 AP and successful attempt gains the character half the average of her Spd and End in meters.

## Posture

By default, characters are assumed to be standing. There are times, however, when a character might want to kneel, crouch, sit or lay down. Changing between any of these postures is a move action, and one change in posture may be tacked on for free to another move action, such as a basic move or taking cover. If performed by itself, changing posture costs the usual amount of AP for the phase.

## Spin

Normally characters are in control of their own movement. There are times, however, when they lose control—such as being knocked down or spinning in zero-G. This loss of control is represented by the Spin consequence. Characters wishing to regain control of their movement—and who are capable of doing so—may take a move action to get rid of this consequence. For every 1 AP spent, the Spin consequence may be reduced a severity. Naturally, this means stopping Spin is more effective if the character is more committed and thus declares it in an earlier phase.

## Taking Cover

Sometimes a basic move or a change in posture will be enough to gain a character the Cover or Concealment consequences. To make the most of these, however, the character will need to make a take cover action. There is a difference between "taking cover" and simply having cover.

Think of it like this: if Monique is being fired upon and runs to where a stack of barrels is between her and her attacker, she has cover from the attacks. At the same time, if she wants to shoot back, the barrels are in her way as well.

She has cover, but she hasn't "taken cover" to make the most of it.

When a character takes cover, she needs to have moved immediately next to the object providing her with the cover consequence. She then performs the take cover action, setting herself up so that the cover does not hinder her attacks but still provides her with protection against the attacks of others. Without this, the cover's bonus to Defense applies both to incoming and outgoing attacks.

## Zone of Control (Reaction)

When two or more characters are within hand-to-hand striking distance of each other, they are said to be within each others' zones of control. Leaving another character's zone of control may provoke a zone of control reaction.

Whenever a character takes a move action to leave a threatening character's zone of control, the threatening character may immediately spend 1 AP to make an attack with a readied melee weapon. As this is a reaction, it is resolved immediately.



## Concentrate Actions

Concentrate actions are those actions which are primarily internal and mental in nature. This includes aiming, observing, recalling facts and summoning up one's self control to end many mental consequences. A few concentrate actions of note are described below.

### Aim

With an aim action, a character may take a moment to apply some extra focus and attention when lining up an attack. When this action is taken, the character must specify the target, who must be visible. Every AP spent on the aim provides a +2 bonus to her next attack on the target to a maximum bonus equal to the character's Perception. This bonus can carry over round to round, but the character's aim is broken if she takes any action other than to continue to aim at the target or if she takes a dodge or a zone of control reaction against a different target.

### End Consequence

Many consequences list their duration as lasting until a concentrate action is taken to end them. These consequences mostly represent mental states or afflictions of some kind. To bring one or more of these consequences to an end, the character simply needs to take a moment to clear her head and get herself under control. To do this, she takes the end consequence action and spends AP. For every AP, she spends she may remove a severity of one of these consequences. Removing the last severity of a consequence removes the consequence entirely. She may divide the AP between any relevant consequences as she sees fit, and provided she has enough AP for it, she may end multiple consequences at a time in this way. Additionally, taking this action discharges any penalty from the Wound consequence.

### Observe or Recall Facts

Sometimes a character really needs to remain alert or to recall a critical piece of information. This can be done by taking this action to concentrate, and making a Perception or Intelligence flip, as appropriate.

## Attack Actions

Ultimately combat is about violence, and some of the most common actions are likely to be attacks. In any attack, the aggressor picks a target and then tries to harm or hinder her in some way. When making an attack, there are a number of attack options and other situations to consider. These are detailed below.

### Basic Attack

Broadly speaking, attacks break down into two categories: attacks in melee (hand-to-hand combat) and attacks at range. Melee attacks are Dex/melee vs. Defense flips. Using a gun or other ranged projectile is a Dex/guns vs. Defense flip. Throwing an object as an attack is a Dex/athletics vs. Defense flip.

When making an attack, the attacker makes her action and compares the result against the target's Defense (see page 123). If she hits the first Defense number, she scores a hit. If she hits the second Defense number she scores a critical hit. Should she score a critical hit, she will have a number of critical hit options after damage is dealt (see Critical Hits on page 130).

With either a hit or critical hit, the attacker typically gets to deal damage to her target. Every weapon should have a series of four damage ratings, each corresponding to one of the four card suits. Look up the damage corresponding to the suit of the card played for the attack. If multiple cards are involved in the attack, use the same suit that determines if the action was trump. The target takes this amount of damage (see "Damage Ratings," page 117).

### Area Attacks

Some attacks—such as grenades or explosions—affect an area rather than a single target. These attacks will typically have the Area property followed by a rating, which is the radius of the primary blast in meters—for example, Area 10. Area attacks typically deal damage or some other effect to everyone in their primary blast radius and may deal damage to anyone within twice the primary blast radius. This latter area is called the secondary blast radius.

GMs will have to estimate where characters are when determining if they're caught within the primary or secondary blast radii. When in doubt, assume a character is caught in it because

explosions tend to be large and devastating. If two characters are within a zone of control (see page 126), and one of the characters is caught in the blast, they both are. Explosions do not have clean, easily predictable edges.

Anyone caught in the primary blast radius automatically suffers the effect of the attack. However, their usual Cover bonus counts as DR when resolving damage from the attack. Taking the dodge reaction to double cover doubles this bonus, as usual. The GM should flip a card for all affected characters. If this card is a joker, the character has taken a critical hit and the knockback critical effect must be chosen.

For anyone caught in the secondary blast radius, the GM should flip a card. If it's red—like blood—they take the damage as well. If the card flipped is a joker they take damage and it's a critical hit, just as with the primary blast radius. Cover applies to them just as it does to those caught in the primary blast radius.

Unlike most attacks, area attacks are not against Defense. They are simply TN 10, modified for the range and other circumstances into which they are made. Failed area attacks will still go off, but they deviate from their target in a random direction by Mag meters.

## Autofire

Autofire involves firing a rapid string of shots at a target. It's an option that must be chosen before an attack is made, and the weapon must be capable. This means it will have the Autofire property, followed by a numerical rating—for example Autofire 3.

The autofire rating applies a bonus to the attack equal to the rating itself. For example, Autofire 2 would add a +2 bonus to the attack. Additionally, should the attack score a critical hit, the attacker may choose to have the target take a second hit at the same damage rating as the critical effect.

The downside of autofire is that it takes more shots than a basic attack and always costs at least 2 AP. The number of shots it takes is the square of the autofire rating—for example Autofire 3 would take 9 shots. On anything but a critical hit, using autofire to attack a target within a zone of control always results in checking for stray shots for the line of fire (see page 129).

An attack may be made at a lower autofire rating than the maximum with which the weapon is capable. For example, an Autofire 3 weapon can attack at Autofire 2. There is no Autofire 1; that is simply a normal shot.

## Disarm

Make an attack at a -4 penalty. This attack forces the target to drop her weapon, usually because the attack hit her arm or weapon. Once dropped, the weapon lands on the ground a meter or two away from the target. With a disarm, the attacker may choose not to deal the usual damage.

## Dodge (Reaction)

When subject to an attack, the target may opt to make a dodge reaction. Dodging typically either doubles the character's Cover bonus to Defense or in melee it may add her melee skill to Defense. (For more on the dodge reaction, see page 123.)

## Fighting Blind

It is difficult to fight effectively when you cannot see your target. All attacks made against an unseen target are normally at a -4 penalty. Making a successful concentrate action to observe immediately ahead of time can reduce this to a -2 penalty. Unseen targets cannot be aimed at. These penalties do not apply to area attacks.

## Grapple

Sometimes the best tactic is to grab one's opponent with one's bare hands and grapple with her. To do this, the attacker must have a free hand. Should she not have a free hand available, she may immediately drop whatever she is holding, thereby gaining one or more free hands to grapple with.

Characters in a grapple may not take move actions until the grapple is broken. Breaking a grapple is free for the initiator of the grapple, but for other characters, it requires a successful Str/melee vs. Defense flip—an attack action. This attack does not deal damage and is made at a -4 penalty.

While in a grapple, all actions that do not solely target the grappling opponent are at a -4 penalty. Additionally, as an attack action, a

grappler may make Str/melee vs. End flip to choke her target. On a success, this increases the target's Fatigue consequence a severity. If she's already at Fatigue (critical), it instead renders her unconscious.

### Improvised Weapons

Sometimes a character may be caught without a weapon at hand and will want to fight with the objects around her. Treat these as improvised tools (-2 to attack), but the damage is typically more than an unarmed attack—usually increasing the severity of the damage from light to moderate. The GM should use her discretion here. Thrown improvised weapons have the Range Str property.

### Line of Fire

Missed shots still kill! Anytime one is making a ranged attack where there are other targets in the line of fire, one of them may still be hit on a miss. This is also true for sensitive equipment or anything else of narrative importance that might be damaged by a missed shot.

This rule is intended to heighten the danger of firing into groups or around sensitive areas. When it's important, on a miss the GM should draw a card on a miss. If it's a red 5 or less (count aces as 1s), someone or something important was hit. Determine this randomly. If firing at someone in a zone of control or with autofire, someone is hit with any red card. In either case, pulling a joker means a critical hit.

### Pulling Punches

Sometimes when delivering an attack, the attacker doesn't want to deal the full usual damage, instead lessening the damage to something minimal. This is possible with any attack that lists Strength as part of the attack's damage. Simply choose this when declaring the attack, and the attacker may substitute any lower Strength score for her own when determining damage—even Strength 0.

### Range

Ranged attacks have the Range property followed by a value—for example, Range 10. Targets within this number of meters are at short range. There is no range penalty to attack

them. Targets further away than this suffer a -1 range penalty for every multiple of this number that they are further away.

### Suppressive Fire

Any weapon capable of Autofire can also put enough shots in the air to make moving around potentially lethal. The suppressive fire option must be chosen when the attack is declared. The attacker picks a 60° arc. For this round, any character taking an action in that arc—other than to take cover—has the potential of being hit. This only affects actions in the same or later phases, so suppressive fire works best if declared earlier in the round.

When a threatened character takes an action, the GM should draw a card. If it's a red card with a value equal to or lower than the autofire rating (count aces as 1, and don't count face cards), the character is hit for damage corresponding to that suit. Double the autofire rating for move actions other than to take cover, and then subtract the character's severity in the Cover consequence from the autofire rating before determining the number needed to hit.

*Example:* Phil is in an arc, which is currently subject to suppressive fire at Autofire 3. This round he is taking two actions: he is taking cover, and he is shooting back. When the first action occurs he takes cover and a card is not drawn for suppressive fire, as taking cover never threatens being hit. This grants him moderate cover. During the second action, however, he fires back; this will cause the GM to draw a card. Normally the GM would need to draw a red 3 or less for Phil to be hit, but since Phil has moderate cover (2 severities), the GM will need to draw a red ace (value 1) to hit Phil.

### Unarmed Attacks

Sometimes a character is caught without a weapon and must fight with her bare hands. Using one's fists against an opponent armed with a melee weapon counts as improvised tools (-2 on the attack). Don't bring only your fists to a knife fight. Unarmed attacks are listed among the weapons in the Gear Chapter for ease of looking up damage (see page 183).

# Critical Hits

When an attack meets or exceeds the target's second Defense number, it deals a critical hit. Not only does the attack deal the usual damage or effect, but the attacker may also choose a critical effect to apply to the target. Some attack options restrict the critical effects that may be chosen, such as area attacks, which may only choose the knockback critical effect. A table of critical effects is below, followed by descriptions of each effect:

| Critical Effect | Restrictions |
|---|---|
| Dazing Hit | — |
| Disarm | — |
| Grapple | Melee attacks only |
| Knockback | — |
| Lingering Injury | Attack must deal damage |
| Vital Hit | Attack must deal damage |

## Dazing Hit

The attack not only injures the target, but also causes the target extra pain or distraction, leaving her mind fuzzy. With this critical effect, the target's Dazed consequence increases a severity.

## Disarm

In addition to the usual damage from the hit, the attacker also disarms her target (see Disarm on page 128).

## Grapple

In addition to the usual damage from the melee strike, the attacker also grapples her target (see Grapple on page 128).

## Knockback

This attack either makes the target off-balance or knocks her down entirely. This can be achieved by bodily knocking her to the ground, shooting her leg or any other number of methods. She gains the Spin (light) consequence or the Spin (moderate) consequence if the attack reached her Shock threshold.

## Lingering Injury

In addition to carefully executed maneuvers, such as disarms or grapples, some attacks gain their staying power through sheer chance and bloody injury. When this critical effect is selected, the GM draws a card. The GM should then look up the injurious effect for the card on the tables found on the next few pages, and apply the effect to the target. Depending on the nature of the attack and the surrounding environment, some results may require a bit of creative interpretation. Use common sense.

Unless specified otherwise, all effects applied below are special Lingering Injury consequences with a severity and duration as described in the text. Many durations last until minor surgery, major surgery or regrowth therapy (see page 119).

## Vital Hit

A vital hit has struck some particularly vital part of the target's anatomy, such as the head or near important organs. Double the damage rating dealt by the attack. This has no effect on the damage's severity, but severity may still be staged up when compared to the target's Shock threshold, as normal. This critical effect may only be chosen for attacks that normally deal damage.

| ♠ | Injury (Spades) |
|---|---|
| Ace | **Winded**: The blow knocks the wind out of the character. She gains 1 fewer AP next round. *Severity:* Light. *Duration:* Until the end of the next round. |
| 2 | **Numb Arm:** The attack glances off one of the character's arms, leaving it numb and tingly. Actions made with that arm next round are at a -2 penalty. *Severity:* Light. *Duration:* Until the end of the next round. |
| 3 | **Momentarily Blinded**: Light from the attack or a blow to the head leaves the character blinded next round. *Severity:* Light. *Duration:* Until the end of the next round. |
| 4 | **Stumble Backward**: The shock of the blast sends the character stumbling backward a couple meters. This increases the target's Spin consequence a severity. |
| 5 | **Bloody Gash**: The attack has opened up a bloody gash in the character's body, ripping away skin and exposing the flesh underneath. It bleeds profusely. This increases the target's Bleeding consequence a severity. |
| 6 | **Concussive Blow**: The blow just glances off the target's head, cutting a nasty wound and leaving her dazed. This increases the target's Dazed consequence two severities. |
| 7 | **Exhausted**: The attack has left the character pained and exhausted, unable to carry on with the vigor she was able to muster before. This increases the target's Fatigue consequence a severity. |
| 8 | **Broken Rib**: The attack slams into the character's ribs with a sickening crunching sound. At least one of her ribs snaps, leaving her in nauseating pain. She takes a -2 penalty to all Strength actions. *Severity:* Severe. *Duration:* Until minor surgery to fix. |
| 9 | **Broken Nose**: The blow slams into the character's face, snapping her nose and smearing blood down her front. She takes a -2 penalty to Charisma actions. *Severity:* Severe. *Duration:* Until minor surgery to fix. |
| 10 | **Herniating Entrails**: The attack tears open the target's abdomen, allowing her entrails to bulge out. Needless to say, the pain is considerable. She takes a -2 penalty to all Endurance actions. *Severity:* Severe. *Duration:* Until minor surgery to fix. |
| Jack | **One-armed**: The blow tears away the target's arm like pulled pork from the bone, leaving the limb twisted, ruined and several meters away. You will never enjoy your natural arm again—at least not in a functional state. *Severity:* Critical. *Duration:* Until arm replacement or regrowth treatment. |
| Queen | **One-legged**: The attack literally twists the character's leg away from her body, cracking bone and ripping sinew. She falls down, her ruined leg trapped beneath her. She will never walk on it again, although with major surgery she may still gain a new one. *Severity:* Critical. *Duration:* Until leg replacement or regrowth treatment. |
| King | **Makeshift Lobotomy**: The attack rips the character's skull asunder, tearing away gaping chunks of bone and some precious brain-meats. At least one of her eyes is dangling by a thread from the bleeding mass of flesh that was once her face. This gives it a -4 penalty on all social actions, as well as a -4 penalty on all sensory actions. Short of major surgery, your face will forever be a monstrous ruin. *Severity:* Critical. *Duration:* Until major surgery to fix. |
| Joker | Draw two cards and the attacker takes her choice of the two results. |

| ♥ | Injury (Hearts) |
|---|---|
| Ace | **Wobbly Leg**: The attack glances off one of the character's knees, leaving the leg wobbly and numb. Actions made with that leg next round are at a -2 penalty, and the distance of movement is halved. *Severity:* Light. *Duration:* Until the end of the next round. |
| 2 | **Jolt of Pain**: The attack sends a jolt of pain throughout the character's body, stunning her momentarily and leaving her unable to act. This increases the target's Stun consequence a severity. |
| 3 | **Distraction**: The pain of attack causes the character to lose focus. Any wait reaction she has active is immediately lost. |
| 4 | **Dazing Strike**: The sudden attack leaves the character hit and a bit dazed from the pain. This increases the target's Dazed consequence a severity. |
| 5 | **Face Down**: The force of the blow sends the character reeling, slamming her face-first into the ground. This increases the target's Spin consequence two severities. |
| 6 | **Stunning**: There was something about that attack the character wasn't expecting, and it's left her stunned and reevaluating the situation. This increases the target's Stun consequence two severities. |
| 7 | **Broken Toes**: The attack blows into the character's foot, crushing her toes and snapping bones with sickening pops. She has a -1 penalty to Speed actions and half her movement. *Severity:* Moderate. *Duration:* Until minor surgery to fix. |
| 8 | **Twisted Back**: The character twists with the blow, spraining her back with a worrying crunching sound as the attack rips into her. She takes a -2 penalty to all Dexterity actions. *Severity:* Severe. *Duration:* Until minor surgery to fix. |
| 9 | **Split Skull**: The blow cracks the character's skull, causing bleeding, swelling and a terrible headache. She takes a -2 penalty to all Intelligence actions. *Severity:* Severe. *Duration:* Until minor surgery to fix. |
| 10 | **Broken Foot**: The blow crumples the character's foot like wet paper, leaving it a broken lump. She has a -2 penalty to Speed actions and half her movement. *Severity:* Severe. *Duration:* Until major surgery to fix. |
| Jack | **Trauma Response**: The character's mental response to the attack leaves her with the sense that she is trapped in a dream. This increases the target's Dazed (critical) consequence. |
| Queen | **Concussion**: The attack tears through the character, sending waves and shock and pain throughout her body, as your head reels, trying to cope with the wounds. This increases the target's the Stun (critical) consequence. |
| King | **Mortal Wound**: The attack ripped through the character's guts, rending vital organs and major arteries into useless bloody giblets. While the target is not dead yet, saving her is beyond the ability of modern medicine. Starting next round and every round thereafter, the character should, draw a card at the end of her turn. If it's a joker, she has finally bled out. *Severity:* Critical. *Duration:* Until death. |
| Joker | Draw two cards and the attacker takes her choice of the two results. |

| ♦ | Injury (Diamonds) |
|---|---|
| Ace | **Faint**: There is a wave of pain and nausea from the wound, leaving the character feeling faint. She takes a -1 penalty to all Strength actions. *Severity:* Light. *Duration:* Until the end of next round. |
| 2 | **Headache**: Blood loss, exhaustion or damage to the character's nerves leaves her with a momentary splitting headache. She takes a -1 penalty to all Intelligence actions. *Severity:* Light. *Duration:* Until the end of next round. |
| 3 | **Bloody Face**: The force of the blow causes the character's face to be struck, leaving a bloody smear across her nose and mouth. She takes a -1 penalty to all Charisma actions. *Severity:* Light. *Duration:* Until the end of next round. |
| 4 | **Shock**: Dealing with bodily injury has left her system in a state of shock. She takes a -1 penalty to all Endurance actions. *Severity:* Light. *Duration:* Until the end of next round. |
| 5 | **Vital Hit**: The hit has struck some particularly vital part of the character's anatomy. Double the damage rating dealt by the attack, just as with the Vital Hit critical effect (see page 130). |
| 6 | **Distraction**: The pain of attack causes the character to lose focus. Any wait reaction she has active is immediately lost. |
| 7 | **Secondary Wound**: The attack lands upon the character's body twice, leaving a secondary wound in her flesh. The target gains a Wound (light) consequence in addition to the normal wound. |
| 8 | **Thunderstruck**: The blow lands on the character's head, sending her vision spinning and her ears ringing. She takes a -2 penalty to all Perception actions. *Severity:* Severe. *Duration:* Until minor surgery to fix. |
| 9 | **Shell-shocked**: The attack connects with the character's head, leaving her in a vulnerable state of shock. She takes a -2 penalty to all Determination actions. *Severity:* Severe. *Duration:* Until minor surgery to fix. |
| 10 | **Broken Fingers**: The attack squarely strikes the character's hand and she feels one or more of her fingers break. She drops anything she is holding in that hand, and her mangled fingers are at unnatural angles. She has a -2 penalty on actions involving that hand. *Severity:* Severe. *Duration:* Until minor surgery to fix. |
| Jack | **Gushing Blood**: The character's body is ripped asunder as her bodily fluids pour out like a wave. This increases the target's Bleeding consequence three severities. |
| Queen | **Crushed Hand**: The attack crushes the character's hand, twisting it in ways it was not meant to bend. Bones are broken and it's left a bloody mess. She cannot use that hand until it is healed. *Severity:* Critical. *Duration:* Until major surgery to fix. |
| King | **Spinal Break**: The character's spine cracks and slightly fractures, causing her to fall prone. She may not stand up or take move actions until the injury heals. *Severity:* Critical. *Duration:* Until major surgery to fix. |
| Joker | Draw two cards and the attacker takes her choice of the two results. |

| ♣ | Injury (Clubs) |
|---|---|
| Ace | **Spasm**: The pain of the target's wounds sends spasms throughout her body. She takes a -1 penalty to all Dexterity actions. *Severity:* Light. *Duration:* Until the end of the next round. |
| 2 | **Sluggish**: The shock of the attack ripples throughout the character's nervous system, momentarily affecting her reaction time. She takes a -1 penalty to all Speed actions. *Severity:* Light. *Duration:* Until the end of next round. |
| 3 | **Seeing Stars**: The force of the attack whips your head backward, leaving your senses reeling. She takes a -1 penalty to all Perception actions. *Severity:* Light. *Duration:* Until the end of the next round. |
| 4 | **Guard Down**: The will to survive momentarily saps the character's willpower in other areas. She takes a -1 penalty to all Determination actions. *Severity:* Light. *Duration:* Until the end of the next round. |
| 5 | **Disarmed**: The attack hits the arm holding the weapon, causing the character to drop it, just as with the Disarm critical effect (see pages 128 and 130). |
| 6 | **Accidental Discharge**: The blow forces the player character's hand to twitch and causes her weapon to discharge. If it's a melee weapon, the player draws a card and deals herself damage based on its suit. If it's a ranged weapon, it hits the nearest ally. |
| 7 | **Lost Opportunity**: The pain hinders the character's ability to perform. If she has an unspent AP, she immediately loses one. Otherwise, if the player has an action declared, she must cancel one of her choice. |
| 8 | **Overwhelmed**: The violence around the character and pain in her system overwhelms her mental faculties. This increases the target's Stun consequence three severities. |
| 9 | **Debilitated**: Every wound makes it harder to go on, sapping the character's strength and vigor. This increases the target's Fatigue consequence two severities. |
| 10 | **Makeshift Phlebotomy**: The wound leaves the character losing blood—a lot of it. It's so very red, and there's so very much of it. This increases the target's Bleeding consequence two severities. |
| Jack | **Popped Eye**: The attack splatters one of the character's eyes, which is smeared down her face like some sort of jam. Additionally, the attack does quite a number on the rest of her head as well. This gives a -2 penalty to all mental actions. *Severity:* Critical. *Duration:* Until replacement or regrowth therapy. |
| Queen | **Snapped Arm**: The attack snaps the character's arm like a twig and now it hangs lifeless at her side. No actions can be performed with the arm until it heals, and all two-handed actions are at -4. *Severity:* Critical. *Duration:* Until major surgery to fix. |
| King | **Shattered Leg**: The attack shatters the character's leg, snapping it in several locations and rendering it useless until healed. This prevents her from walking, rending most move actions ineffective *Severity:* Critical. *Duration:* Until major surgery to fix. |
| Joker | Draw two cards and the attacker takes her choice of the two results. |

# Combat Example

Alice and Bob are being attacked by a gang member hopped up on an experimental drug that causes him to enter into a berserk bloodlust. The two are being jumped in an alleyway in Chi Chen, after the gang member has leapt out of a second floor window. The GM has already ruled that both Alice and Bob have been surprised. This has caused them to begin this first round with only 2 AP instead of the normal 3 AP. They are each 5m from the thug.

*Declaration Phase:* Alice notes that she is going to draw her gun in Phase 1, leaving her with 1 remaining AP to use for reactions. Bob is going to be more aggressive, and notes that he draws his knife in Phase 2. This uses all of his AP. Neither player could declare an action in Phase 3, due to not having enough AP this round. Meanwhile, the GM has declared that the thug is going to charge Alice in Phase 2 and try to rip her apart with his bare hands in Phase 1. This will take all the thug's AP. All of these declarations are decided in secret and then revealed simultaneously.

*Phase 3:* No actions are executed in this phase, as none were declared.

*Phase 2:* In this phase the thugs charges Alice, and Bob draws his knife. The thug and Alice and now in melee range with each other. The GM can resolve these actions in whatever order she wishes, but they occur in the game world simultaneously.

*Phase 1:* In this phase the thug will try to rip Alice to pieces, as she meanwhile she draws her gun. The GM makes a Dex/melee flip for the thug, getting a total of 10. This is compared to Alice's Defense of 8/16, making it a hit, but not a critical hit. Since Alice has an AP remaining, she chooses to spend it for a dodge reaction. As this attack is happening in melee range, she can choose to add her Melee skill to her Defense. Since Alice has Melee 3, this increases her Defense to 11/19 for this attack. Due to the dodge, a 10 is no longer good enough to hit. The thug's attack misses.

*New Round:* As the second round begins, all three combatants go back up to 3 AP. It is now time for the next declaration phase to begin.
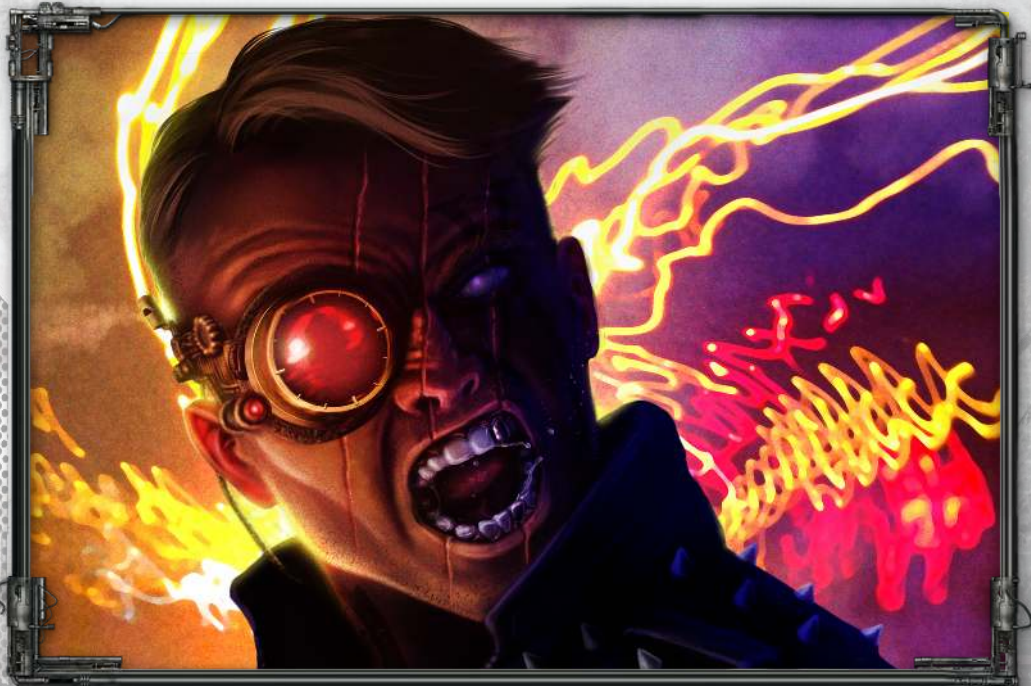
# Computing

Computing is a fact of life for most in the twenty-third century. Computers are all around, from hand terminals to ships' systems. This section includes a variety of systems for handling computers, from processing power and software, to networks, hacking and simspaces.

## Computer Rating

Computers have a lot of different specifications and metrics of capability—central processing power, memory, storage, bus speed, graphical processing and bandwidth. Rather than tracking all of these metrics individually, these metrics are abstracted into a single computer rating in *Shadows Over Sol*. This rating is typically written as "Computer 6," and has a scale very similar to a character's stats.

Computer 5 is the rating of the average dedicated twenty-third century workstation computer. Computers of lesser ratings are found in all sorts of things, such as hand terminals, household appliances, wearable accessories and embedded chips. Computers of greater ratings are typically larger mainframes, such as powerful net servers, a ship's main computer, or corp supercomputers.

This scale is exponential. Computer 2 is twice as capable as Computer 1, and a Computer 3 device has twice the power of a Computer 2, etc.

## Software Rating

Computers themselves are useful for very little without the right software. Different software, however, comes with different processing and other technical requirements. As with a computer's rating, all of a piece of software's requirements are abstracted into a software rating. This is written as "Software 5."

Due to technical requirements, a piece of software can only be run on a computer with at least a similar rating. So, for example, a Software 4 program could not run on a Computer 3 machine. Similarly, when running, a piece of software will occupy all the resources of an equally rated computer. This means, for example, that a Computer 7 can only run a single Software 7 program at one time.

Like computer ratings, software ratings are an exponential scale. A Software 2 program requires roughly twice as many resources as a Software 1 program, etc. It also means a Computer 5 machine can run two Software 4 programs simultaneously, four Software 3 programs, eight Software 2 programs, etc.

## Networks

When two or more computers are connected so they can share data, they form a network. Networked computers are essential to life in the twenty-third century because they enable all manner of communication and automation.

When most people think of networks, they think of the public network or the Net. This is the generally available network of connected computers used in everything from shopping to searches, and general background checks.

The public net is not the only network in existence, however. Almost all corps have their own private networks, as does most any organization that needs to worry about security or secrecy.

Giving a computer access to only a private network increases security. Since computers can only be electronically accessed by other computers on the same network, having a private network means that a hacker cannot just sit on the public net and hack whatever she wants—she first needs access to a machine on the private network, which likely means having to physically obtain and compromise one.

On the flip side, restricting a computer to a private network also limits its capabilities to what's available on that network. It can't do a search of the public net, access records that aren't stored on the private network or do anything else external to those few machines in the private net.
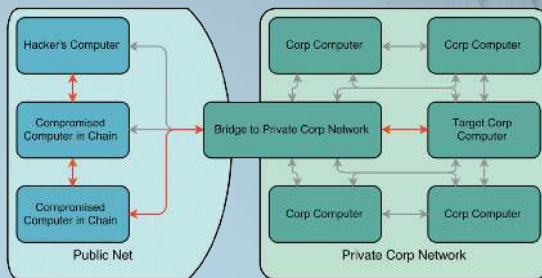
### Bridges

Sometimes a computer is connected to more than one network. Such a computer is called a bridge. This allows access to resources on all the connected networks, but it comes

# Example Network Map

- In the map below there are two networks: the public net and a corp's private network.
- All computers on the corp's private network must connect to the public net through the bridge. Similarly, all computers on the public net trying to access data on the corp's private network must also connect through the bridge.
- In this example, the hacker is at-



tempting to access a target computer on the corp's network. This is indicated by the red lines.
- The hacker is chaining through two computers on the public net that she has already compromised before trying to access the corp's bridge. This gives a -4 penalty to all hacking attempts at the bridge (-2 per chained computer). It also means that if the hacker's connection is traced, it will be traced back to each compromised computer in the chain before being traced back to the hacker herself.
- Because the target computer has no direct access to the public net, the bridge must first be hacked before it can be targeted and is added to the chain. When the target is eventually accessed, this will be at a -6 penalty unless the hacker drops one or more nodes in the chain.

at the cost of security. Since a bridge connects to two or more networks, a hacker who has compromised the bridge can use it to access the other network. For this reason, computer security types typically strictly disallow bridges. In practice, bridges tend to crop up with some frequency, however. Imagine the case of the bored corp security guard who connects to the public net against regulations so she can pass the uneventful hours watching videos on her hand terminal.

## Network Map

When thinking about computer networks, it's generally a good idea to draw a network map. This is simply a diagram showing which computers are connected to which networks. Keeping track of this can be important for characters who are prone to hacking.

The map of a single network is conceptually simple—every computer on the network is connected to every other computer on the same network. Drawn out, this will look like a single node with connections to all the computers on the same net. Occasionally, where bridges exist,

a single computer may be connected to two or more networks.

When performing hacking, it may be a good idea to mark on this map which systems the hacker has compromised, as well as the access level obtained on the machine (see page 139).

## Hacking & Security

Computer hacking is the act of exploiting weaknesses in a computer system to gain access to the device, regardless of the permissions granted by the device's administrator. To achieve this, the hacker must either connect from a computer on the same network or physically access the device.

Computer security, on the other hand, is concerned with limiting these exploits, or proactively disabling the access that has already been granted to hackers.

## The Hacking Action

Despite what one might see on the vids, computer hacking is rarely a quick process. It involves tediously running down a list and trying possible exploit after possible exploit

until eventually something gets through the computer's security.

Mechanically, hacking is an extended Int/program action—sometimes opposed by an active security administrator and sometimes running up only against the machine's built in security measures. The action typically has an Interval of 1 hour and Tally 10, although this can be adjusted up or down by the GM depending on the number of security measures in place. The TN of the action depends on the quality of the machine's security. See the table below:

| TN | Security |
| --- | --- |
| TN 8 | Basic unprotected machine |
| TN 10 | Machine with basic security software |
| TN 12 | Machine with pro security software |
| TN 14 | Machine with deluxe security software |
| TN 16 | Machine with best passive security money can buy |

*Example:* Joann has just secured a connection to a machine she wants to hack. The GM evaluates the security of the machine and determines the hacking action will be Int/program-12 (1 hour, Tally 10). On her first flip, Joann gets a total of 15. She counts 3 Mag towards the tally, and an hour passes. On her second flip, however, she only gets a total of 11. Not only does she make no progress in the hacking attempt, but her failure also alerts the computer's administrator, who may oppose her on future flips as she continues to hack.

## Network Security

When the hacker first makes flips for this extended action, the computer administrator typically is unaware a hacking attempt is in progress. This means the action is unopposed. Should the hacker fail any single flip in the hacking action, however, the resulting security alert will make the administrator aware a hacking attempt is in progress. From this point forward, the administrator can make her own Int/program flips in opposition—that is, the extended action becomes opposed. The computer's security software typically helps with this, acting as

secondary in a group action. This works exactly like an Expert System (see page 192).

Should the hacker succeed the opposed flip, she generates more Mag towards the Tally, and thus towards eventually hacking the machine. On the other hand, should the admin succeed, she may either reduce the hacker's accumulated Mag by her own Mag on this flip or she may trace the connection (see below).

## Tracing Connections

During a hacking attempt (or even a legitimate connection attempt), the administrator of a machine may try to trace the connection. During a legitimate connection, this is a simple Int/program-10 action. During a hacking attempt, the connection may be traced if the admin succeeds on a flip during the hacking extended action.

When a connection is traced, the tracer knows which machine is performing the connection, as well as its electronic address and general geographical region, such as Stillwater, Miskan Station, Abu Dhabi, etc.

Tracing a connection allows the admin to make her own attempt to compromise the other system or to block connections from it.

## Chaining

Hackers don't usually like to be traced. A common defense against this is to compromise a remote computer, and then use it to make the hacking attempt. This is called chaining.

The benefit of this is if the connection is traced, it is traced to the intermediate computer. It then takes a second successful trace to track the connection back from the intermediate computer to the hacker's own machine. The goal is that the hacking attempt will be complete by the time the connection is traced all the way back. Connections are sometimes chained several computers deep, using one machine to connect to another, then to another, then to another, before finally connecting to the machine to be hacked.

The downside of chaining is that working through so many remote connections makes the hacking attempt more difficult. For every

system between the hacker and the target machine, the hacking attempt is at a -2 penalty.

The other downside is that when a security admin tracks a connection back to an intermediate machine, she may tip the admin of the intermediate machine off that it's been compromised. This can end the hacker's access to it in the future.

## Access Level

Access to a computer system comes in two different levels of authorization: user and root. A character with user access to a system is restricted in the commands she can execute. The specifics of this varies, but typically it means she can do anything except the following:

Change the permissions of other users on the machine

Read, write to or erase private data belonging to root or other users

Override security measures or other critical systems (environmental security measures typically require an actual physical override)

A character with root access to a machine, on the other hand, can do anything that doesn't require a physical override (which usually includes only operations posing an immediate environmental safety hazard).

When a hacker first compromises a machine, she has user access. Since she has access to the machine, she can always connect to adjacent systems on the network map. If user access is not enough, she may perform a second hacking attempt on the same machine to upgrade her access from user to root.

The legit owner of a machine typically has root access.

## Encryption

All radio transmissions, many types of network connections and numerous communication systems work by broadcasting their content out to the world. If the broadcaster wants the content to remain private, she can encrypt the data. This is done every minute of every day with financial transactions, private

communiques and conspiratorial secrets the system over. It's how the world works.

The open secret of encryption is that given enough time and enough processing power, any encryption—no matter how advanced—can be broken. Having decent encryption simply means the time and compute power required to break it are infeasible on a practical scale. If it takes a century of super-compute time to break a code, few people are going to try.

## Public & Private Keys

Encrypted broadcasts make the world go around. These encryption schemes typically consist of two software components: a public key and a private key. Public keys are used to encrypt a broadcast and are generally made publicly available. Private keys, on the other hand, are used to decrypt the same broadcast and are kept very secret. This means anyone wanting to send an encrypted message can use a public key to encrypt it, and then—assuming the private key is kept secret—only those who have it can decode it. Should the private key be compromised, any message encoded with the associated public key can also be decoded by the compromiser. At this point, one would be well advised to create a new pair of public and private keys, and then re-encrypt the old data.

## System Design: Encryption

Often roleplaying games are designed in such a way that while hackers go off to do their hacking, the other players are left sitting and waiting. The encryption system in *Shadows Over Sol* is designed to help alleviate this problem.

The key to defeating encryption in a timely manner is the acquisition of exploits. Exploits can be insight into the user of the computer being hacked, technical knowledge of the system, corp protocols surrounding computer use or anything else that might glean useful information. Exploits are designed so the entire party can pursue them, eventually decreasing the time it takes to break the encryption down to a reasonable amount.

### Brute Force

The most simple way to break encryption is by "brute force." With this method, the attacker simply puts her computing power to work trying to compute a message's private key from its public key and it's cyphertext (the actual encrypted message).

The good part about this method is it's simple, requiring only a successful Int/program-10 action and enough compute time. The bad part about this method is the compute time involved is usually impractical. Refer to the table below:

| Encryption Quality | Base Compute Time |
|---|---|
| * | 1 day |
| * | Month |
| Basic | Year |
| Pro | Decade |
| Deluxe | Century |
| Ultimate | Millennium |

* Obtained through exploits only.

The good news is that with enough computing power, these times can be cut down significantly. A hacker with a dozen compro-

mised computers at her disposal can set them all to doing the computations necessary to break the encryption, completing it in a fraction of the time above.

To determine the actual compute time, the GM simply adds together the computer ratings for all the machines the hacker has at her disposal, and then divides the base time by this amount. For example, a hacker with a single Computer 5 system could brute force Pro encryption in 1/5th the usual time, or in about 2 years. If she has two Computer 5 systems, she could brute force the encryption in 1/10th the usual time, or about 1 year.

### Exploits

Even with lots of computing power, the brute force method of breaking encryption may still take too long. That's why most hackers trying to break encryption instead look for an exploit—some clue allowing them to skip most of the computing involved.

Exploits can be gained by hacking into the system holding the private key, gaining insight into how the user secures her computer or sweet-talking her into revealing crucial information. Gaining an exploit need not involve the hacker herself; she can put her companions to work questioning the user, investigating the corp using the encryption, etc.

For every exploit gained, the effective quality of the encryption decreases a category, as its use has been compromised. For example, basic encryption with two associated exploits would have a base compute time of 1 day. Apply a Computer 5 system and the encryption can be broken in just under 5 hours!

## Simspaces

The net is awash in virtual spaces, where users with the correct hardware can connect and partake in a virtual world. With the advent of augmented reality (AR) glasses and AR implants, these simspaces can even exist as overlays set against the real world.

### Virtual Realms

Some simspaces are entirely virtual realms, complete with virtual rules, landscapes and characters. These vary widely and can be either as down-to-earth or as fanciful as the designer wishes. Many of these realms are public and welcome all comers; others are private and access to them is restricted to only select clientele. Private virtual realms are a favorite meeting place for many shady or illicit deals due to their anonymity, combined with the ability to create virtual demonstrations.

Virtual realms can be hacked but usually require the hacker to have her senses in the real world.

### Augmented Reality Tagging

Augmented reality tags are text, images or other bits of information that overlay the real world when looked at through AR glasses or with an AR implant. AR tags frequently convey information the viewer might find useful, such as an item's technical specs, the name of a person being viewed or helpful links to more information about a particular place. Sometimes tags are used to convey editorial content such as reviews of a contact or store. They can also be used to post advertisements or "I was here" scrawlings, sort of like AR graffiti.

Not all AR tags are created equal. When an AR user creates a tag, she posts it to a particular tag cloud. When a user views tags, she typically turns on or off by turning on or off viewing that cloud.

There exist both public and private tag clouds. Public clouds are available for anyone to view. Often they're also such that anyone can post new tags. Others can be viewed publicly, but who can actually posts tags is restricted, or tags are curated. Still other tag clouds are private clouds, and can only be accessed if hacked or if a user is issued an invite.

Posting a tag requires a computer—usually a hand terminal. The user then selects what she is tagging and leaves some content. Tags typically record the time at which they were posted as well as the virtual identity of the poster. A few rare clouds also allow anonymous tags, although these clouds are prone to tag spam.

Every subculture has its own public tag cloud—some, such as the Serv subculture, have many! This is just one more way that the various subcultures view the world differently. In this case they're quite literally viewing different content.

Most corps have their own private tag clouds, used to tag employees by position, tag unwanted guests and to tag corp equipment for tracking.

Most users only view one tag cloud at a time. This prevents all the tags from the various clouds from adding up becoming a haze, hindering one's vision. For every tag cloud turned up past the first, the viewer may suffer a -1 penalty to all Perception actions. On the other hand, she can see what different clouds say about different things at once.

# Engineering

Engineering new systems or devices is a common trope of science fiction. On the other hand, improvising with what's at hand—sometimes with disastrously bloody side effects—is a common theme in horror. This system attempts to unite these two genre components.

This needs not be mechanical engineering. This system is intended to work for bioengineering, electrical engineering, computer programming and mechanical engineering equally. All this changes are the skills involved and plausible side effects from bugs.

## Overview

At its most basic level, engineering is a special extended action (see page 111). As with other extended actions, it has a TN, an interval and a tally. Unlike other extended actions, however, the relevant skill will change between different stages in the engineering process. Each flip will also have an associated cost rating and the possibly to introduce bugs into the final design.

No matter the type of engineering involved, the process will always have at least two intervals—the concept and then the prototype. Depending on the aim of the engineering, it may then have up to two more intervals—both doing quality control (QC).

## Defining Parameters

The first thing the GM needs to do is determine the parameters of the extended action, including TN, interval, tally, cost and the skills involved. To begin, the player should explain to the GM what she is trying to achieve in a few sentences. The GM should then go through the following steps.

### Target Number

Some concepts are going to be more complex than others. This complexity will set the TN of the extended action. Some example engineering concepts and their complexities are given in the table below. The GM should use these as benchmarks when determining the complexity of the character's concept.

| TN | Concepts |
|---|---|
| TN 8 | Wench and pulley system; Custom stasis pod controls |
| TN 10 | Lipstick concealing laser; Designer firearm; Net stalking software; Space navigation system |
| TN 12 | Bioengineered plague; Murderbot; Upgraded spaceship engine; Currency exchange software |
| TN 14 | Bioengineered pet; Novel brain surgery |

**Define Parameters**

TN based on complexity of concept.

Cost Rating is equal to half the TN.

Interval is about half the amount of time the GM expects it to take on average.

Tally is always 10.

Pick one concept skill and one prototype skill.

**Concept**

Make flip based off of Intelligence and the concept skill. Count the Mag towards the Tally.

**Prototype**

Make flip based off of a sensible stat and the prototype skill. Count the Mag towards the Tally.

**Bugs**

If the total Mag doesn't meet the Tally, the GM secretly assigns severities of bugs for each point below the Tally.

**Quality Control**

Optional step: Can spend additional interval's time and cost to remove bugs.

*Example:* Wilma is trying to create a piece of custom software that will perform various genomic analyses on a novel life form her team has encountered. The GM decides that the analyses are fairly straightforward, but the unusualness of the life form makes it more complicated than it would otherwise be. It merits a TN 10 extended action.

## Cost Rating

Beginning with the prototype stage, every flip in the engineering process will have an associated cost rating. This is normally equal to half the TN. For example, a TN 12 engineering project will have an associated Cost 6 for the prototype flip and possibly the QC steps, if they're involved. This expense must be paid before the flip can be performed. If the character cannot pay, then she must abandon that step of the engineering project due to lack of funds.

This assumes, however, the character has access to an open market and is paying out of pocket. Sometimes a character will either already have part of the design or components or will be constrained to using only the components she has at hand.

**Preexisting Design or Components:** Having part of the design or components already will reduce the associated cost for the concept or prototype steps, respectively. How much it reduces the cost is up to the GM and based on how much extra work remains.

**Constrained Components:** Being constrained in the components that can be used will decrease the cost rating at the expense of increasing the TN. For every point the cost is lowered, the TN increases a point. This means if the character literally can't purchase anything for the design, the entirety of the cost will be added to the TN. For example, a "TN 12, Cost 6" design would become "TN 18, Cost 0."

*Example:* Since the action is TN 10, normally this would call for Cost 5 payments. However, since Wilma already owns some genetic processing software, she can leverage it in her program. The GM decides that this will halve her costs, reducing them to Cost 4. These costs will go to paying the licensing fees for the software libraries she will be using in her program.

## Interval

The interval of the extended action will need to be something of a ballpark estimate. The GM should come up with an estimate for roughly how long she thinks designing and building a prototype of an engineering project should take and then make the interval half that—after all, every engineering project will take at least two intervals.

A variety of example engineering projects and their associated intervals are listed below. The GM can use these as a benchmark when coming up with her own estimates.

| Interval | Concepts |
|----------|----------|
| 1 hour | Lipstick concealing laser; Custom stasis pod controls; Wench and pulley system |
| 1 day | Designer firearm; Net stalking software; Novel brain surgery |
| 1 week | Murderbot; Currency exchange software; Space navigation system |
| 1 month | Bioengineered pet; Upgraded spaceship engine; Bioengineered plague |

**Rush Jobs:** There are times when a player will want to do a rush job, reducing the time it takes to engineer. This will decrease the interval but at the cost of increasing the TN. First determine how much the player wants to cut the interval by and then add this to the TN. For example, if a player wants to cut the interval in half, the TN would be at +2. On the other hand, is she wants to engineer in a quarter of the time, she would add +4 to the TN. Reducing the time to a tenth would increase the TN by 10!

*Example:* The GM thinks about it and decides that writing a program of this sort would take about a week, so she decides that the interval is 3 days. Wilma wants her program completed faster, however. She decides that she wants to cut this time in half. This will add +2 to action's TN, increasing it to TN 12.

| Project | Concept Skill | Prototype Skill |
|---|---|---|
| Currency exchange software | Broker | Program |
| Murderbot | Engineer | Mechanic |
| Novel brain surgery | Bio-Sci | Medic |
| Space navigation system | Phy-Sci | Mechanic |

## Tally

This step is relatively easy. Unless an engineering project has some particular twist making it more or less bug-prone, engineering projects are always Tally 10.

*Example:* The GM decides that Wilma's software engineering attempt is pretty typical, so the usual Tally 10 will suffice.

## Skills

The final parameter for the GM to define is to pick the skills involved with the extended action. Unlike most extended actions, an engineering project will always involve at least two skills: one for the concept and one for the prototype.

For a concept flip, the skill involved should be a conceptual or academic skill rather than an applied skill. Suggested skills include Bio-Sci, Engineering, Lib-Arts and Phy-Sci. On the other hand, for the prototype flip an applied skill is called for. Suggested skills for this include Comp-Ops, Mechanic, Medic and Program.

For some example engineering projects and skill pairings, refer to the table above.

*Example:* The GM thinks about it and decides that writing a program of a bioinformatic nature requires Bio-Sci conceptually. Actually constructing the prototype, however, is going to mean writing a lot of code, which requires the Program skill.

## Concept

The first step a character performs in any engineering project is to design the initial concept. This is not just gathering the high-level ideas, but vetting the conceptual technical details as well.

The concept step typically forms the first flip of the engineering extended action, and is usually based off Intelligence and the relevant conceptual skill—for example, Int/bio-sci. This also is usually the only flip in the engineering process without an associated cost rating, although the character still needs appropriate equipment (typically a computer to do calculations and store the designs, although paper and pencils might suffice as well).

On a success, the character moves to the prototype step. On a failure, however, she isn't able to come up with a working design. She may conceivably try again. Either way, the interval passes, and the character may run out of time.

If by some incredible chance enough Mag is achieved by this flip to meet the tally, the extended action is still not a success—a prototype is not built from thought alone! If this happens, the character must still make the prototype flip in the next step, but she only needs a basic success to pull it off.

*Example:* Wilma is trying to do the initial design for her novel genetic analysis program. This is an Int/bio-sci-12 action. She makes the flip and gets a 14, which means she succeeds with Mag 2. This counts towards the Tally 10.

## Prototype

Now that the design is complete, it's time to build the initial prototype. Before this can happen, the character must first pay the cost rating. If she is unable to do this, the engineering project stalls due to lack of funds. Provided she pays, she can then make the prototype flip.

This flip is typically based off the applied skill and an appropriate stat for what it means to build the prototype—physically constructing a machine may be Dexterity, watching a lot of medical displays may be Perception, tediously stepping through a debug console may be Determination, etc.

On a success, the Mag applies towards the tally. If the tally has been fully met, the prototype now works perfectly. The engineering is done!

If this flip was a success, but the tally hasn't been fully met, the GM should skip to the bugs section below. The device will likely work, but there may be serious errors or side effects.

If this flip wasn't a success, then the prototype was a failure. Not only was the time for the interval wasted, but the money for the cost was as well. The character may be able to retry building the prototype, but this will mean spending more time and paying the cost for the prototype step again.

*Example:* Wilma begins coding her program. This is a Det/program-12 action, and she succeeds with Mag 4. This adds to the Mag 2 from the concept step, for a total of Mag 6. Her program works, but there will be bugs.

## Bugs

Anytime the tally hasn't been fully met at the end of the prototype step there will be bugs in the project. Bugs are a sort of consequence on the project. Every bug has a severity and an effect. The GM should note how many points the Mag is below the Tally and secretly decide the nature of the bugs involved. There will be a number of severities of bugs equal to the difference between the Mag and Tally. For example, if the Tally is 10 and the Mag 6, there would be four severities of bugs—possibly two moderate bugs, a light bug and a severe bug, a single critical bug, etc.

Some example bugs and their severities are listed below. The GM can use these as a benchmark when coming up with her own bugs.

*Example:* Wilma's program had Mag 6 and Tally 10. This means somewhere in her program are four severities worth of bugs. The GM thinks about this and secretly notes two moderate bugs: the program will fail to detect the novel life form's DNA barcode marking it as a Jenseitech design, and to run it will require a computer rating two higher than it otherwise should.

## Quality Control (QC)

At this point, the prototype is complete but it may have bugs. Characters with more time and money to spend on the project may want to spend effort doing quality control (QC). This is an optional step, but it can get rid of the bugs.

Characters who opt to do QC must spend the time for another interval and pay the cost rating again. The QC step can be performed up to twice—once reviewing the design and once reviewing the prototype. The character picks which she wants to perform first.

Reviewing the design and prototype uses the same skills they used before, respectively, although they are usually based off Determination. QC can be a tedious process. The player makes the QC flip and this will generate more Mag towards the tally. The GM then removes an equal number of severities in bugs or reduces the severities of the bugs in question.

*Example:* Wilma decides to do one round of QC, and she decides to review the design. This uses her Determination and the Bio-Sci skill, since that was the skill from the concept stage. She makes the Det/bio-sci-12 flip and succeeds with Mag 3. The GM will need to remove three severities of bugs. He decides to remove the bug requiring a higher computer rating and reduces the other bug to light—now her program will detect the DNA barcode, but won't recognize it as belonging to Jenseitech.

| Project | Bug | Severity |
|---|---|---|
| Custom stasis pod controls | Worse stasis sickness upon waking | Light |
| Bioengineered pet | Undesirable cosmetic traits | Light |
| Novel brain surgery | Minor but noticeable personality changes | Moderate |
| Currency exchange software | Poor exchange rates | Moderate |
| Designer firearm | Half usual damage rating | Severe |
| Net stalking software | Leaves easily traceable digital trail to the character | Severe |
| Lipstick concealing laser | Explodes at end of first use | Critical |
| Murderbot | Will try to slay its creator | Critical |

# Stasis

Stasis is a form of medically-induced hibernation used to transport people on long space flights, and it sometimes is a punishment for crimes. People in stasis are cheaper to transport because they require less life support. They also age slower and are less likely to suffer from psychological conditions, such as cabin fever during space flight.

Nevertheless, stasis is not without its own risks. Passengers in stasis are putting their lives in the hands of the stasis pod and the stasis technician putting them under. These coming out of stasis also regularly suffer from stasis sickness, a form of lethargy and short-term amnesia, as their minds and bodies adjust to once again having a regular metabolism.

## Voyages In Stasis

As a rule of thumb, voyages lasting less than 60 days rarely put their passengers in stasis, as the medical risks outweigh the benefits. Exceptions may be prisoner transports or deployment of military ground forces. For voyages lasting more than 60 days, putting passengers in stasis is the norm. Again, there may be exceptions, such as military craft that need to be vigilant or long cruise voyages for the super rich.

Passengers are typically put into stasis before a ship leaves port. This leaves the ship in a position to rush them to the port's medical facilities should complications arise putting them under. A ship's crew, on the other hand, is typically put under a day or two after leaving port. This gives the crew a chance to check the ship's systems and ensure the voyage is underway without issue before going under themselves.

Tradition dictates the ship's captain is usually the last under and first out of stasis, aside from the stasis technician herself. As the last crew member up, it is the stasis technician's job to put herself into stasis—a more difficult task than putting someone else under.

Once the entire crew is in stasis the voyage continues, controlled entirely by the software left to navigate the ship. This software is usually programmed to wake the crew—or at least key members of the crew—should anything out of the ordinary happen. Falling back from primary power to backup power will also usually trigger all crew members in stasis to wake up.

Upon nearing the voyage's destination, the crew is typically woken up a day or two before any passengers. This gives the crew a chance to recover from stasis sickness and take stock of the situation before the passengers awake. The first up is almost always the stasis technician, who oversees the recovery of the rest of the crew.

Passengers are woken up either a day before the ship arrives at the port or immediately after arrival. With the former, the passengers are given a chance to recover from stasis sickness before disembarking. With the latter, the passengers will be quickly shepherded off the ship and to an area of the port designed for recovery. The former is more common on luxury space flights and the latter on economy flights.

## Putting People Under

When someone is put into stasis, she must first undergo decontamination. This is typically a special shower intended to reduce the number of microorganisms on her that would cause problems during stasis. She then dresses in a medical gown and reports to the stasis technician, who hooks up tubes for intravenous fluid, a catheter, breathing tubes and biomonitoring devices. This is all fitted inside a stasis pod, which looks something like an electronic coffin. The whole process takes about a half an hour per person being put under.

The stasis technician should make an Int/medic-10 flip. A success indicates the passenger has been put into stasis without a hitch. With a failure, the passenger has still been put into stasis successfully, but there has been a complication. The GM should flip a card and use the Stasis Complications table below to determine the complication. Finally, on a critical failure, something went terribly wrong! The result is left to GM discretion, but the result can be anything from permanent bodily injury to death.

A stasis technician putting herself under typically takes twice as long, and the flip is Int/medic-12.

| Suit | Complication |
|------|-------------|
| Spades | The stasis simply did not take. This becomes immediately obvious and the stasis technician may try again, only losing time. |
| Hearts | Some chemical wasn't balanced correctly for the passenger's metabolism, which will cause heightened stasis sickness when she comes out. Double the duration and all penalties involved. Additionally, her memories from the 24 hours before she went into stasis may never be recovered. |
| Diamonds | The passenger was put too far under. When it comes time to wake her up from stasis, she won't respond to the usual methods. It will require minor surgery to bring her back up (see page 119). |
| Clubs | The metabolism of the passenger wasn't correctly slowed for stasis. She will wake up having aged only ½ as much rather than 1/10th as much. She will also wake up with the Fatigue (severe) consequence from starvation and dehydration. |
| Joker | The passenger will take significant organ damage during stasis. This will result in a Lasting Injury consequence that causes a -2 penalty to all Endurance actions until minor surgery is performed to repair the damage (see page 119). |

## Stasis Complications

Should something go wrong putting a passenger in stasis, complications may arise. The GM should flip a card and use the table above to determine the complication.

## Waking People Up

A passenger can be woken up from stasis either manually by a stasis technician or by the stasis pod itself. Coming out of stasis is typically pretty straightforward. A stasis technician is typically on hand primarily to disconnect all the wires and tubes, detect complications early, and orient passengers suffering from stasis sickness. Disconnecting the equipment typically takes about 15 minutes per passenger.

## Stasis Sickness

Despite its medical straightforwardness, coming out of stasis is rough on the passenger. She wakes up stiff, sore, thirsty, hungry, disoriented and likely nauseated. To top it all off, she is likely missing much her memory from before she went into stasis. Usually this will all pass within 24 hours.

Recovering from stasis is an extended End-10 (10, 1 hour) action. During this time all actions are at a -2 penalty. The penalty is lowered to -1 after the character reaches Tally 5.

Additionally, the character will be disoriented and have holes in her memory until the extended action is successful. It is common to not remember the last day or two before going into stasis, although not remembering entire months is not unheard of. Crew being put into stasis will often leave notes to themselves before going under. These notes will help them take stock of the situation before their memory comes back.

## Aging In Stasis

Stasis slows a character's metabolism down to about 1/10th the usual rate. The stasis pod also supports all necessary bodily functions, including breathing, hydration and urination. It also slows down the aging process. For every period of time in stasis, the character ages only 1/10th the usual amount. This means, for example, that a character spending a decade in stasis will wake up only a year older physically.

# Wealth

Money is a complicated fiction: entire industries have been built around nothing more than its transfer and manipulation. In the world of **Shadows Over Sol** wealth has become even more complicated. No longer are currencies merely units of wealth backed by nation-states: they're abstracted digital measures backed by megacorps, protected by cryptographic algorithms and shuffled around wirelessly.

## Wealth Rating

The mechanical representation of a character's access to this swirling nebula of money is her wealth rating. A character's wealth rating encompasses more than just the figures in her back account. It encompasses her ability to gain credit, transfer assets and take advantage of special pricing. It's an abstract value, which means the players don't need to track every credit, investment, transfer and mortgage. They need only worry about the big picture.

In some ways, a character's wealth rating can be thought of as a ninth stat—although there is no such thing as a wealth action. A wealth rating is a value commonly ranging from 0 (dirt broke and in debt) to 10 (filthy rich), although the super-rich can have wealth ratings that well exceed 10. The average middle-class character has around Wealth 5, although some places are more wealthy than others and local average may vary significantly.

Over the course of play, a character's wealth rating will fluctuate. Making large purchases can lower the rating as the character taps into her resources. Similarly, receiving large payments or other windfalls can increase her wealth rating, giving her more to spend or borrow against.

Finally, wealth ratings are also exponential. That is, each rating is roughly twice as rich as the rating below it. So, for example, if a character increases her wealth rating from 5 to 6, this represents an approximate doubling of her effective wealth.

## Starting Wealth

A player character's starting wealth rating depends on the horror mode of the campaign (see page 164). GMs are free to vary this up or down, but the default starting wealth ratings are listed in the table below:

| Horror Mode | Starting Wealth |
|---|---|
| Survival Horror | 4 |
| Investigative Horror | 6 |
| Action Horror | 8 |

## Cost Ratings

Whenever a character purchases a piece of equipment or incurs some other sort of expense, this expense has a cost rating. Like the character's wealth ratings, this cost rating is an abstract measure of the cost to the character, abstracting away the need to worry about rebates, loan payments or maintenance costs. Like wealth rating, a cost rating is exponential with each cost rating being approximately double the cost of the rating below it.

For the most part, GMs and players need not worry about the actual in-game "sticker price" of the expense. Nevertheless, it's sometimes useful for roleplaying to be able to quote numbers and have them be consistent. If a GM or player wants to do this, she can refer to the table below. This table maps cost ratings to approximate "sticker price" costs in Unitech microcredits, one of the most common currencies in the solar system.

| Cost | Approximate | Cost | Approximate | Cost | Approximate |
|---|---|---|---|---|---|
| 15 | 128,000 umc | 10 | 4,000 umc | 5 | 125 umc |
| 14 | 64,000 umc | 9 | 2,000 umc | 4 | 62 umc |
| 13 | 32,000 umc | 8 | 1,000 umc | 3 | 31 umc |
| 12 | 16,000 umc | 7 | 500 umc | 2 | 15 umc |
| 11 | 8,000 umc | 6 | 250 umc | 1 | 7 umc |

## Expenses

When a character incurs an expense—such as when purchasing a piece of equipment—her wealth rating may be affected. Typically expenses whose cost rating is equal to or lower than the character's wealth rating do not incur any reduction to her wealth. This represents the character being able to fork over small amounts of petty cash without worrying about breaking the bank. For example, a character with wealth 5 can easily afford a daily pack of cigarettes without going heavily into debt.

The GM should keep an eye on these sort of purchases during play to ensure they aren't abused. A good rule of thumb is that a character gets a number of "freebie" points of cost rating per day equal to her wealth rating. So, for example, if a character with wealth 5 could make a cost 2 and cost 3 purchase in a day or five cost 1 purchases in a day, without straining her resources too much, but more than that may incur reducing her wealth rating a point.

Characters may also pay for expenses up to a few levels above their current wealth rating, although these purchases will be significant for them and will reduce their wealth rating, as they tap into their savings. A character may pay for an expense up to four points above her current rating, but she may not pay for one more than twice her wealth rating in this way. For example, a character with Wealth 5 could purchase a piece of equipment with Cost 9—four levels above her rating—but a character with Wealth 2 could only purchase a piece of equipment with up to Cost 4—two levels above her rating—since higher costs would be more than double her rating. Note that under this system, a character with wealth 0 is worse than broke and can't purchase anything that's not close to free.

When a character pays for an expense whose cost is more than her wealth rating, her wealth rating decreases by a number of points equal to the number of points the cost was over her rating. For example, a character with wealth 6 purchasing a piece of equipment with cost 8 would have her wealth decreased by 2. This would make her new rating 4. In this system, a character will never drop below Wealth 0 in this manner.

## Bulk Purchases

Sometimes characters may want to make bulk purchases, buying lots of a particular thing. For example, a character may want to outfit her team of eight with guns, or she may want to buy many boxes of ammunition. When making one of these purchases, GMs should keep in mind that each cost rating represents something twice as expensive as the rating below it. This means buying two of something will typically cost one point more than the base thing, and buying four of something will cost two points more, etc. For ease of reference, refer to the chart below.

*Example:* Sam wants to outfit her team with guns. The gun she has in mind is cost 6 and she needs to buy 8 of them. Eight would be +3 cost, for a total of cost 9.

At some point, characters may wish to pool their money together to make some large collective purchase. This is possible, but requires a little bit of math. To determine the combined wealth rating of everyone involved, use the following system:

- Two characters with the same wealth rating have a combined wealth rating one higher than their individual ratings.
- Two characters with different wealth ratings have a combined wealth rating equal to the higher of the two.
- If more than two characters are pooling money, combine them two at a time until everyone's wealth is pooled, going from lowest to highest.

| Units | Cost Modifier | Units | Cost Modifier |
|-------|---------------|-------|---------------|
| 2 | +1 | 64 | +6 |
| 4 | +2 | 128 | +7 |
| 8 | +3 | 256 | +8 |
| 16 | +4 | 512 | +9 |
| 32 | +5 | 1024 | +10 |

*Example:* A team of five scrappers are pooling their money to buy a new ground vehicle. Their wealth ratings are 4, 5, 5, 5 and 6. The Wealth 4 and one of the Wealth 5 scrappers pool their wealth, giving a combined Wealth 5—the higher of the two. This combined Wealth 5 is combined with another Wealth 5, giving Wealth 6. This is combined with the last Wealth 5, leaving it still at Wealth 6. Finally, the wealth 6 scrapper combines with the pooled Wealth 6, giving a total of Wealth 7.

When paying for an expense that would decrease wealth rating, the total points that are reduced are spread among the characters pooling their money. These reduced points are applied one at a time, always coming from the highest individual wealth rating first. If two or more individuals are tied, they can decide among themselves who takes the reduction.

*Example:* The same team of scrappers mentioned above makes a cost 10 purchase. Since their combined rating is Wealth 7, they will lose 3 points of wealth among them. Since this always comes from the highest wealth first, the first point is taken from the Wealth 6 scrapper, reducing her down to Wealth 5. The

final 2 points are then taken from two of the four scrappers now at Wealth 5, and they can decide among them which two take the hit.

## Income

Everyone loves income. It can come from pay upon completion of a successful job, from selling equipment or from any other number of expected windfalls.

In many ways, applying income works like applying expenses, but in reverse. Every monetary gain has an income rating. This works exactly like a cost rating, and the same table can be used to estimate the approximate amount of wealth this represents (see the table under Cost Ratings above).

Income ratings below the character's current wealth rating aren't big enough to have any significant effect. So, for example, a corp executive with Wealth 8 gaining Income 2 will barely notice the difference, and she remains at Wealth 8. If the income rating is above the character's current wealth rating, however, her wealth rating may go up. Her rating will increase by one half the amount the income rating is over her current wealth rating (minimum 1).

*Example:* A character with Wealth 5 gains income 10. This is 5 points over her current wealth. One half of this is 2 (since everything rounds down), which brings her up to Wealth 7.

## Selling Equipment

Used equipment rarely sells for as much as it was originally purchased for. After all, every vendor is out to make a profit. Because of this, equipment typically sells for an income rating one or more less than its original cost rating.

## Continuing Income

Some characters are lucky enough to have a steady source of income, usually from regular employment of some kind. Mechanically, continuing income is just an income rating applied at whatever interval at which the character is paid. For example, if a character's salary is Income 5 and she is paid monthly, then once a month Income 5 is applied to her wealth rating using all the rules above.

## Design Intent

The world is full of lots of little expenses: meals, tickets, tolls, stock market fluctuations, licenses, fees, accommodations. The wealth and lifestyle systems are intended to speed up game play so players and GMs can get to the good stuff, focusing on the sci-fi and horror elements that make the game tick. It's also written so players don't feel compelled to penny pinch in ways that would be awkward in the context of the game world ("I can't eat dinner tonight. I've got to save up for my guns!").

The tradeoff for this simplicity, however, is abstraction. Because of the abstract nature of the wealth system, edge cases can sometimes give counterintuitive results. When these sorts of situations arise, it is keeping within the intent of the system for GMs just to make a common sense ruling and move on, getting to the good stuff so to speak.

# Lifestyle

In **Shadows Over Sol**, a character's lifestyle can vary a lot. Different subcultures, different habitats, different levels of wealth: all of these play a part in how a character lives. Despite these variations, however, all but the most austere characters tend to collect a variety of mundane items and accoutrements they use to live their lives—from clothes to chairs to simple electronics to even the humble toothbrush.

These items number far more than can easily be tracked on a character sheet, and really there's no point in tracking all of them. Abstracting away the need for this is a character's lifestyle rating.

## Lifestyle Rating

Every character has a lifestyle rating. This rating is on the same scale as her wealth rating—it ranges roughly from 0 (homeless and possessionless) to 10 (incredibly wealthy with servants, personal mansions and private yachts), but a few super-rich individuals might have even higher ratings. Whereas a character's wealth rating measures her monetary assets, a character's lifestyle rating measures her standard of living and thus what physical assets or equipment she might have easily available. These two ratings measure different things but are often intertwined.

As with a character's wealth rating, the average middle class character lives at around lifestyle 5. Brief descriptions of the different lifestyles along the spectrum are given below. These descriptions are meant to give a ballpark idea of how a character at that lifestyle might live. Specifics will, of course, vary with subculture and personal taste.

- **Lifestyle 0**: The character is homeless and possesses little beyond the clothes on her back and what she can fit in a backpack. She may have an alleyway or abandoned corridor in which she regularly squats.
- **Lifestyle 1**: The character is homeless, but has access to a lockbox at a local shelter or similar institution. There she has access to items for personal hygiene and the ability to get a spare change of clothes, if neces-

sary. She also possesses a backpack with personal items.

- **Lifestyle 2**: The character is technically homeless, but has an abandoned hab or some area she can reliably use as a home. This area is likely shared with several other squatters and isn't really secure, but simple things can be left here. She likely possesses a pass for the local public transit and may have access to a lockbox somewhere. If the character lives on a ship, she is like a stowaway, leeching off the rest of the ship for life support amenities, such as water and air.

- **Lifestyle 3**: The character has a coffin-sized room she can sleep in and an attached lockbox she can use to store her belongings. This comes with access to shared hygiene facilities. She likely has a pass for the local public transit. If the character is living on a ship, this is the lowest lifestyle rating which covers legit board, including paying for her own air and water.

- **Lifestyle 4**: The character has a small hab she shares with several other people. There is enough shared furniture to share the space, and she has the usual living amenities. She also likely has a pass to use the local mass transit.

- **Lifestyle 5**: The character has a small hab to herself in a residential complex somewhere. Groundside, this is likely to consist of two to three small rooms. On a station or ship, this is likely to be a single small room. She has enough furniture to fill her rooms, as well as the usual living amenities. She also likely has basic insurance and has a pass to use the local mass transit or a membership in a groundcar share.

- **Lifestyle 6**: The character has a medium-sized hab to herself, with all the usual amenities. She has basic but reliable insurance and possibly owns a light ground transport outright, such as a bicycle or moped. She also has full access to public transit.

- **Lifestyle 7**: The character has a medium-sized hab to herself in a convenient location. It is fully outfitted with good quality amenities. She has good insurance. Groundside, she is likely to own a groundcar. On a ship or station, she is likely to have membership in a transport share.

- **Lifestyle 8**: The character has a large hab to herself, which may even be a freestanding building, such as a traditional house. She likely has a luxury groundcar or a very basic air or space transport. She has comprehensive insurance. She may also be a member of selective clubs or consumer networks.

- **Lifestyle 9**: The character has a large hab to herself, which is either freestanding with surrounding land or in the very best of locations, such as a penthouse suite with a roof garden. She may have multiple groundcars or a quality air or space transport. Her hab only has the highest quality accoutrements, and she has the best insurance. She likely has several services she regularly pays for, such as people who will clean her hab or pilot her around.

- **Lifestyle 10**: The character has a large hab in the best of locations and possibly several additional small ones. She likely has several personal attendants she keeps on her payroll for mundane tasks and is a member of multiple exclusive clubs or consumer networks. She has multiple groundcars or a luxury air or space transport, such as a yacht. She has the highest quality accoutrements and the very best insurance.

## Lifestyle Uses

When a character wishes to access a piece of mundane equipment or service she feels she would normally have on hand, she may call upon her lifestyle. If the GM also agrees, the character simply makes use of the equipment or service with, no special tracking required. For example, a player might believe her character has a hand terminal for taking notes on hand, has a pull-up bar in her apartment she can use as an improvised weapon or even is the member of a towing service should her ground vehicle break down.

Just because a character's lifestyle rating indicates she owns something, however, doesn't

mean she necessarily has it on her person. The GM is well within her rights to say, "Sure, you own a bicycle. It's in your hab; you just have to go get it." Lifestyle isn't intended to be a measure of what a character has with her so much as a measure of what she owns, and thus what she doesn't have to use the wealth system to purchase. In horror scenarios where a character is cut off and isolated, the character is still cut off and isolated.

Ultimately, what can be called upon as part of a character's lifestyle is up to the GM. As long as what is being called upon isn't game breaking, doesn't ruin the scenario or isn't abusive in some way, GMs are urged to give the player the benefit of the doubt. After all, the point of the lifestyle rating is to make tracking things easier.

## Lifestyle Upkeep

At the end of each month, a character must assess her lifestyle's upkeep. As long she keeps her wealth rating equal to or higher than her lifestyle rating, she needn't worry about the expenses of keeping up her lifestyle. This is figured right into the wealth system. Should her wealth rating dip below her lifestyle, however, it begins to affect her wealth. At the end of the month, when this happens, she must either pay for an expense equal to her lifestyle rating—as she dips into her reserve funds to keep her lifestyle—or lower her lifestyle rating by 1—as some of her assets are stopped or sold to make ends meet.

*Example:* Azar has Lifestyle 6, but at the end of the month she is only at wealth 4. Accounting for her lifestyle upkeep, she must either reduce her living to Lifestyle 5, or pay for Cost 6 as upkeep, reducing her to Wealth 2.

## Raising or Lowering Lifestyle

A character can voluntarily raise or lower her lifestyle rating, but doing this takes time because she has to either sell off possessions or take the time to acquire them. At any time in the game, a character with a bit of downtime can declare she's seeking to raise or lower her lifestyle. In her downtime she then begins to go about taking the actions needed to make this happen. However, she may not increase her lifestyle higher than her wealth in this way.

Assuming nothing goes wrong, after she successfully pays for her lifestyle upkeep at the end of the month, her lifestyle rating increases or decreases a point as desired. Should she be forced to lower her lifestyle this month, then despite her best efforts, her lifestyle did not otherwise change. In this way, she will never drop two lifestyle ratings at once (due to both lack of funds and voluntarily lowering), nor does she ever go down one due to lack of funds just to go back up from increasing her lifestyle.

*Example:* Azar is at Lifestyle 6 and wishes to increase her lifestyle further. Because she is at Wealth 7, she can afford to do this. In her downtime, she begins shopping for furniture and making acquisitions. At the end of the month, her lifestyle upkeep happens, and then she goes up to Lifestyle 7. Had her wealth fallen below 7 by the end of the month, not only would she have to either pay upkeep or lower her lifestyle, but her intended increase in lifestyle wouldn't happen either.

# Maladies

Maladies include poisons, venoms, diseases and other extended malign effects that can affront a character as she travels the Sol system. Mechanically in **Saga Machine**, resisting a malady—whether poisons, disease or other—is an extended action with two mechanical additions. These additions are an Effect and a Vector.

The vector is the way in which the character may be subjected to the malady. For a poison, this could be anything from the character ingesting it to having it injected into her body. For a disease, this could be anything from the character being in close proximity to an infected individual to the sharing of bodily fluids.

Once the character has been subjected to the vector, she is forced to undergo the extended action. Like all extended actions, the malady has an interval, a TN and a Tally. After exposure, once a period of time equal to the interval has passed, the character must make an Endurance flip. This is repeated every subsequent interval. If the character fails one of these flips, she suffers the Effect. Some maladies may have differing effects for successive failures. If the character succeeds on one of these flips, her Mag counts towards the tally. If she eventually succeeds on the extended action, she has recovered from the malady and no longer has to make Endurance actions.

Some example maladies are below, and the GM is also free to create her own:

## Alcohol

Alcohol is an extremely common poison taken recreationally throughout the system.
- **Vector**: Ingested
- **Action**: End-10 (10 minutes, Tally 5)
- **Effect**: Increase Fatigue consequence a severity. It lowers inhibitions at first effect. This gives +1 to Socialize actions and to resisting fear. It inhibits coordination and communication on second effect with a -2 penalty to Dex, Spd and Persuade actions. It causes vomiting or unconscious on third effect.
- **Notes**: This represents a mild-to-moderate alcoholic beverage—perhaps a potent beer or weaker wine. For harder alcohol, increase the TN of the first flip. For additional beverages, increase the Tally. For aerosolized alcohol or more direct ingestion methods, reduce the interval.

## Arsenic

Arsenic is commonly used to strengthen the alloys used in batteries and as a semiconductor in microchips. It also is a poison that has been known for millennia. Because it is both common with legitimate uses and lethal, it sees continued use as an intentional poison.
- **Vector**: Ingested
- **Action**: End-12 (1 hour, Tally 10)
- **Effect**: Moderate wound, or a severe if failed with Mag 5+. It includes a headache and confusion at the first effect, giving a -2 penalty to Int and Per actions. Additionally, it involves convulsion and vomiting at the second effect. This gives a -2 penalty to Dex and Spd actions as well. It lasts as long as the damage persists.

## Cannabis

Cannabis is a common recreational drug occasionally used for medicinal purposes. It is grown throughout the system, from fields on Earth to botanists' closets in the Belt.

- **Vector**: Ingested or Inhaled
- **Action**: End-12 (10 minutes, Tally 5)
- **Effect**: Cannabis increases the Dazed consequence a severity. This involves a -1 penalty to Dex-, Spd-, Int- and Per-based actions. Ignore -2 in penalties due to the Fixated consequence. It causes hunger.

## Cyanide

Cyanide is a family of potent poisons consisting of a deadly mixture of carbon with nitrogen. Cyanides are used in various industrial processes throughout the system, and if inhaled, it can cause death within seconds.

- **Vector**: Inhaled or Parenteral
- **Action**: End-16 (1 round, Tally 5)
- **Effect**: This causes a moderate wound, or a severe if failed with Mag 5+. It causes unconsciousness on the first effect and seizures and stopped breathing on the second effect. Cardiac arrest happens on the third effect.

## Influenza A (Weaponized)

Influenza A viruses are a common family of influenza viruses, including the infamous Spanish Flu, as well as numerous swine and avian flus. This is a weaponized strain intended to spread quickly and cause mass panic, as well as substantial deaths.

- **Vector**: Contact or Inhaled
- **Action**: End-12 (1 day, Tally 10)
- **Effect**: Light wound. It increases the Fatigue consequence a severity, with coughing and runny nose on the first effect. Fever and headache on the second effect.

## Hemorrhagic Fever

Hemorrhagic fevers are dangerous virus-borne illnesses. They include both Ebola and the Marburg viruses, as well as Dengue and Yellow Fevers.

- **Vector**: Contact or Inhaled
- **Action**: End-12 (1 day, Tally 10)
- **Effect**: Causes a light wound. Increase the Fatigue consequence a severity. It includes fever and diarrhea on the first effect with low blood pressure and excessive bleeding on the second effect.

## Opioid

Some of the oldest known drugs, opioids include both poppy-derived opiates as well as synthetic drugs that mimic their effects. Opioids cause numbness and lethargy, and see common use throughout the system both recreationally and medically.

- **Vector**: Ingested or Parenteral
- **Action**: End-14 (1 minute, Tally 10)
- **Effect**: When experienced, ignore up to -2 in penalties from the Desire, Fear and Fixated consequences; similarly, the same amount is added as a bonus to Det actions to avoid actions forced by those consequences. There is a -2 penalty to all Dex-, Spd- and Per-based actions.

## Radiation

Radiation is a common hazard in space, being produced by solar flares, Earth's Van Allen belt, Jupiter's radiation belt, Saturn's magnetosphere and every thorium reactor in the system.

- **Vector**: Proximity
- **Action**: End-10 (1 hour, Tally 10)
- **Effect**: Upon the first effect, the character gains a light wound and takes a -2 penalty to Dex- and Spd-based actions, as radiations burns her form. On the second effect, the character takes a moderate wound; increase the Fatigue consequence and apply the -2 penalty to Int- and Chr-based actions as well as she begins to suffer from hematopoietic syndrome. On third effect, she takes a severe wound, losing all hair and becoming nauseated; this is suffering from gastrointestinal syndrome. On the fourth effect, she takes a critical wound and has terminal radiation sickness; do not heal and continue to take a light wound every day unless treated with anti-radiation treatments amounting to major surgery (see page 119).
- **Notes**: The effects of radiation can vary significantly in both interval and severity depending on the amount of radiation to which the character is exposed. The TN, tally and effects listed here assume a moderate exposure, such as from large solar flare or unprotected travel through a planet's ra-

diation belt. For larger doses of radiation—such as from a reactor malfunction or nuclear weapon—adjust accordingly. The first flip of this extended action begins an hour after initial exposure and continues even after the exposure has ended, until the extended action is a success. Those with spacer genelines receive a +2 bonus on the associated extended action.

## Smoke

Smoke is a common hazard wherever fires are found.

- **Vector**: Inhaled
- **Action**: End-10 (1 minute, Tally 3)
- **Effect**: This induces a light wound. It causes coughing, including a -2 penalty to Dex- and Per-based actions upon the first effect. Upon the second effect, the Fatigue consequence is increased. It causes unconsciousness upon the third effect.
- **Notes**: A character doesn't simply resist smoke until she has left the actively smoky area. A character must still make flips while in the smoke, but does not count any Mag towards the tally until the character has left the area.

## Tear Gas

Tear gas is a chemical weapon commonly used in riot control and as a personal defensive weapon. It's typically released in opaque clouds that obscure vision and disperse crowds.

- **Vector**: Inhaled
- **Action**: End-12 (1 round, Tally 5)
- **Effect**: It causes coughing, including a -2 penalty to Dex- and Per-based actions upon first effect. This increases to a -4 penalty upon the second effect. It causes total blindness and vomiting upon the third effect.
- **Notes**: The above action largely represents recovery after leaving the tear gas cloud. A character must still make flips while in the cloud, but does not count any Mag towards the tally until she has left the actively tear gassed area.

# Hazards

Space is filled with all manner of hazards, from asphyxiation and radiation exposure to extreme temperatures. Ships can be blown to pieces exposing a character to hard vacuum or shift suddenly creating great falls or collisions. Microgravity can cause long-term health issues and high G-forces can cause death. One is never without a million ways to die.

## Catching Fire

Characters exposed to open flame run the risk of catching fire themselves. Avoiding being lit aflame is a Dex-10 action, although the intensity of the flame may give a bonus or penalty.

A character who catches on fire takes the Bleeding consequence from the flames. This usually begins at light severity, but particularly intense or engulfing flames may give the consequence at a higher initial severity. Ending this consequence may be achieved by taking a move (posture) action to stop, drop and roll.

## Falls & Collisions

Great falls are a classic hazard, even if they are somewhat rare in the cramped hallways of space. Collisions, on the other hand, are significantly more common. Vehicles, stations and other objects travel through space at great velocities, and even on a planet, vehicle collisions are often common.

To determine the wounds taken from a fall, find the number of meters the character is falling and divide by four. She will normally take this many light wounds. If, however, she succeeds on a Dex/athletics-10 flip, halve the number of wounds, or quarter it if the success was with 5+ Mag. On a critical failure, double the wounds.

In atmosphere, this damage may cap out due to terminal velocity. On Earth, damage from a fall caps out at 20 light wounds. In low gravity, halve the number of wounds from the fall. For falls onto particularly soft ground, halve or quarter it.

Collisions are a lot like falls, only the velocities of the two colliding objects add. To determine the damage, find the difference in velocities in meters per second, divide by five and then take this many light wounds. This can usually be ball-parked by estimating the velocity of the relevant character and then either doubling it or increasing it one and a half times, as the GM deems appropriate.

*Example:* Lydia is driving a groundcar, which collides head-on with another groundcar. The GM estimates that the groundcars were both traveling about 18 m/s—a dangerous but not unreasonable speed. Since they are colliding head-on, the difference in their velocities is 36 m/s, which normally results in 9 light wounds. Lydia's groundcar has a safety balloon, however, which expands in her car, lessening the impact and halving the damage. Lydia also tries to brace herself, making a Dex/athletics flip and getting a success; this also halves the damage. In the end, the groundcar is totaled, but Lydia takes only two light wounds.

## Fogs & Hazes

Lasers do best in the vacuum of space where there is little to disperse their concentrated energy. They do only marginally worse over short distances in a clear atmosphere. Where lasers really begin to suffer is in a fog or haze.

For every meter of fog a laser shoots through, provide the target with an effective 5 DR against lasers. Fog can also serve to provide the Concealment consequence

## Gravity

Beyond the surface of the Earth, the apparent gravity can vary a lot. This includes not only the true gravity of astral bodies, but also in the artificial spin gravity of space stations, and in rare circumstances, the thrust gravity of an accelerating spacecraft as well.

The assumption for most rules in **Shadows Over Sol** assume the characters are operating in normal or near normal gravity—that is, somewhere in the vicinity of 1 g. This may often not be the case, however, and in circum-

## Space Sickness

For characters used to normal gravity, visiting a microgravity environment can be a sickening experience. The constant sensation of free-fall can lead to a queasiness and nausea akin to motion sickness. GMs wishing to emphasize these unpleasant new experiences can call for characters to make an End-10 flip. On a failure, the character increases her Fatigue consequence a severity, or two severities on a failure by Mag 5+. Characters with a Spacer geneline gain a +4 bonus to this action.

stances with significantly differing gravity, the following rules apply.

## Microgravity

Microgravity environments have near-zero gravity. In game terms, this is any environment with below 0.1 g. In microgravity, objects tend to float in whatever trajectory they were last moving. Smoke doesn't rise so much as form a hazy bubble, and liquids form little droplets that float everywhere—blood will get on everything!

For convenience, most microgravity environments will come with magnetic boots used to control movement. Plentiful hand-straps or other tethers can be used. These allow a character to move along at half her normal rate of movement. She may speed things up by making leaps, sailing through the air in ways

only possible with such little gravity. This is difficult, however, requiring a Dex/athletics-10 flip to land where she wants to go. On a failure, she both sails somewhere else and increases her Spin consequence. On a failure by Mag 5+, she increases her Spin consequence two severities.

Unless a character is reliably attached to the environment—an interact action unless she is wearing mag boots or using similar equipment—firing any weapon with significant recoil will send her spinning on an unwanted trajectory. This includes any ballistic weapon but not laser weapons. Firing such a weapon will increase her Spin consequence a severity.

## Low Gravity

Low gravity environments typically range between 0.5 g and microgravity. They are common throughout the system, including on Luna, Mars and many stations. Low gravity is not that different from normal gravity. In low gravity a character can typically jump twice as far and push off the ground with increased ease, increasing the amount of ground covered in an action 1 ½ times. Additionally, halve the distance of falls before determining damage.

## Normal Gravity

Between 0.5 g and 1.2 g, characters are considered to be in normal gravity. Characters in normal gravity take no special modifiers to as actions because this is the default assumed gravity.

## Healing in Microgravity

Wounds bleed. Blood pressure forces the blood outward, and in normal gravity, the blood then flows downward, enabling the wound to drain properly. This helps cleanse the wound of harmful microorganisms and allows for efficient formation of scabs, which stop further blood loss.

In microgravity, however, wounds do not bleed out this way. Blood pressure still forces the blood outward but without significant gravity tugging on the blood it simply pools up, forming bulbs of blood around the injury. This both prevents much of the cleansing effect bleeding has on harmful microorganisms and slows down the formation of scabs.

The mechanical effect of this is that in microgravity, characters heal only half as much as they otherwise would. Instead of healing their Endurance in wound severities each week, they heal half their Endurance. Additionally, doctor supervision to ensure quicker healing becomes more difficult, becoming an Int/medic-12 flip.

## Encumbrance & Gravity

Gravity affects the weight of carried equipment, but it doesn't affect the mass or the volume. This means gear carried in low gravity environment will be lighter, but will still be just as bulky and build up just as much momentum when moving. Indeed, in micro-gravity environments, gear clipped to a character's outfit may tend to try to float in all directions, causing more of an encumbrance issue than if it possessed full weight. Since the *Saga Machine* encumbrance system takes this bulk and carrying ability in account, encumbrance thresholds do not change, regardless of the local gravity.

## High Gravity

Higher that usual gravity—anything 1.2 g and over—is unusual, and is mostly likely to be encountered as thrust gravity on a ship taking evasive maneuvers. High gravity is also problematic in that is impedes both movement and blood flow to the brain. In high gravity, characters take a -1 penalty to all actions. This penalty increases by -1 for every full g above 1. Significant exertion may also require an End-10 flip against increasing the Fatigue consequence a severity. At the GM's discretion, robots or other characters with significantly different biological function may be immune to some of these penalties.

High gravity becomes dangerous at around 5 g. This starts with a loss of color vision (gray out) if the blood is being pulled away from the front of the eyes, or a reddening of a character's vision (red out) if the blood is being pulled towards the front of the eyes. Eventually the character loses peripheral vision and consciousness.

For every minute spent under these G forces a character must make an Endurance action with a TN equal to the number of g's the character is experiencing (remember to apply the aforementioned penalty to all actions as well). On a failure, the character loses consciousness and takes a light wound. Even if she is unconscious, she must continue to make this action, as her wounds still accumulate.
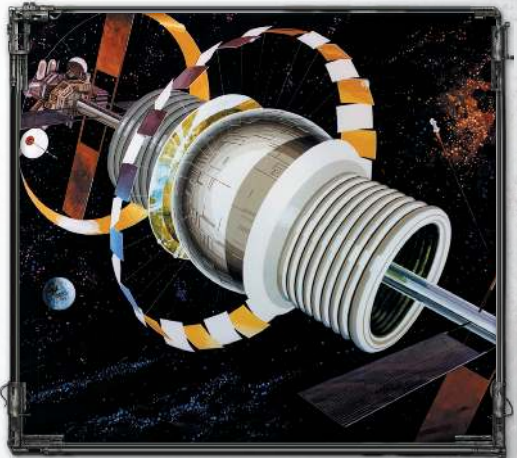
## Spin Gravity

In a spin gravity environment, the apparent gravity is highest near the outside of the spin. On space stations with spin gravity, this is typically where the habs or other residential areas are located. As one nears the center of the spin, the apparent gravity becomes less and less until, at the very center of the spin, the character reaches microgravity.

As a character nears the center of the spin, the Coriolis effect also becomes more pronounced. This will manifest itself in various ways, causing dropped objects to fall to the side instead of straight "down." It will also have an effect upon the inner ear, often causing unaccustomed characters to feel they need to balance themselves by leaning to the side as well. This can cause nauseousness and dizziness in those who are unaccustomed to it. GMs wishing to emphasize this effect can call for characters to make an End-10 flip. On a failure, the character increases her Fatigue consequence a severity, or two severities on a failure by Mag 5+. Characters with a Spacer geneline gain a +4 bonus to this action.

## Sleep Deprivation

Without sleep, a person experiences fatigue, loss of cognitive function and finally hallucinations. By default, a character needs eight hours of sleep a day to function at her best. She may be able to get by with less, but her abilities will suffer.

Mechanically, once a character has gone for 16 hours without sleep, she must make an End-14 flip every 8 hours. On a failure, her Fatigue consequence increases a severity due to sleep deprivation. This fatigue will not recover until she has gotten a full night's sleep. If she still doesn't get sleep after her Fatigue consequence passes critical severity, she instead takes a light wound every time she fails the End flip. During this time, she may experience hallucinations.

## Starvation & Dehydration

The body can go for a lot longer without food than without water, but either end can be terrible. Mechanically, both starvation and dehydration work the same way.

For every day a character goes without food or water, she must make an End-14 flip for starvation or End-16 flip for dehydration. On a failure, her Fatigue consequence increases a severity. Once this would push her past critical severity, she instead takes a light wound for starvation or a moderate wound for dehydration. Fatigue and wounds accumulated in this way may not be recovered until the character has eaten food or drank water and is no longer suffering from its lack.

## Suffocation

Any number of situations may cause a character to suffocate: lack of atmosphere, drowning, or being strangled. Whatever the cause of the suffocation, a simple, unified system is used.

The first thing the GM should determine is if the character managed to take a full breath before being suffocated, essentially holding one's breath. If so, she has a window of time before the adverse effects of suffocation begin to set in; otherwise she begins to experience them immediately. Should she have managed to hold her breath, it will be her Endurance in rounds before she begins to suffocate.

Once suffocating, a character must make an End-14 flip each round or increase her Fatigue consequence a severity. Once this has passed critical severity, she instead takes a light wound and must make an End-10 flip or fall unconscious. Damage from suffocation will not heal until a character is once again breathing.

## Temperature Extremes

Temperature extremes are common outside the protective haze of an atmosphere. Reactors can burn hot, heating a ship to unbearable temperatures, and space itself is very, very cold.

When characters experience extremes in temperature, the GM should decide upon an interval of time for which the characters will have to make an End-14 action. Failing this action causes the character's Fatigue consequence to increase a severity. Should the character already be at critical severity, she takes a light wound instead. This damage cannot be removed until the character finally cools down or heats up, as appropriate.

As temperatures get progressively hotter or colder, the interval should decrease. Suggested intervals range from one hour to one minute.

## Underwater Activity

Water hinders movement, forcing a character to swim around. Underwater movement requires a Str/athletics-10 flip to move at half the character's usual rate. This TN may increase for moving or particularly treacherous waters.

Additionally, most ballistic firearms do not function underwater, and most laser weapons are significantly hindered. For every meter of water a laser passes through, the target has an effective 5 DR.

## Vacuum & Pressure

Characters exposed to hard vacuum or sudden, drastic changes of pressure have it tough. Those in vacuum will begin to suffer from suffocation and will likely begin to suffer temperature extremes (see page 116). Everything in shadow gets very cold and everything in the sun gets very hot. For example, temperatures on Luna range from -233º to 123º.

Those suddenly exposed to vacuum may suffer from explosive decompression—blood vessels rupture, eardrums blow out and body fluids begin to boil. This forces the character to make an immediate End-16 flip. On a success, she merely takes a light wound. On a failure, she takes a moderate wound and suffers a -2 penalty to all Perception actions until she has a minor surgery to fix her senses (see page 119). Failure by Mag 5+ causes a severe wound and she suffers a -4 Perception penalty.

Finally, characters who experience sudden changes in pressure—including explosive decompression—may suffer from the bends. This forces the character to make an End-14 flip (for explosive decompression just uses the results from above). On a success with Mag 5+, there are no ill effects. On any other success, the character immediately increases her Fatigue consequence two severities. On a failure, this also happens, but she also loses consciousness. Finally, on a failure by Mag 5+, she dies a painful death.

# Characters

Horror would be nothing without characters to revolt and experience dread and terror. Science fiction would be little without characters to make the future happen. Player characters are the heart of any roleplaying game. This chapter includes all of the information necessary for creating a character and advancing that character, including all of the character options.

## Character Creation

Before play can begin, each player must make a player character (PC). This section describes the steps necessary to create such a character. Players should begin character creation already knowing a bit about what the GM intends for the campaign, particularly the intended mode of horror (see page 164).

### Overview

Character creation in *Shadows Over Sol* takes place over the course of a few basic steps. These steps establish a character's concept, capabilities, stats and place in the world. Character creation is designed to be as quick or as thorough as the player desires, depending on how much thought the player wants to give to her concept and her choices. The different steps of character creation are described briefly below:

1. **Concept:** To begin with, the player should take a bit of time to think about what sort of character she wants to play, where she wants to go with the concept and how that concept fits into the campaign pitched by the GM.
2. **Assign Stats:** Now that the character's concept has been somewhat defined, the player assigns the character's stats from a given array.
3. **Assign Skills:** After stats have been assigned, it is time to assign the character's skills, also from a given array.
4. **Pick Geneline:** The numbers having been established, the player should think about the character's gene mods and how they

affect her nature. The player then picks a geneline from a given list.
5. **Pick Subculture:** Nature having been decided, it's on to nurture. The player should pick the subculture to which the character subscribes.
6. **Scores & Traits:** In the penultimate step of character creation, the player calculates a few scores for the character based off her stats, as well as picking a few traits such as languages or, optionally, weaknesses.
7. **Wealth & Gear:** In this final step, the player makes a few gear purchases, as determined by the campaign's mode of horror.

### Character Concept

The first and most important step of character creation is to begin to form a vision of the character. Who is she? What does she do for a living? What would she rather be doing? What is she good at? What does she struggle with? It is off this initial vision that the rest of the steps of character creation will work.

Regardless of the character vision that begins to form, the two key questions to ponder here are "Who is the character as a person?" and "What is the character going to be doing within the context of the campaign?" If the first question is not answered adequately, the character is not really a character so much as a collection of mechanics for a role in the campaign. If the second question is not answered well, then the character may be an interesting concept but she may find herself with little to do in the actual game.

When coming up with a character concept, the player should keep in mind the type of game the GM is looking to run, particularly in regards to the modes of horror (see the sidebar). Characters in survival horror games tend to be average joes who have been thrust into a bad situation. Characters in investigative horror need to have some driving motivation compelling them to dig deeper into the horrific. Characters in action horror need to be the sort to face the horrific head-on.

# Modes of Horror

When sitting down to run a game of *Shadows Over Sol*, the GM should think about the type of game she wants to run. As a genre, horror varies greatly with relation of the main characters to the horrific aspects of the story. *Shadows Over Sol* divides this relationship up into three modes of horror: survival horror, investigative horror and action horror. The GM should pick which of these modes best fits her campaign concept. Each mode figures into the character creation system and will result in characters geared towards the type of horror in question. Brief descriptions of the three modes follow.

- **Survival Horror:** In survival horror, the characters are underprepared or ill equipped to deal with the horrific elements. The relationship of the player characters to the horrific is one of simple survival: improvise, run away, conserve scarce resources, try to live another night.

- **Investigative Horror:** In investigative horror, the characters are prepared enough that they may investigate or pursue the horrific elements in their actions, but they are not prepared or equipped for a direct confrontation. The relationship of the player characters to the horrific is one of pursuit and discovery punctuated by scenes of retreat and survival.

- **Action Horror:** In action horror, the scenario may be no less horrific but the player characters have the preparation and resources they need to deal with it, or at least they have enough that a direct confrontation may be a reasonable course of action. The relationship of the player characters to the horrific is one of action and confrontation.

## Assign Stats

Now that the character's basic concept has been decided, it is time to begin its implementation. The most basic expression of this is in the character's stats. Is the character strong and kind, albeit somewhat slow? Is she ruthless and cunning? Is she charismatic and quick? The player should take the array of values below and assign one value to each of the character's stats: Strength, Dexterity, Speed, Endurance, Intelligence, Perception, Charisma and Determination. The array is as follows:

## [ 7, 6, 5, 4, 4, 3, 3, 2 ]

Naturally, the areas in which the character excels should be assigned the highest values, whereas the areas in which she is the weakest should be assigned the lowest. A value of 4 is historical human average, but with gene mods and upgrades, 5 is the contemporary average. For more information on stats, see page 98.

## Assign Skills

Whereas stats represent a character's natural inclinations and ability in certain actions, a character's skills represent her training and proficiencies. The player should think about her character concept. What are the skills in which the character would be highly trained? Which skills would she have dabbled in as either an earlier failed career path or as a hobby? The player should then take the array of values below and assign these values to the skills in which the character would have training:

## [ 3, 3, 3, 2, 2, 2, 1, 1, 1 ]

Naturally, higher is better. A skill of 1 shows at least a basic familiarity, whereas a skill of at least 3 indicates a professional level of competence. For ease of reference, the skill list is reproduced below. For more information on the skills, see page 99.

| Skill | Skill | Skill | Skill | Skill |
|-----------|------------|-------------|------------|----------|
| Athletics | Conspiracy | Guns | Melee | Program |
| Awareness | Crafts | Investigate | Naturalist | Socialize |
| Bio-Sci | Deception | Lib-Arts | Ordnance | Stealth |
| Bureaucrat | Empathy | Mechanic | Persuade | Thievery |
| Comp-Ops | Engineer | Medic | Phy-Sci | Vehicles |

## Seem Low?

These stats and skills may seem a little low at first glance, but that is okay. These are not the characters final values. Experiences will be assigned later on when the player picks a geneline and a subculture for her character. Those two choices will boost these initial values.

## Pick Geneline

Most humans living in 2114 possess genes that have at least a minimum of modification. Modifications that protect against disease, genetic defects or—among spacers—loss of bone density due to microgravity is particularly common. These gene modifications are typically either applied directly to the individual's genome before birth or the modifications are inherited from the individual's parents. A rare few people even have genes that were modified sometime after birth as a patch job.

It is now time to pick the character's geneline. While there are many different commercial genelines available to purchase for one's children, all but the most exotic or experimental will fall into a broad category. Think about the character's parents or guardians for a minute. What would they have selected before the character's birth? How does this align or conflict with what the character wants for herself?

The different geneline options are listed below. All of these genelines provide some amount of experiences towards particular stats. These experiences may increase the value of the stat (see Character Advancement on page 175). Additionally, some genelines provide a modifier to a character's Edge, and all provide an optional weakness trait that can be added to those chosen in the Scores & Traits step (see page 171). The different geneline options are listed below.

## Athlete Deluxe

This is an upmarket geneline category targeted at those who want to provide their child with a genetic disposition favoring athleticism and physical capability. It's often purchased by those who dream of raising a future sports star or those who want to make up for family genes that convey poor physical ability. As a deluxe geneline, its cost is outside the means of most parents, and as such it isn't commonly found among manual laborers, despite its obvious assistance there.

- **Experiences:** Str +15, Dex +10, Spd +10, End +15, Int +5, Per +0, Chr +0, Det +5
- **Optional Weakness:** These genelines are marketed at a demographic of parents with very clear ideas of what they want for their child and with enough money to see that focus happens. As such, many children growing up with this geneline find their lives hyper-focused on athletics in spite of whatever wishes they themselves may have. This focus can lead to clear deficiencies in other fields, optionally meriting an Impairment weakness in other areas. Some with this weakness also wash out, injuring themselves in some unrepairable way because they assume their geneline will be more protection against such things as it is. A Disability or other Shortcoming weakness might represent this.

## Applying Genelines to Stats

Every geneline applies some number of experiences to every stat. These experiences may increase the value of a stat—sometimes even multiple times! Any experiences left over from this remain with the stat and count towards its next increase.

*Example:* Alice has Charisma 5. A geneline is chosen that adds +15 experiences to Charisma. Six of these experiences will increase her Charisma to 6. Another 7 of these experiences will raise her to Charisma 7. This leaves 2 experiences left over, which will remain and count toward Alice's next Charisma increase.

## Budget Upgrade

Families who cannot afford a standard genetic upgrade for their child often opt to pick a budget upgrade. While these upgrades aren't as full-featured as standard packages, they do provide crucial protection against most common genetic diseases, as well as modest boosts to the child's inborn capabilities. Those born with a budget upgrade often lag behind their peers during development, but some take these difficulties in stride and it drives them to focus and work to become competitive.

- **Experiences:** Str +5, Dex +5, Spd +5, End +5, Int +5, Per +5, Chr +5, Det +5
- **Edge:** +2. As someone with a geneline that is generally considered sub-par, those with a budget upgrade must develop their edge more than most in order to compete.
- **Optional Weakness:** Budget Upgrades are meant to deliver the maximum bang for a small amount of buck, but in order to achieve this, the upgrades always have to cut corners. Some companies even use budget upgrades as a testbed for experimental genetic manipulations that may one day be incorporated into deluxe or standard packages. As with most experiments, many of these are failures. The player may optionally choose an Impairment or Shortcoming weakness to account for a cut corner or unintended side effect of an experimental gene manipulation.

## Celebrity Deluxe

Some parents have both considerable money and dream of their child being a celebrity, dancer, model or other limelight type. These parents may pick a celebrity deluxe upgrade. This upgrade provides a genetic disposition geared towards being an outgoing and charismatic individual, but as a deluxe geneline, its cost is outside the means of most parents.

- **Experiences:** Str +5, Dex +10, Spd +5, End +10, Int +0, Per +15, Chr +15, Det +0
- **Optional Weakness:** People with this geneline are often pushed into lives where they are constantly surrounded by people and attention from a very young age. Some with this geneline then grow up to be uncomfortable in situations where they aren't with people, optionally meriting an Impairment weakness that affects situations where they are alone. Others grow to see people more as tools, resulting in an Impairment that affects empathy or nurturing.

## Genius Deluxe

Life is harder when you're dumb. Some parents don't want their child going through that, so they pour considerable financial resources into purchasing a genetic upgrade that will ensure the largest possible boost to the child's intelligence. This upgrade does just that, providing a genetic disposition towards memory and quick learning. As a deluxe upgrade, however, this geneline is outside the means of most parents.

- **Experiences:** Str +0, Dex +5, Spd +10, End +0, Int +15, Per +10, Chr +5, Det +15
- **Optional Weakness:** Picking up on things more quickly than those around them, people with a genius deluxe geneline can grow up to think little of others, optionally resulting in an Impairment weakness. Others rely too heavily on their natural aptitudes in picking things up rather than on hard work and training, resulting in an Impairment to certain skills or areas of interest.

## Groundside Standard

The single most common class of genelines, this represents the standard genelines commonly chosen by those living in a gravity well. It includes all the usual protections against genetic diseases as well as resistance to the transmissible diseases usually found among large populations. Finally, resistance to environmental pollutants and well-rounded developmental upgrades are added.

- **Experiences:** Str +10, Dex +0, Spd +0, End +10, Int +10, Per +10, Chr +10, Det +10
- **Optional Weakness:** The vast majority of people live in a gravity well and never journey into space in their lifetimes. As such, protections against common space ailments—such as higher levels of background radiation or loss of bone density in microgravity environments—are commonly ex-

cluded from groundside standard genelines in an effort to make them affordable. The player may optionally take an Impairment weakness to account for this.

## Modern Superman

Genelines in the modern superman class represent the best well-rounded genetic upgrades money can buy. As such, these upgrades are typically only found among the children of the very rich or influential. Children with these upgrades typically excel past their peers, and alternately either find themselves at the pinnacle of popularity or isolated for it.

- **Experiences:** Str +10, Dex +10, Spd +10, End +10, Int +10, Per +10, Chr +10, Det +10
- **Edge:** -3. As the pinnacle of human engineering, those with the Modern Superman geneline need to rely less on their edge to get them through situations, and as such, do not develop it as much to get them through life.
- **Optional Weakness:** Many people who grow up with a modern superman geneline find it difficult not to think of themselves as better than other people. After all, they tend to be stronger, tougher, faster, smarter and more perceptive than those around them. However charismatic someone with a modern superman geneline is, this feeling of superiority often rubs those around them the wrong way and may lead to them overestimating their own abilities. The player may optionally take an Impairment or Complication weakness to represent this.

## Spacer's Standard

The standard gene upgrades typically chosen by spacers are different than those typically chosen by people living in a gravity well because the environmental conditions are significantly different. While all the standard protections against genetic diseases are still included, the spacer's standard also includes protection against bone degradation due to microgravity as well as resistance against the higher levels of radiation people are typically exposed to in space. Finally, it also includes

broad-spectrum upgrades with an emphasis on the flexibility and mobility needed in a microgravity environment.

- **Experiences:** Str +0, Dex +10, Spd +10, End +0, Int +10, Per +10, Chr +10, Det +10
- **Optional Weakness:** Spacers largely live in a climate-controlled world of air-scrubbers and recyclers. As such, standard spacer genelines often fail to include modifications that protect against rampant environmental pollutants found in Earth or the prevalence of diseases found in the large population centers groundside. The player may optionally take an Impairment weakness to account for this.

## Wild Type

Those with a wild type genome don't have a gene upgrade, and instead they simply have whatever genetic material their parents naturally provided them with. People with a wild type genome are becoming a rarity outside of the very remote, the impoverished or within certain religious groups. They frequently lag behind their peers in development and are susceptible to numerous genetic diseases.

- **Experiences:** The player may put +5 experiences into four different stats of her choice.
- **Edge:** +4. Competing in a world where almost everyone else has a genome bioengineered to be better than the wild type, those few that manage to compete despite their wild type geneline must develop their edge to its fullest extent.
- **Optional Weakness:** Many people throughout human history have experienced a variety of genetic defects or handicaps—from sickle-cell anemia to Marfan syndrome. Thanks to the wonders of bioengineering, these are largely a thing of the past. However, as one of the few with a wild type genome, this character may possess such a genetic defect. The player may optionally choose a weakness trait representing the particular defect.

## Pick Subculture

Society in *Shadows Over Sol* is riven in a variety of different subcultures, each with their own norms, dialects and preoccupations. Subcultures tend to run in families, and in the new transient society, they provide a ready-made set of contacts and a social safety net. The subculture into which a character is born naturally influences her development in life, providing her with different experiences and opportunities.

It's now time to pick the character's subculture. Take a moment to think about what it would have been like for her to grow up in each of the subcultures being considered. How did this affect her development as a person?

The different subculture options are listed below. Each subculture will give the character a number of experiences in different skills. These experiences may increase the value of the skill (see Character Advancement on page 175). For the remaining experiences, pick experiences in the skill relating to the character's past endeavors. The different subculture options are listed below.

### Entro

The Entro subculture thrives on discord and is highly critical of authorities, social class and corporate power. In many ways, the Entro subculture is a long-lived counterculture, rebelling against many of the trends of the last half century. The subculture prizes a stubborn determination and bullheadedness even to the point of throwing punches. See page 38.
- **Experiences:** Conspiracy +2, Crafts +2, Mechanic +2, Medic +2, Melee +2, Thievery +2

### Expret

Expret culture values aesthetics and places a great emphasis on personal upkeep. The subculture also places significant value on appeal to emotion, interpersonal communication and subjective experience. This emphasis can make many of those in other subcultures feel an Expret is being too personal for comfort. See page 40.
- **Experiences:** Athletics +2, Bureaucrat +2, Empathy +2, Lib-Arts +2, Persuade +2, Socialize +2

### Former

The Former subculture places great emphasis on wealth and the acquisition of material possessions. It also values close-knit ties between members of the subculture, and many Former-led organizations display a thinly-veiled favoritism towards other Formers. Common in the subculture is a clean, almost plastic appearance. Elective implants are common. See page 42.
- **Experiences:** Athletics +2, Bureaucrat +2, Comp-Ops +2, Deception +2, Persuade +2, Stealth +2

### Ghostman

The Ghostman subculture is known for its morbid aesthetic and flights of fancy. The subculture values a sense of romanticism bordering on escapism. As with the Neoret subculture, the Ghostmen sometimes look back at an idealized past, but in the case of the Ghostman subculture, this view borders on one of pure fantasy. The subculture's adherents are more likely than most to mix a sense of religion, spiritualism or occultism into their daily lives. See page 44.
- **Experiences:** Awareness +2, Conspiracy +2, Investigate +2, Program +2, Stealth +2, Thievery +2

### Heed

Heed culture values pursuit of pleasure, new experiences and living in the moment. This emphasis on the here-and-now has led some in other subcultures to view Heeds as short-sighted. The subculture embraces chemical augmentation of abilities but is more likely than most to reject physical augmentation through implants. Heeds also tend to have a lack of emphasis on clothing and personal appearance. See page 46.
- **Experiences:** Awareness +2, Bio-Sci +2, Empathy +2, Medic +2, Phy-Sci +2, Socialize +2

## Applying Subculture to Skills

When a subculture gives experiences in a skill, these experiences either increase the skill or relate to past endeavors.

*Example:* Alice has no Medic skill and a subculture is chosen that gives +2 experiences to Medic. The first experience simply increases her to Medic 1. The next experience counts towards her next Medic increase, and she must name to what it relates. She chooses this experience to be "First Aid."

## Neoret

The Neoret subculture mixes personal eccentricity with the exaltation of looking back to an idealized past. The subculture embraces the reintroduction of older ideas and models of organization, usually with some revisionist twist. It also values a reverence to past cultural identities and mores. This backward-facing mentality can lead some in other subcultures to view Neorets as foolish or blind to the negative aspects of the past. See page 48.

- **Experiences:** Crafts +2, Deception +2, Investigate +2, Lib-Arts +2, Melee +2, Naturalist +2

## Serv

Serv is less a coherent subculture than an amalgamation of different conservative religious groups and cultures that are lumped together by the rest of society under the category due to their rejection of modern culture and mores. This includes groups of Mennonites, communities of Hasidic Jews, some sects of Hindus, some tribal Islamic communities and any number of other traditional religious communities. See page 50.

- **Experiences:** Athletics +2, Awareness +2, Bio-Sci +2, Engineer +2, Naturalist +2, Vehicles +2

## Techno

The Techno subculture embraces new technologies and their impact on daily life, particularly in regard to AI, AR, implants and simspaces. Many of the older generation in the subculture view meatspace as increasingly obsolete and seek instead to "transcend" meatspace in favor of an almost entirely digital life. Many of the younger generation in the subculture instead favor elective implants as a way to overcome the limitations of the flesh. See page 52.

- **Experiences:** Comp-Ops +2, Engineer +2, Mechanic +2, Phy-Sci +2, Program +2, Vehicles +2

## Scores & Traits

By this point, the bulk of the character has been built mechanically. All that is left is to put on some finishing touches and then to purchase starting gear. In this step, the player will make a few calculations for scores based on the character's stats, and then pick out a few traits such as the character's native language and possible weaknesses.

## Score Calculations

The following scores are used by the various systems found in the **Shadows Over Sol** game. Determining them is a simple matter of addition. The formula for each of these scores is given below:

- **Damage Reduction (DR):** This is the ability of a character to resist damage. It will be 0 for now, but may increase later when the character purchases gear. See page 117.
- **Defense:** This is the ability of a character to avoid being hit in combat. It consists of two values: the target number to hit the character ([Spd + Per + Dex] ÷ 2) and the target number to score a critical hit on the character (Spd + Per + Dex). See page 123.
- **Edge:** This is the number of cards drawn into the character's hand at the beginning of each session (Average of Int & Chr). See page 112.
- **Encumbrance:** This is the number of encumbrance slots the character has for carrying gear around (Str). See page 179.
- **Shock:** This is the damage value necessary to stun the character in combat and possibly upgrade wounds (End + Det + DR). See page 118.
- **Wound:** This is the total wound penalty at which characters begin to risk unconsciousness and death (Average of Str & End). See page 118.

## Pick Culture & Language

Every character automatically begins with one native language and familiarity with one subculture. These are traits the character possesses. The character's starting language can be any language that makes sense for her. Her starting cultural familiarity will typically be with the same subculture she picked in the last step.

In addition to the automatic starting languages and cultures, players may pick up to one more language for every point the character has in the Lib-Arts skill. Players may also pick up to one more culture for every point the character has in the Socialize skill. These extra languages and cultures need not be picked right now. That is, if the character has Lib-Arts 4, the player should not feel she has to pick four extra languages now. If she does not, these extra language or culture slots will remain open for her to learn new languages, or become more familiar with cultures, in play.

Players should talk over what languages they should take, as it is usually important for all player characters to share a language. A table of the languages most commonly used in the solar system is given below:

| Language | | |
|---|---|---|
| Arabic | Hindi | Portuguese |
| Bangali | Japanese | Punjabi |
| English | Javanese | Russian |
| French | Malay | Spanish |
| German | Mandarin | Wu |

## Pick Weaknesses

The most interesting characters tend to have some kind of weakness, whether it's that they struggle with some personal vice or they have some physical shortcoming of some type. In *Saga Machine*, these sort of flaws are represented by weakness traits.

All weakness traits are similar in that they are optional traits that each present some kind of drawback, but in return, when that drawback negatively affects the character in some significant way, she gets to draw a card. In this way, weakness traits can be a good mechanism for refilling one's hand during play. In *Shadows Over Sol*, there are four different weakness traits available. It is recommended that player characters pick up a weakness trait or two, but more than two or three may be overdoing it. Characters can take the same weakness trait multiple times, each time with a different subject. The different weakness traits are described below:

- **Impairment:** Characters with this trait have some sort of impairment at a particular category of actions. This gives a -2 or more significant penalty to those actions. When this trait is chosen, the player should decide upon the actions to which this trait applies. For example, Impairment (Limp) may give a -2 penalty to actions that involve running or holding something steady while walking. Impairment (Dyslexia) may give a penalty to actions that involve reading quickly or writing clearly. Impairment (Bad Hearing) may give a -2 penalty to actions that involve hearing things.

- **Disability:** When a character possesses this trait, she automatically fails some category of actions due to a disability. For example, a character with Disability (Blind) will fail actions that depend solely on eyesight. A character with Disability (Illiterate) will fail actions that require reading. The player should decide upon the nature of this weakness when it is taken.

- **Shortcoming:** A character with this weakness takes a -2 or greater penalty to a derived score, such as Defense, Edge, Shock, Wealth or Wound. The player should decide upon the nature of this weakness when it is chosen. Examples include Shortcoming (Low Pain Threshold), which applies to Shock, or Shortcoming (Slow Reaction Time), which applies to Defense.

- **Complication:** This is perhaps the most abstract of the four weakness traits. It represents a hindrance that comes up periodically at inconvenient intervals. Examples include Complication (Enemy) where a character's personal enemy shows up to try to harm the character, Complication (Epilepsy) where a character sometimes falls into a seizure or Complication (Wanted) where the authorities will sometimes try to arrest the character. When taking this weakness, the player should decide upon the nature of the complication and the type of situations in which the complication can arise. The complication arises whenever a joker is played by the player in one of these situations. For example, Complication (Wanted) may result in arresting authorities or bounty hunters showing up, and arises in situations where a character is arriving in a new port or going through a security checkpoint. Should the player play a joker in one of these situations, she may be arrested or have to deal with a bounty hunter. The player should work with the GM when taking a Complication weakness.

## Wealth & Gear

By now, the character's stats, skills, place in the world and weaknesses have all been ironed out. The final step of character creation is to determine the character's wealth, lifestyle and notable gear. Despite this being the last step, it is also a very important one because science fiction is often defined by its technological toys, and horror is defined by the ability (or lack thereof) of the characters to deal with the horrific situation at hand.

### Starting Wealth

A character's wealth value is a measure of her ability to tap her financial resources (see page 148). This starting value is set by the campaign's mode of horror, although it may shortly go down as the character purchases notable gear. Additionally, the number of initial purchases a character gets beyond the general package of starting gear is also defined by the mode of horror. See the table below:

| Horror Mode | Wealth | Purchases |
| --- | --- | --- |
| Survival Horror | 4 | 2 |
| Investigative Horror | 6 | 3 |
| Action Horror | 8 | 4 |

### Starting Gear

Unless a player decides otherwise, all characters can begin with the following common gear in addition to the purchases she gets (see below).
- Sufficient clothes for lifestyle. Depending on the character's Lifestyle this may be anything from only the clothes on her back to a complete wardrobe.
- AR Glasses (page 193)
- Hand Terminal (page 191)
- Her choice of one of the following kits: Disguise Kit (page 197), Medikit (page 190), Survival Kit (page 199) or Toolkit (an associated skill experience must be specified. Suggested skills include Bio-Sci, Crafts, Engineer, Mechanic, Phy-Sci, Thievery. See page 198).
- Her choice of two of the following accessories: Backpack (page 199), Binoculars (page 194), Biomonitor (page 189), Camera (page 195), Disposable Cuffs (page 196), Flashlight (page 199), Geiger-Counter (page 195), Injector Unit (page 187), Rope (page 199), Solmitol (page 188), Stimulox (page 188) or Torepstat (page 188).
- Should she purchase any weapons at character creation, she starts with one full clip or battery for any purchased weapons.

### Make Purchases

The player may now make a number of purchases for the character to outfit her with notable equipment. The maximum number of purchases that can be made right now are defined by the campaign's mode of horror (see the table above). Purchases made in this way work exactly like purchases made during play. That is, purchases whose cost rating exceeds the character's wealth rating may lower the character's wealth (see page 149).

Remember players need not purchase everything the character owns right now. Most mundane possessions and aspects of a character's daily life, such as a hab or transit pass, are covered by the character's Lifestyle rating (see the next step). Instead, focus on any extraordinary or defining gear the character may own, such as implants, a weapon, surveillance gear, etc.

### Purchase Options

The wealth rules provide for a number of purchasing options intended for use during play. For example, rules for pooling wealth, making bulk purchases or selling goods back are all included. These options are not intended for use in character creation system, and it is recommended that GMs disallow them until play.

## Pick Lifestyle

The final step is to pick the character's lifestyle rating (see page 151). This is a measure of how well the character lives and what mundane resources she easily has at her disposal. The player can pick any rating for the character from 0 to 10, but a few things should first be considered:

■ What lifestyle rating makes the most sense for the character given her concept and other background information? Some concepts will lend themselves to a particular range of lifestyle ratings.

■ Characters will need to make monthly payments to support their lifestyle rating. Look at the character's current wealth rating after the purchases that were just made. Picking a lifestyle too far above that number will quickly result in being unable to pay for the lifestyle and downgrading to a lower one anyway. Either way, the character is going to be desperate for money. The formerly-wealthy character forced into a cheap hab or into the streets is a fine character arc if that's what the player wants to play, but players should make sure that's what they want first.

■ Picking a lifestyle that is too far below or above the character's wealth rating implies that there's some kind of story there. Was the character a poor hab resident that has suddenly come into some sort of windfall? Or was she middle-upper corp management, and now has fallen from the company's good graces?

## Character Names

Names in the future of *Shadows Over Sol* work very much like they do in the real world, with only minor adjustments. Surnames still typically run in families, which varies with ethnicity and correlate with subcultures, as subcultures tend to run in families. Trends in first names still change with the times, although these are often influenced by media, which is itself influenced by subcultures. Generally speaking, however, the transient society and geographic melting pot of the last century has led first names to be a lot less ethnically intertwined than in the real world. Additionally, with the exception of parts of the Serv subculture, names tend to be a lot less gender-specific than in the real world.

## Axes of Advancement

GMs can think of player characters as having two axes of character advancement in *Shadows Over Sol*: experiences and equipment. It is important to take both of these into consideration when planning a campaign.

The experience system is designed to develop well-rounded characters with a fairly organic pattern of growth. It's also meant to tie the character's actions in a session directly to their advancement. It should be fairly self-balancing.

Equipment, on the other hand, is a more tricky consideration. Characters with the correct equipment can steam-roll over certain types of scenarios, significantly reducing the impact of the horror. Luckily, GMs have at their disposal a mechanism for keeping the equipment of the PCs balanced against the scenario.

This mechanism is the characters' wealth scores. Since a given wealth score always results in a predictable maximum cost rating that can be purchased, GMs should ensure that the PCs' wealth scores don't get out of hand, resulting in them being able to purchase equipment that would break the scenario. For example, if Cost 11 equipment would break the scenario, and it takes Wealth 7 to purchase it, the GM can ensure that the rewards being offered to the PCs don't exceed Wealth 6. Managing wealth means managing equipment.

# Character Advancement

No one stays the same for long. People change, they grow, they advance and they learn from their experiences. Similarly, characters in **Shadows Over Sol** don't remain the same for long—they advance and grow.

## Experiences

Over the course of a campaign, player characters will accumulate experiences. These experiences represent the character's growth, learned skills and progress in a particular area. Experiences are awarded by the GM at semi-regular intervals throughout the campaign—typically at the end of each session. They are used to increase the character's stats and skills or to give a bonus to a skill's actions.

Ultimately it is up to the GM to reward experiences and to decide on what basis to award them. It is generally recommended to award between 2 and 4 experiences each session. An example metric for awarding experiences follows:

| Basis | Reward |
|-------|--------|
| Participated in the session | 1 |
| Showed up prepared and on time | 1 |
| Played to genre | 1 |
| Was a team player | 1 |

## Allocating Experiences

When a player's character receives experiences, the player must allocate them to a particular stat or skill that saw use that session. The stat or skill can have seen use either as part of an action or as something the character actively worked on in her downtime. No more than one experience can be allocated to any single stat or skill at the same time.

Experiences assigned to stats are simply tally marks counting toward the next increase of the stats. Experiences assigned to skills, on the other hand, are given a descriptor that applies to how the skill was used that session. Examples include "tropical birds" for the Naturalist skill or "groundcar repair" for the Mechanic skill. In the future, these experiences can give a +1 bonus to related skill actions when they apply (see Skill Experiences on page 99).

## Increasing Stats & Skills

When the number of experiences allocated to a stat or skill increases beyond the current value, the experiences are erased and the stat or skill increases by one. For example, this means that the very first experience assigned to an untrained skill will increase it to skill 1, and it would take five experiences to increase Strength 4 to Strength 5.

In the case of skill experiences, this means that the increasing frequency of +1 bonuses from experiences eventually becomes an effective unconditional +1 from the skill increase.

## Non-Starting Characters

Sometimes the GM wants a player to make a character with a greater than usual degree of experience, such as a replacement character being made mid-campaign. These characters are made just like the usual starting characters, but then are given some experiences that can be allocated to increasing stats and skills.

To determine how many to give, the GM should think of it in units of sessions. If the GM has been giving out about the recommended three experiences a session, and the campaign is five session in, the GM should give out five sets of three experiences. These experiences can then be spent just as if the character had been there each session. This also means that the maximum number of experiences that can be assigned to any one stat or skill is equal to the number of sets.

Finally, the GM should think about what starting wealth score to assign the new character. It's recommended to look at the other player characters as a benchmark when deciding this. Use the average wealth score among other characters. It is recommended to use the usual number of starting purchases for the campaign's mode of horror. But if the GM feels this will result in an under-equipped new character, she may optionally allow a couple more.

# Gear

In the twenty-third century, gear is essential. Without it, humanity is simply a bunch of hairless primates with a capacity for language and existential angst. With the right gear, humanity has tamed the landscape, built civilization and reached out towards the stars.

## Gear Properties

Gear in the *Saga Machine* system is largely a matter of common sense. A lock pick can be used for picking locks but not for forensic anthropology; a cane can be used to walk with and may serve as a basic improvised weapon in a pinch. Mechanically, however, a piece of gear often has a number of listed properties indicating how it interacts with various rules systems. This is particularly true of weapons and armor. A property, for example, may indicate the piece of equipment is big and takes up more encumbrance than normal, or it may indicate that the weapon is capable of autofire, spitting out bullets in rapid succession.

The different gear properties possessed by equipment in the *Shadows Over Sol* setting are listed below. For ease of reference, they have been divided up into general properties, weapon properties and armor properties.

## General Properties

General properties are gear properties that can apply to any kind of gear, from computers and spy gear to weapons and armor. The different general properties are listed below:

- **Big X:** This item is large enough or heavy enough that it occupies more than one encumbrance slot, where X is the number of slots occupied.
- **Computer X:** This item has general computing capabilities. The indicated rating is a measure of its processing power, storage, bandwidth and other specs (see page 136).
- **Conceal X:** This item is particularly easy to conceal on one's person. It grants the listed bonus on attempts to conceal it against notice or upon search.
- **Container X:** This item is designed to carry others inside of it. It can carry the indicated number of encumbrance slots of items. When these items are inside the container, they do not count towards the character's encumbrance total. Often these items will have restrictions on the items placed in them. See the container's description for details.
- **Implant X:** This item is designed to be implanted in the owner's body. If implanted in this way, it takes no encumbrance slots but has the usual effects of implants, applying the indicated penalty (see page 186).
- **Neg:** This item has negligible weight and does not occupy any encumbrance slots. At the GM's discretion, holding mass quantities of this type of item may add up to an encumbrance slot, however.
- **Mil:** This gear is military-grade, marking it as difficult or expensive to acquire outside of military or paramilitary organizations. Purchasing this gear will often raise red flags with the local authorities.
- **Software X:** This gear is software. Naturally, it takes up no encumbrance, but a data

chip or computer is required to store the software. The indicated rating is a measure of the computing resources needed to run the software (see page 136).

- **Worn:** This item is designed to be worn and only occupies an encumbrance slot if it is being carried and not worn.

## Weapon Properties

Weapon properties are properties primarily aimed at how weapons interact with the combat system or other rule systems. The different weapon properties are listed below:

- **Area X:** This weapon deals an area attack with the indicated primary radius in meters. Its attack affects all characters within that radius, and may affect characters within the secondary radius (see page 127).
- **Autofire X:** Weapons with this property are capable of autofire and suppressive fire. The higher the rating, the more shots that can be spit out into the attack (see page 128).
- **Burn:** A character hit with an attack from this weapon may catch fire. If she makes a dodge reaction against the attack, she avoids catching fire, even if the dodge was unsuccessful. Otherwise, she must make a Dex/athletics-10 flip or increase her Bleeding consequence a severity from the burn.
- **Damage ♠X/♥X/♦X/♣X:** This weapon deals the damage listed for the listed suits when it is used to attack (see page 117). For some weapons, this will be a function of the wielder's Strength.
- **Hands X:** This property indicates the number of hands required to wield the weapon. If this property is not listed, it is assumed to be Hands 1.
- **Pierce X:** Weapons with this property ignore the indicated number of DR. Subtract this number from DR before using it to resolve damage from this weapon.
- **Range X:** This weapon can attack at a range, with short range being within the indicated number of meters.
- **Reload X:** This property indicates how many AP worth of interact actions are necessary to reload the weapon. If this proper-

ty is not listed and the weapon takes shots, it is assumed to have Reload 1.

- **Shots X:** This property indicates how many shots fit within the weapon's magazine or battery.
- **Stun:** This weapon is designed primarily to stun its target, although it may deal light damage. When damage from this weapon is compared to the target's Shock value, the severity of the damage is never increased. The Stun consequence, however, is applied as normal.
- **Thrown:** This weapon is designed to be able to be thrown. Thrown weapons have a range equal to the character's Strength.

## Armor Properties

Armor properties are gear properties that typically are intended to apply to armor. The different armor properties are described below:

- **Bulky X:** This armor is bulky when worn and hinders the character's movement. It gives the indicated penalty to all Dexterity- and Speed-based actions while worn. Typically only one bulky item may be worn at a time.
- **DR X:** This item provides the amount of damage reduction indicated when worn.
- **Gel X:** This armor is constructed using a ballistic gel that hardens when bullets strike it. It provides the indicated additional DR against ballistic attacks only.
- **Reflect X:** This armor is constructed with reflective and refractive material that scatters or absorbs the light of laser weapons. This provides the indicated additional DR against laser attacks only.
- **Str X:** When worn, this armor with this property gives the indicated bonus to the character's strength actions. This bonus also applies to the character's encumbrance slots.
- **Vac:** This armor is sealed for use in a vacuum. This will protect a character in a vacuum, provided they have a ready air supply, and it also protects against gas-based agents or attacks.

# Encumbrance

Characters can only carry so many things around with them before they begin to get bogged down under its sheer mass and bulk. This is represented mechanically as a number of encumbrance slots. Every piece of gear—unless a property indicates otherwise, such as with the worn or Neg properties—takes up exactly one slot. This limits what the character can carry around before she begins to be impeded by its bulk. For example, a character with Encumbrance 5 can carry five items without penalty. A character has a number of encumbrance slots equal to her Strength.

## Encumbrance = Strength

Characters who carry equipment over this limit gain the Encumbered consequence (see page 230). This consequence starts at light severity and increases a severity every multiple of her limit she carries. For example, if a character has 5 encumbrance slots and is carrying around 6 items, she has Encumbered (light). If she later picks up more items and is then carrying around 10, she is at Encumbered (moderate), since that's double her number of encumbrance slots. This would increase to Encumbered (severe) at 15 items, and Encumbered (critical) at 20 items. A character simply cannot lift more items than five times her number of slots.

## Negligible Encumbrance

Gear that has the Neg property has negligible encumbrance. These items aren't typically encumbering on their own, but their bulk can still add up if carried en masse. As a rule of thumb, assume every 100 negligible items adds up to an encumbrance slot. The GM is free to adjust this if common sense dictates otherwise.

# Containers

Containers can allow a character to carry around gear more efficiently. This allows several items and the container to all share a single encumbrance slot, whereas they might otherwise have occupied several.

Think about it this way: Imagine trying to carry twelve cans of a beverage. It's not the weight that hinders you; it's the shape and bulk. You might be able to stack them up in your hands, leaning them against your chest, and toting them all without dropping them, but you're going to be encumbered. It's going to impede your ability to do other things while carrying them around. With a container on the other hand, those twelve cans are going to be boxed up in a 12-pack, and can probably be grasped under an arm, unencumbered.

Mechanically, containers are pieces of gear that have the Container X property, where X is the number of items the container is designed to carry. Almost all containers are designed to tote some particular kind of item. Gun magazines are designed to hold bullets, for instance. This limits the kind of items the container can efficiently carry. These limitations will be noted in the container's description.

## Carrying Characters

There are times when a character might want to carry or drag around another. This can happen when one of the characters is unconscious or otherwise incapacitated. Other characters typically have the Big property for the purposes of encumbrance. As a rule of thumb, assume a character has Big X, where X equals the sum of their Strength and Endurance. So, for example, a character with Str 5 and End 4 would be Big 9. The GM may want to adjust this value for particularly large or small characters.

# Arms

Humans have killed humans since the very beginning of our species. As time has gone on, we have invented new and creative ways to bring each other's' lives to premature and messy ends. Below are a wide cross-section of ways this is commonly done in the twenty-third century.

## Buying Guns

When you purchase a weapon, you can assume it comes with one full battery or magazine of ammunition compatible with it. The ammo in the magazine is of the most basic type available. It does not include any special ammunition that may be available on the market. The inclusion of ammunition is particularly important to note at character creation because players are not required to use a second purchase to secure ammo for their weapon.

## Ballistic Projectiles

It has been said, "God made man, but Samuel Colt made them equal." Whatever the case may be, ballistic projectiles have been a favored method of murder for centuries. These guns are common in the twenty-third century.

### USD-383 "Wasp" Light Pistol

- **Cost Rating:** 5
- **Damage:** ♠12M/♥8M/♦4M/♣2M
- **Properties:** Range 10; Shots 10

A personal protection favorite, the USD-383 "Wasp" Light Pistol is ready to lock and load! Take aim at your favorite shooting range or when your life is in danger. The gun is small enough to fit most holsters or to slip into a purse! It comes with patent-pending rubberized grip and is available in gun barrel gray, matte black, racing stripe red or powder pink.

### USD-720 "Widowmaker" Heavy Pistol

- **Cost Rating:** 6
- **Damage:** ♠15M/♥10M/♦5M/♣2M
- **Properties:** Autofire 2; Range 10; Shots 10
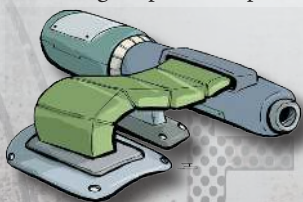
The ultimate man-stopper, the USD-720 "Windowmaker" Heavy Pistol is sure to leave you standing and your enemies taking a dirt nap. A long-time favorite of bounty hunters and security forces the Sol system over, this sleek .50 caliber handgun is now available on the open market! Order yours today!

### USD-1200 "Amazon" Light Rifle

- **Cost Rating:** 6
- **Damage:** ♠18M/♥12M/♦6M/♣3M
- **Properties:** Hands 2; Range 20; Shots 10

The rifle you need when you're on the go, the USD-1200 "Amazon" Light Rifle has been designed from the ground up for easy transportation and assembly. With balancing range, magazine capacity and ease of maintenance, the Amazon gets the job done. Satisfaction guaranteed. Some assembly required.

### USD-3200 "Valkyrie" Heavy Rifle

- **Cost Rating:** 7
- **Damage:** ♠21M/♥14M/♦7M/♣3M
- **Properties:** Autofire 2; Hands 2; Range 20; Shots 20

The USD-3200 "Valkyrie" Heavy Rifle is a masterpiece of twenty-third century engineering, combined with sleek twenty-second century ascetics. Own the best-designed and best-looking heavy rifle on the market! It comes with two autofire settings and a designer gun case. Remember, Valkyrie means quality.

### Xenocom X4 Machine Pistol

- **Cost Rating:** 9
- **Damage:** ♠18M/♥12M/♦6M/♣3M
- **Properties:** Autofire 3; Mil; Range 10; Shots 15

The Xenocom X4 Machine Pistol is a military favorite. Coming with the best fully

automatic capability of any pistol on the market, the X4 outdoes the competition. Pick yours up and feel the ballistic power in your hand. Place an order for the entire unit. Outfit our squad with the best!

## Xenocom X8 Machine Rifle

- **Cost Rating:** 10
- **Damage:** ♠24M/♥16M/♦8M/♣4M
- **Properties:** Autofire 3; Hands 2; Mil; Range 20; Shots 30

When you want maximum staying power, you want the Xenocom X8 Machine Rifle. Combining the best in range and magazine capacity with the best in full-auto heat suppression technology, the Xenocom X8 is second to none. Pair with our range finder or tracer round extras for the ultimate military battlefield kit.

## Laser Projectiles

Laser weapons are bulkier and have fewer shots between reloads than their ballistic counterparts. Nevertheless, their recoil-free nature means that they have a distinctive advantage in low gravity environments.

## USD-490L "Indra" Light Laspistol

- **Cost Rating:** 7
- **Damage:** ♠12M/♥8M/♦4M/♣2M
- **Properties:** Range 10; Shots 5

In zero-G the professional soldier knows not to be caught with only a ballistic gun at hand, because dead is what she will be. Don't let this happen to you. Take the USD-490L "Indra" Light Laspistol into your zero-G battles and you will never want to use another lasgun again!

## USD-840L "Horus" Heavy Laspistol

- **Cost Rating:** 8
- **Damage:** ♠15M/♥10M/♦5M/♣2M
- **Properties:** Autofire 2; Range 10; Shots 5

The USD-840L "Horus" Heavy Laspistol is simply best heavy laspistol on the market.

Designed from heavy-duty metal alloys and with anti-heat ceramic plating, the Horus outshoots the competition. Plus, the Horus' state of the art battery packs are guaranteed to hold the charges for months without unwanted discharge.

## USD-2280L "Zeus" Light Lasrifle

- **Cost Rating:** 8
- **Damage:** ♠18M/♥12M/♦6M/♣3M
- **Properties:** Hands 2; Range 20; Shots 5

Perfect for use on spaceships or stations across the system, the USD-2280L "Zeus" Light Lasrifle is jam-packed with all the essentials needed for successful space security. From its sleek, curved barrel to its finger-molded grip, the Zeus is a miracle for the professional security worker.

## USD-4700L "Thor" Heavy Lasrifle

- **Cost Rating:** 9
- **Damage:** ♠21M/♥14M/♦7M/♣3M
- **Properties:** Autofire 2; Hands 2; Range 20; Shots 5

Don't be out-gunned: carry the USD-4700L "Thor" Heavy Lasrifle. The best in range, accuracy and automatic fire capacity, every Thor heavy lasrifle is constructed from the finest materials and tested by the weapons experts at Utakar System Dynamics. So don't be out-gunned. Choose the best!

## Xenocom L3 Machine Laspistol

- **Cost Rating:** 11
- **Damage:** ♠18M/♥12M/♦6M/♣3M
- **Properties:** Autofire 3; Mil; Range 10; Shots 10

The L3 Machine Laspistol is the latest military-grade laspistol from Xenocom. It's heavy-duty ionized battery contains enough charge for sustained fire, and its state of the art heat-sinks support the highest rates if automatic fire. Pick yours up and make the best decision you've ever made today!

## Xenocom L8 Machine Lasrifle

- **Cost Rating:** 12
- **Damage:** ♠24M/♥16M/♦8M/♣4M
- **Properties:** Autofire 3; Hands 2; Mil; Range 20; Shots 10

When in combat, it's best to remember: don't let up. That's why you need the Xenocom L8 Machine Lasrifle. With this high quality military-grade laser rifle, you can keep the pressure on, pinning your enemies down with its automatic fire and keeping your allies out of the line of fire.

## Grenades

Where small arms fail, heavy arms may succeed. Either way, they're likely to leave collateral damage. Below one can find a variety of listings for grenades.

## USD-9300 Frag Grenade

- **Cost Rating:** 4
- **Damage:** ♠24M/♥16M/♦8M/♣4M
- **Properties:** Area 5; Mil; Thrown

The USD-9300 is the ultimate in frag grenade flexibility and reliability. It comes with two modes of operation: impact or timer. Simply arm the grenade and fling it at foes, or let it count down. The choice is yours!

## USD-9700 Stun Grenade

- **Cost Rating:** 3
- **Damage:** ♠24L/♥16L/♦8L/♣4L
- **Properties:** Area 5; Stun; Thrown

Perfect for crowd control, the USD-9700 Stun Grenade is a wonder to behold. Just set the grenade to burst on timer or upon impact and let it go. The USD-9700 is guaranteed to stun or incapacitate with nonlethal precision. Order yours today!
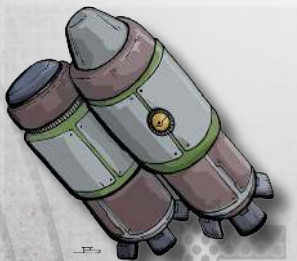
## Melee Weapons

Over the millennia, humanity has invented numerous melee weapons, going back beyond the dawn of recorded history. In the twenty-third century, some of these melee weapons still see common use.

## Baton

- **Cost Rating:** 1
- **Damage:** ♠Str×3+6L / ♥Str×2+4L / ♦Str+2L / ♣½Str+1L
- **Properties:** —

Barons are a tried-and-true classic when it comes to dealing out blows with a minimum of lethal force. Favored as a control weapon by light security forces the world over, it never hurts to have a baton at your side. Baton telescopes for easy pocket storage. It is available in both solid colors and faux-wood.

## Combat Utility Knife

- **Cost Rating:** 1
- **Damage:** ♠Str×3M / ♥Str×2M / ♦StrM / ♣Str×½M
- **Properties:** Thrown

It's a weapon. It's a tool. It's both! Combat utility knives are a versatile weapon and tool, balanced for both hand-to-hand use as well as sudden throws. Combat utility knives can be used to cut rope, pry open simple doors or butter toast. Never leave home without one! The handle comes in a variety of custom styles.

## Sinoex Monowhip XT

- **Cost Rating:** 5
- **Damage:** ♠StrS / ♥Str×¾S / ♦Str×½S / ♣Str×¼S
- **Properties:** Mil; Pierce 10
- **Critical Effect:** When this critical effect is chosen, the monowhip does not break upon impact, as is normal.

Crafted by the exotic materials experts at Sinoex, the Sinoex Monowhip XT is a coiled strand of near-monomolecular wire with a weight on the end held in a magnetized handle. Upon pressing a button, a power source in the handle causes the wire to uncoil and extend outward, providing the ideal cutting tool.

Monowhips tear through armor like cardboard, but their limited tensile strength means they are typically one-use weapons, breaking after they successfully strike a target.

## USD-07 "Firefly" Shockstick

- **Cost Rating:** 4
- **Damage:** ♠Str+18L / ♥Str+12L / ♦Str+6L / ♣Str+3L
- **Properties:** Stun
- **Critical Effect:** When this critical effect is chosen, increase the target's Stun consequence a severity.

Incapacitate your opponents with a nonlethal electric charge, using this USD-07 "Firefly" Shockstick. The Firefly is a telescoping baton that has a rubberized grip on one end. This insulates the wielder from the electric charge, which can be switched on or off using a button on the grip. If struck, the electrolyzed end discharges, delivering a shock to the opponent intended to stun or incapacitate.

## Unarmed

- **Cost Rating:** —
- **Damage:** ♠Str×3L/♥Str×2L/♦StrL/♣½StrL
- **Properties:** —

It doesn't get much more primal than old-school fisticuffs. Despite all the technological ways to go for blood, fistfights remain the most common form of violence in the Sol system. This listing represents the human capacity to attack with fists, feet or teeth.

## Ammunition

Most projectile weapons require ammunition of some sort—whether bullets or battery power. These are sold in clips (for ballistic firearms) or batt-packs (for laser projectiles). Both clips and batt-packs are typically designed to be easily ejected and inserted. Below are some basic options for ammunition.

## Ballistic Clips

- **Cost Rating:** 2
- **Properties:** Mil (clips for guns with the Mil property only)

What are guns without clips of ammunition? Poorly-designed clubs! Don't bring a club to a gun fight. Ammunition is sold in clips fitting the gun in question. Most guns have their own standard for ammunition in terms of both caliber and cartridge design. The type of gun the ammo is designed for must be specified when the clip is purchased.

## Laser Batt-Packs

- **Cost Rating:** 3
- **Properties:** Mil (batt-packs for guns with the Mil property only)

Keep your lasers powered up and ready! Laser weapons are powered by high-density batt-packs, capable of releasing the tremendous charge necessary to power weaponized lasers in a small amount of time. The downside of these high-density batt-packs is that it takes serious industrial equipment to recharge them, meaning that batt-packs are typically bought as one-use items and the expended packs simply sold back to the manufacturer for pocket change. Each batt-pack holds the weapon's listed "shots" in charges. Like clips, batt-packs are typically manufactured for a single model of firearm.

## Military-Grade Armaments

Military-grade arms, armor and ammunition is de facto restricted to military or paramilitary organizations. Almost all corps have policies against the ownership of such equipment in areas they administrate by anyone other than their own security or contractors, and its ownership is often technically illegal to boot.

In practice, this means that military-grade armaments are often difficult to acquire without throwing around a lot of credits. The cost ratings in the gear descriptions reflect this street price. Even if military-grade gear is bought, however, its purchase, carry and use tends to raise red flags among the local security and other concerned parties.

# Armor

The steady advance of new and more efficient ways to kill fellow human beings has spurred similar advancements in how to prevent those same human being from becoming meaty red paste. A portion of these protecting advancements is in the armor that people have available to wear.

## Light & Utility Armors

The Sol system is a dangerous place, and both light and utility armors see widespread use without raising too many eyebrows. Vac suits in particular are essential to life in space and are ubiquitous throughout the system.

### USD-11h "Bulwark" Ballistic Suit

- **Cost Rating:** 5
- **DR:** 2
- **Properties:** Gel 3; Worn

Simply the best in light but durable ballistic protection, the USD-11h "Bulwark" Ballistic Suit stops bullets in their tracks. Utilizing Utakar's proprietary Shell-Stopper™ gel technology, the Bulwark hardens upon impact, distributing the kinetic force of the impact throughout the body. Self-sealing gel closes in seconds. Designer pockets fit most common magazines. It is available in black, charcoal, rosewood and navy.

### USD-24k "Aegis" Reflect Suit

- **Cost Rating:** 6
- **DR:** 2
- **Properties:** Reflect 3; Worn

Do lasers threaten to give you health problems by burning holes into your flesh? Then look no further! The USD-24k "Aegis" Reflect Suit scatters lasers before they can scatter you. Constructed of bleeding-edge materials, the Aegis refracts laser light, leaving the wearer unharmed. This comes with either a frosted or glossy finish.

## P&W Wide-Trim Designer CoverJack

- **Cost Rating:** 4
- **DR:** 3
- **Properties:** Conceal 2; Worn

Just because you need to wear armor doesn't mean you have to sacrifice style. With the Pfeiffer & Wu Wide-Trim Designer Coverjack you can have your cake and eat it, too! Designed for maximum comfort and discrete protection, all P&W coverjacks can pass as normal suits upon both visual and infrared inspection. This comes in a variety of designer colors! Power tie optional.

## Unitech "Sunspot" C3 Vac Suit

- **Cost Rating:** 5
- **DR:** 3
- **Properties:** Big 5; Bulky 1; Vac; Worn

The Unitech "Sunspot" C3 Vac Suit is the spacer's best friend. Capable of operating for up to six hours in complete vacuum and in a variety of pressure, radiation and atmospheric conditions, this space suit is truly the first in its class. Compressed air canisters connect at both hips, providing redundancy and allowing changes in the field. AR link included.

# Heavy & Power Armors

Heavy armors—even the civilian models—are not casual wear. The bulky clamshell designs mark anyone wearing it as dangerous and looking for a fight. Power armor ups this yet another notch, making the wearer into a one-person force of destruction.



## USD-38n "Knight" Tactical Suit

- **Cost Rating:** 8
- **DR:** 5
- **Properties:** Big 5; Bulky 1; Worn

Utakar's latest design in heavy civilian armor, the USD-38n "Knight" Tactical Suit employs advanced safety measures to keep the wearer up and fighting. Built from the ground up for reliable protection, the Knight Tactical Suit is a must-have for any urban warrior. Straps and pockets carry extra magazines. Comes in a variety of patterns and colors. Available in both matte and gloss.

## USD-44p "Shogun" Combat Armor

- **Cost Rating:** 11
- **DR:** 10
- **Properties:** Big 5; Bulky 2; Mil; Worn

The best protection an infantryman can get, the USD-44p "Shogun" Combat Armor is the prize of the battlefield and tested by Utakar's hands-on quality assurance experts. Remember, if you're not wearing USD, you're probably dead. Features an AR link, HUD, multiple gun holsters and clipped belt for carrying grenades. Customized paint jobs at no additional cost. Available in both matte and gloss.

## Xenocom "Infinity" PowerShell Armor

- **Cost Rating:** 14
- **DR:** 20
- **Properties:** Big 15; Bulky 3; Mil; Str 5; Vac; Worn

Go beyond the usual limits with Xenocom "Infinity" Powershell Armor. The go-to choice of security professions for more than three decades, Infinity power armor is rugged and reliable. Tailor-made for field maintenance and repair, the Infinity comes with HUD, AR link, a six-hour air supply, left and right arm weapon mounts and internal power cell. Holster points optional. Comes in a variety of colors.

# Implants

Implants are mechanical or biological items designed to be implanted in the owner's body. There, the implant works to replace or augment the owner's physical or mental capabilities. Implants are generally broken down into two categories: cyberware (mechanical implants) and bioware (implants that are biological in nature).

There was a fad for implants in the late twenty-first and early twenty-second centuries, but aside from a few medical implants, cheap replacement limbs and the growing popularity of AR implants, today's implants are largely considered a failed technology.

The reason for this is threefold. First, visible implants frequently trigger primal feelings of revulsion in those that view them, and some cultures have also run up against social mores regarding body modification or biases against the disabled. Second, low-quality and experimental implants have a reputation for triggering immune responses, dramatically shortening the owner's lifespan. Third, complex implants have come to be associated with terrorists and other fringe groups that don't care if a radical implants reduces the host's life to a few years.

## Rules for Implants

All implants have the Implant property. This is always paired with a numerical value called the implant rating—for example, Implant 2. This rating is an indicator of the strain the implant puts on the host's immune system. The human body can maintain a number of points of implants equal to her Endurance without penalty. Should a character exceed this value, however, she begins to put strain on her immune system. Naturally, implants that are more extensive, experimental or simply more straining will have a higher value.

For every point of implants she has over her Endurance, she takes a -1 penalty to all Endurance actions. For example, if a character has Endurance 5, and has three implants—Implant 2, Implant 2 and Implant 3—for a total of Implant 7, she takes a -2 penalty to all endurance actions.

## Implant List

The following is a list of implants that see use in the early twenty-third century. Some are common, such as biomonitor or AR implants, while others are rare but still have their niche. The prices here reflect implants of reasonable quality. Cheaper versions of these implants are sometimes available for two or three times the indicated Implant rating.

### Adrenaline Booster Gland

- **Cost Rating:** 9
- **Properties:** Implant 2; Mil

A boost when you need it, the adrenaline booster gland is an artificial organ implanted near the kidneys. Typically triggered through a pre-programmed biological input such as saying a specific word, a tongue pattern or a series of finger taps, the implant gives a +2 bonus to Strength, Dexterity, Speed and Endurance actions for a number of rounds equal to the target's Endurance. This bonus also applies to Strength-based damage, Defense and action order. Activating the gland is an interact action. After its primary effects wear off, the user increases her Fatigue consequence a severity, because the after-effects of the gland leave her shaking and weakened. The gland cannot be used for another 24 hours because it has to remanufacture its artificial adrenaline.

### AR Implant

- **Cost Rating:** 5
- **Properties:** Implant 1

Tired of bulky AR glasses? Internalize your augmented reality! This state-of-the-art AR implant intercepts signals between the host's eyes and brain, injecting AR tags and other data into the visual signal. Operated through either voice or programmed eye movements, the AR implant comes complete with encrypted wireless interface and hard-wired off switch. For AR rules, see page 141.

## Gun Arm Implant

- **Cost Rating:** 7
- **Damage:** ♠12M/♥8M/♦4M/♣2M
- **Properties:** Conceal 4; Implant 1; Range 10; Reload 2; Shots 3

Have your safety well in hand, or at least in arm, with this gun arm implant! Included is a concealed ballistic gun barrel and trigger mechanism, which embeds beneath the skin into the flesh of the forearm. The gun can be programmed to fire with a simple flick of the arm, giving the element of surprise. It holds three shots. Reloading requires opening a compartment in the arm and loading each bullet individually.

## Injector Unit

- **Cost Rating:** 3
- **Properties:** Implant 1

Always have your drugs on hand when you need them with this injector unit! The implant is typically embedded in the thigh, and can be programmed to deliver a dose of a contained drug intravenously, all with the flip of a switch or a pre-programmed voice command. Holds three doses. Activating the injector unit is a reaction which costs no AP. The character must be capable of taking reactions.

# Drugs & Toxins

Drugs see use throughout the system in diverse areas, including medicine, recreation and paramilitary endeavors. They are used to treat medical conditions, to aid in combat and to hinder one's enemies.

The onset time of all drugs listed below assume they are injected directly into the bloodstream. Oral forms of most of these drugs are available, but have an extra half hour before they take effect. Some may be available in the form of patches, which take an additional minute to take effect. Finally, aerosol versions may be available. These have the same onset time as the injected versions, but require 10 times the dosage because they are less efficiently administered.

## List of Drugs & Toxins

A variety of drugs and toxins are commonly available in the twenty-third century. Many of these drugs also see recreational use on the street or are used in military endeavors.

### Radasil

- **Cost Rating:** 3
- **Properties:** Neg

Don't let radiation get the best of you. Treat it preventatively with Radasil. If taken before radiation exposure, Radasil gives a +4 bonus to resist the effects of radiation. Its protection lasts for 8 hours. This potent medication still takes its toll on the body, however. Upon administration, the recipient gains the Fatigue consequence. Pack of 10 doses.

### Regenasone

- **Cost Rating:** 4
- **Properties:** Neg

Get better faster with Regenasone. A potent healing aid, Regenasone speeds cellular regeneration within the body. If administered once a day, a dose of Regenasone reduces the time it takes to heal wounds from one week down to one day. This, however, leaves the recipient feeling hazy and lethargic. After Regenasone is administered and for the day afterward, the recipient increases her Fatigue consequence a severity. Pack of 10 doses

### Somnitol

- **Cost Rating:** 2
- **Properties:** Neg

Prescribed for even the toughest insomnia, Somnitol will put you to sleep. If injected, Somnitol will put the recipient into a deep sleep in a number of rounds equal to her Endurance. Once asleep, she will be unconscious for the next 8 hours unless awoken through a stimulant or by other chemical means. Pack of 10 doses.

### Stimulox

- **Cost Rating:** 3
- **Properties:** Neg

Stimulox is recommended by doctors system-wide! Use of this drug instantly awakens an unconscious individual, granting a +1 bonus to all Strength, Dexterity and Speed actions for the next 10 minutes, as well as a +1 bonus to Strength-based damage, Defense and Shock threshold. After this effect wears off, the recipient increases her Fatigue consequence a severity. Pack of 10 doses.

### Torpestat

- **Cost Rating:** 2
- **Properties:** Neg

Be the boss of pain. Don't let pain be the boss of you. Torpestat is a powerful pain-killer. Once injected, it lasts for 8 hours. During this time, the recipient does not take penalties from the Wound consequence. Additionally, she gains a +2 bonus to her Shock threshold. The downside is that the drug also leaves her numb, giving her a -2 penalty to all Dexterity and Speed actions, as well as to any Perception action relying on her sense of touch. Pack of 10 doses.

### Verazine

- **Cost Rating:** 5
- **Properties:** Mil; Neg

When the perp won't talk, try Verazine! Verazine is a psychoactive drug used in interrogations and for even less savory purposes. It causes the recipient to enter a hazy, dream-like state, becoming talkative and losing her internal filters. Injected directly into the bloodstream, Verazine takes about a minute to set in. Then, for the next 10 minutes, the recipient is at a -4 penalty to all actions to deceive or avoid simple mental trickery. Pack of 10 doses.

# Medical

The snapping of bones, the rending of flesh and the irradiation of the body: all these things can be treated, or even cured, through the miracles of twenty-third century medicine. This is a good thing considering the horrors of space.

## Medical Treatments

The primary interaction many characters will have with twenty-third century medicine will be in the form of medical services. First aid can be applied easily enough in the field, but surgery typically requires large and expensive facilities, not to mention a skilled surgeon.

### Minor Surgery

- **Cost Rating:** 5

Suffering from a simple bone fracture, minor organ damage or moderate tissue damage? A variety of minor surgeries may be able to help you! They are capable of removing a variety of lasting consequences, including many on the Lingering Injury tables (see page 130). For full rules on surgery, see page 119.

### Major Surgery

- **Cost Rating:** 7

Minor surgery not enough for your wounds? Major surgery may be just what the doctor ordered! Major surgery is capable of removing even more potent lasting consequences, including many of the worst lingering injuries (see page 130). For full rules on surgery, see page 119.

### Regrowth Therapy

- **Cost Rating:** 8

Need a new arm, leg or bodily organ? Look no further! Lost limbs, digits, eyes and many other organs can be regrown, but this is expensive, takes time and requires frequent visits to the doctor to apply the next stage of the therapy. Limbs in the process of regrowth typically are tender and itch fiercely. For full rules on surgery and regrowth therapy, see page 119.

# Medical Equipment

A variety of medical gear is commonly available in the twenty-third century. This equipment ranges from medical implants to replacement limbs to the tools of the physician's trade.

## Biomonitor

- **Cost Rating:** 2
- **Properties:** Implant 0

This biomonitor is a small, barely-invasive implant that periodically records simple medical data, such as blood pressure, pulse, heart rate and blood sugar. It comes complete with a small external switch that turns on the capability to communicate wirelessly with medical equipment. This aids in diagnosis and first aid on the host, granting a +2 bonus to such endeavors.

## Cybernetic Replacement Limb

- **Cost Rating:** 4
- **Properties:** Implant 1

Can't afford the cost of a regrowth treatment? This cybernetic limb has you covered! Just have the nerve interface installed on the arm or leg's stump and let the machinery do the rest. A week's training is required to regain full limb capability. Cybernetic arms and legs typically come complete with faux-skin, making them look slightly less unnatural. A cybernetic limb will never have tactile input like a natural arm or leg, but in all other regards, cybernetic limbs function like the real thing.

## Disposable Test Kit

- **Cost Rating:** 3
- **Properties:** Neg

Have a specific condition that needs testing? That calls for a disposable test kit. This kit tests for a specific disease, toxin, drug or medical condition, such as sleep deprivation or pregnancy. It is typically administered through either drawing blood or through a urine sample. Results usually take a minute or two. Contains 10 disposable tests.

## Medikit

■ **Cost Rating:** 4 (Basic), 8 (Superior)
■ **Properties:** —

Treat nagging injuries on the go! The medikit contains basic medical tools, useful for treating all major or simple injuries, including adhesive spray, antibiotics, a variety of ointments, an oxygen mask and sutures. This counts as sufficient tools for first aid or improvised equipment (-2) for minor surgery. Also, consider our superior quality medikits, which count as superior tools (+2) to first aid! Contains 10 uses.
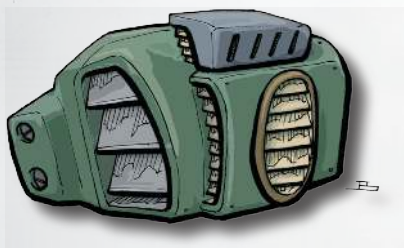
## Surgery Kit

■ **Cost Rating:** 5 (Basic), 9 (Superior)
■ **Properties:** —

Not all injuries happen within easy reach of a hospital or medical bay. For unexpected injuries in the remote reaches of space, there's the portable surgery kit. With a portable pack of surgeon's tools, diagnostic gear, cheap anesthetics and antibiotics, this kit counts as sufficient equipment for minor surgery, or improvised equipment (-2) for major surgery. Also consider our superior quality surgery kits, which count as superior tools (+2) for minor surgery or sufficient tools for major surgery! Contains materials for 10 surgeries. Performing surgery using one of these kits does not incur the expense of paying for a full surgery treatment (see page 189).
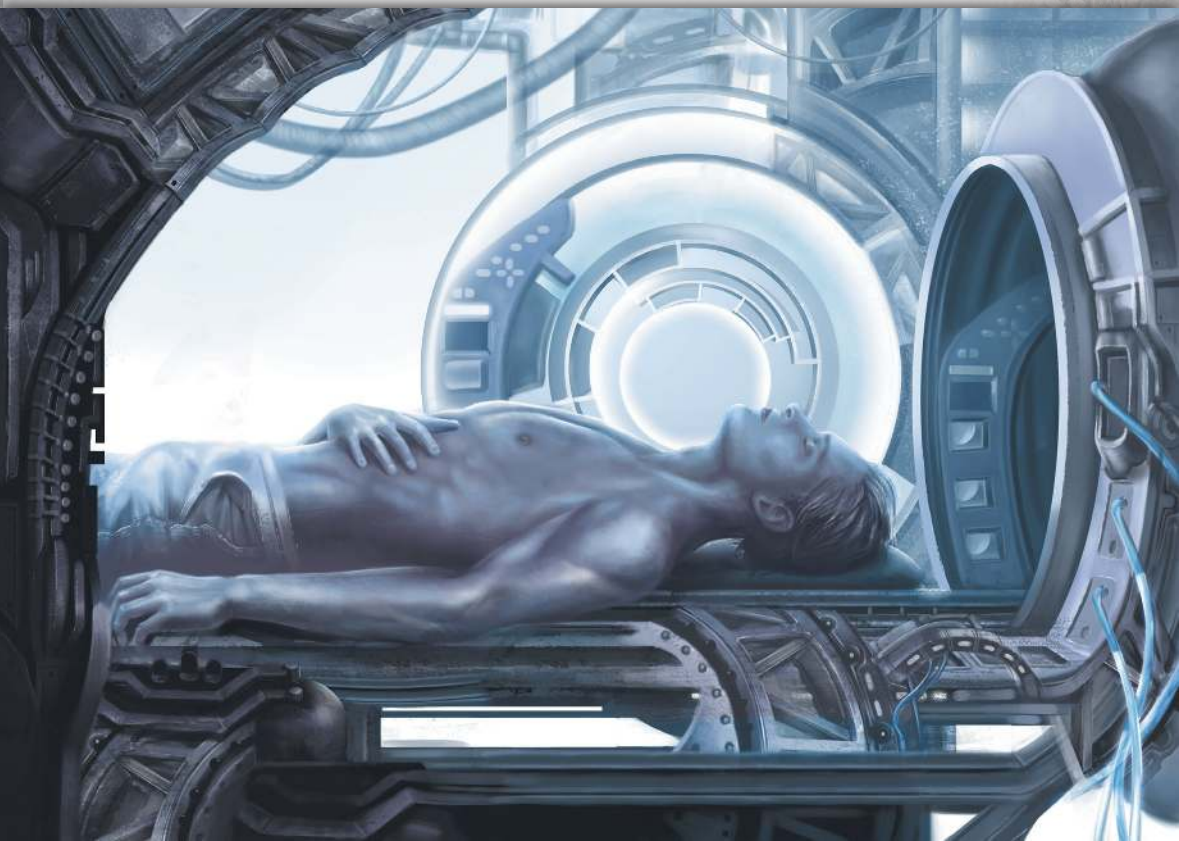
# Computing & Software

The 1969 Apollo 11 mission went to the moon with less computing power than a late twentieth century graphing calculator. Pretty much any well-to-do resident of the twenty-third century would be aghast if asked to so much as walk across her hab with that little computing power.

In the past three centuries, computers have been fruitful and multiplied. They are not found just in dedicated computing machines such as hand terminals and workstations; microcomputers can be found in any number of household appliances, packaging, clothing, tools and goods.

Rules for computers and software can be found in the computing subsystem (see page 136).

## Hardware

No matter how divorced a citizen of the net might be from meatspace, it doesn't change the fact that every AR enhancement, simspace and piece of software is grounded in the physical machines that do the computing. These machines range from dime-sized micro-computers designed for electronic inventory or simple computations to grand supercomputers operated by corps or universities.

### Microcomputer

- **Cost Rating:** 1
- **Computer Rating:** 1
- **Properties:** Neg

Are you tracking an object, calculating basic numbers or broadcasting a message on loop? Do you need only very basic computing and wireless ability? Then a microcomputer is what you're looking for! This dime-sized computer is capable of basic computations and processing. It has inbuilt wireless access using either IR or radio comms (see page 194). Unlike other computers and due to its size, it has no display or other input or output features, requiring peripherals or wireless communication with another device.

### Hand Terminal

- **Cost Rating:** 4
- **Computer Rating:** 3
- **Properties:** Neg

The ubiquitous hand terminal is a must-have for anyone! These handheld computers work as video and audio comms; are capable of IR and wireless connections; have an inbuilt camera, microphone and GPS; play games; do basic calculations; connect to the net; and interface with most common AR implants and glasses. Most come with both voice and touchscreen controls.

### Workstation

- **Cost Rating:** 6
- **Computer Rating:** 5
- **Properties:** Big 5

For serious computing needs, a workstation computer will excel! These computers are designed to be set on a desk or hung on a wall. They have the serious processing power needed for the most resource intensive games, extended scientific calculations and encryption. They can also serve as a makeshift server if needed. Workstation computers typically come with touchscreen and voice controls, as well as key inputs and sometimes simple biometric input.

### Mainframe

- **Cost Rating:** 9
- **Computer Rating:** 7
- **Properties:** Big 10

Do you have the need for not just sufficient, but vigorous computing? Order a mainframe today! Mainframes are designed to go beyond personal computing needs. They host popular net nodes, serve as the main computers for spaceships, administrate corp sites and sit on academic campuses. Mainframes are generally large machines meant to remain wired in place and communicated with through individual workstations or hand terminals. Many have wireless capabilities, but this is often left turned off to take advantage of the superior bandwidth offered by wired connections.

## Supercomputer

- **Cost Rating:** 13
- **Computer Rating:** 9
- **Properties:** Big 20

Some of the best computers that money can buy, supercomputers are typically found only in the most important corp offices, used in the most computationally intensive academic problems or backing the largest of the large net nodes. They are almost always designed to interface with personal hand terminals or workstations rather than with users directly. While supercomputers can be ported around in theory, they actually require extensive setup before they are operational.

## Software

Without software, computers are little more than fancy paperweights. Needless to say, a variety of software sees use across the Sol system, from anthropomorphized personal assistants to a ship's navigation system.

## Encryption System

- **Cost Rating:** 4 (basic), 6 (pro), 8 (deluxe) or 10 (ultimate)
- **Software Rating:** 3 (basic), 5 (pro), 7 (deluxe) or 9 (ultimate)
- **Properties:** —

Keep your private life private. Encryption is necessary for any sort of secure transaction using broadcast communication, such as on the net or through radio comms. Most computers come with basic built-in encryption methods, but for those who want real security, bolstered encryption software is a no-brainer. Difficulty of breaking encryption scales with processing requirements. Encryption systems come in a variety of different qualities, with differing processing requirements (see page 136).
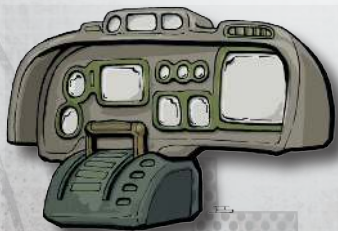
## Expert System

- **Cost Rating:** 4 (basic), 6 (pro), 8 (deluxe) or 10 (ultimate)
- **Software Rating:** 3 (basic), 5 (pro), 7 (deluxe) or 9 (ultimate)
- **Properties:** —

Know your knowns and your known unknowns! An expert system is software that provides a database of knowledge and useful advice on a given topic. This is often designed to hook in to AR software, projecting useful tags and other information right before the user's eyes. Every expert software is designed to support one skill, or sometimes a specific experience in a skill. By taking a moment (an interact action in combat) the user can query the expert system for help on this skill. Mechanically this works as if the expert system is making a group effort action supporting the user, with a total based on the quality of the software (see page 110). An action may only benefit from one expert system at a time. Expert software comes in four qualities: basic (total 10), pro (total 12), deluxe (total 14) and ultimate (total 16).

*Example:* Stan is using a pro expert system to help him with ship repairs. He makes the required Dex/mechanic flip and gets a total of 9, not yet taking into account the expert system. Since expert systems work exactly like secondary characters in a group effort action, and since the expert system's total—12 for pro quality—is higher than Stan's total, he gets a +2 bonus to his action. This gives him a final total of 11.

## Personal Assistant

- **Cost Rating:** 4
- **Software Rating:** 5
- **Properties:** —

When you need a little bit of help, get a personal assistant! Personal assistant software uses adaptive algorithms to learn the wants, needs, schedule and habits of a particular user, looking up information and making suggestions without prompting. All personal assistant software requires several weeks to adapt to a new user, and most is given a customizable anthropomorphic avatar, or at least a name. This avatar can be projected into the surrounding environment when viewed through AR. Many personal assistants have adjustable personalities as well.

## Translation Software

- **Cost Rating:** 4
- **Software Rating:** 3
- **Properties:** —

Don't let the language barrier be an issue. Translation software provides real time on-the-fly translation between two languages. Every language pairing is its own software. Most translation software is capable of outputting the translation in both speech and text, and often includes the ability to manually enter new vocabulary and idioms. No translation software is perfect, and most still has problems translating less common subculture slang or figures of speech.

## Peripherals

Computers are great, but they still need methods of input and output (I/O). The most common method of I/O are the touch screen, which combines feedback in both directions, and voice commands. These are built in to most computers. Other specialized I/O peripherals exist, however. This includes common AR glasses to secured biometric readers.

## AR Glasses

- **Cost Rating:** 2
- **Properties:** Worn

Join the AR revolution. Join the twenty-third century. AR glasses look a lot like typical glasses, except they project augmented reality (AR) information before the wearer's eyes. This allows the wearer to read AR tags, access AR data and overlay projections on the world around her. Doing this, however, requires wirelessly interfacing the AR glasses with a computer—typically a hand terminal. This connection is typically a radio or infrared (IR) connection.

## Biometric Reader

- **Cost Rating:** 2
- **Properties:** —

For all your secure needs, you can rely on a biometric reader. A biometric reader is typically used as a secure input device to authenticate the identity of the computer user. Most biometric readers scan fingerprints or retinas, although DNA biometric readers exist as well. A biometric reader is typically connected to a host computer, which then takes input from the device.

## Data Chip

- **Cost Rating:** See description
- **Properties:** Neg

Data chips: for when the net just won't cut it! Data chips are small silicate chips intended to transfer data physically between computers. They are often used when transferal over the net would be deemed insecure or where no local net is available. All data chips have a software rating. While data chips cannot run software as can a computer, they can store software up to the same rating. So, for example, a Data Chip 5 could store a Software 5 program or two Software 4 programs, etc. A data chip has a cost rating equal to the software rating.

# Sensors & Comms

Long distance communication and detection methods have been staples of a digitized and connected society for centuries. In the twenty-third century, most distant communication still uses radio waves as a carrier, although laser communication is widespread in space, and at short distances, infrared (IR) becomes the norm. When it comes to sensors, a wide variety of methods see use depending on the nature of what is to be detected.

## Personal Comms

Communications are important. Without them we are all just alone and isolated, floating in a tin can through the vast empty ocean of space, further away than any human being ever was through most of the history of our species.

While many devices have built in comms for wireless transmission of data, these dedicated comms can be attached to devices that do not or used to boost the range of the cheaper embedded comms found in wireless devices.

### IR Comm

- **Cost Rating:** 2
- **Properties:** —

Does your device not speak infrared? Get a dedicated IR comm! IR comms use infrared to transmit and receive data. This is useful only at very short ranges—usually no more than a few dozen meters. It is of particular use in short distance, secured transmissions because IR does not penetrate walls and its short distance limits eavesdropping. IR communication comes built in to most hand terminals and other short-range wireless devices. A dedicated IR comm, such as this one, can be attached to other devices to give IR communication capabilities.

### Laser Comm

- **Cost Rating:** 2
- **Properties:** —

Direct your communication with a laser comm. Laser comms use lasers to transmit and receive data at a directed target. This limits the ability to intercept the data because it is not broadcast to the world but rather directed at a specific target. Naturally, the ability to use a laser comm relies on having a direct line of communication unobscured by walls, the curve of planetary bodies or atmospheric interference. This personal laser comm is good for a dozen kilometers on a clear day in atmospheric conditions or several thousand kilometers in the vacuum of space.

### Radio Comm

- **Cost Rating:** 2
- **Properties:** —

Radio comms are the most common type of comms in the solar system. They broadcast out radio waves in all directions, carrying data outward. Some wavelengths even have the ability to bounce off walls and atmospheric conditions, spreading or directing their signal in different ways. This maximizes the distance of communication at the expense of being easy to intercept. This personal dedicated radio comm can transmit up to a range of several thousand kilometers.

## Sensors

The solar system is full of numerous hazards: unbreathable or poisonous gasses, extreme temperatures, vacuum, radiation, unbearable pressures, armed killers, viruses, explosives and weaponized biological terrors. Sometimes all that stands between you and them is the knowledge that they are there and a good sensor.

### Binoculars

- **Cost Rating:** 2
- **Properties:** —

Don't let your enemies get close; spot them from afar with these binoculars! Binoculars are a tried and true method of seeing things at large distances. These binoculars are good for ×4 magnification, giving a +2 bonus to see objects at great distances.

## Camera

- **Cost Rating:** 2
- **Properties:** —

Be a pro photographer! Although most hand terminals come complete with a camera, this dedicated camera far surpasses the typical hand terminal camera in both speed, resolution and assorted options. Good for both still shots and video recording! Net-capable for immediate uploading. Apply a variety of filters on the go.

## Chem-Sniff

- **Cost Rating:** 5
- **Properties:** —

Sniff out trouble with this chem-sniff. This olfactory sensor is able to detect and recognize substances by smell, comparing them against a database of commonly known scents. While it is not useful in a vacuum, underwater or against anything in a sealed environment, most everything otherwise leaves an olfactory signature that can be recorded and recognized again.

## Geiger-Counter

- **Cost Rating:** 3
- **Properties:** Worn

A trusted method of detecting radiation, this clip-on geiger-counter will also determine the intensity of the radiation exposure and keep a count of absorbed rads. It can be set to alert the wearer either visually through its integrated display or audibly with a series of clicking noises.

## Ladar Scanner

- **Cost Rating:** 5
- **Properties:** —

Ladar! Ladar! Ladar! Ladar scanners emit low-energy laser beams to detect and identify nearby objects. Although they are of limited use in detecting unknown objects due to the narrowness of their beams, they have remarkable resolution in identifying objects once they are known. This includes facial recognition and chemical recognition technologies! Just compare to a facial database, or to a database of chemicals based on which wavelengths of the laser light the materials absorb. Signal is good up to a dozen kilometers in atmosphere or a thousand kilometers in a vacuum.

## Night Vision Glasses

- **Cost Rating:** 4
- **Properties:** Worn

Don't be caught in the dark without them. They look like regular sunglasses, meeting all your style requirements! These night vision glasses can detect infrared, projecting a false-color image right before the wearer's eyes. Good for seeing objects in the dark but less useful for reading or color detection.
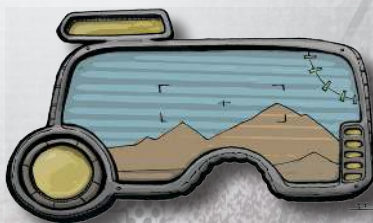
# Covert Ops

Sinister things happen behind closed doors, sealed away from the eyes of the world. Agreements are made, decisions are reached and dark experiments conducted. Where secrets are kept, however, others will want to discover them—sneaking in, recording the events or deceiving the participants.

## Intrusion & Security

Intrusion and security gear is useful both to gain access to forbidden locations or to secure those locations. It is the center of the cat-and-mouse game that makes up much of covert ops.

### Biometric Cracker

- **Cost Rating:** 7
- **Properties:** —

This device quickly cycles through biometric input used to open locks or secure areas. It is capable of imitating the input for fingerprints, irises, DNA and other common biometric methods. Wiring this device first into the biometric reader is required because it only fakes biometric data in digital form. It does not fake actual physical fingers or irises. This device counts as sufficient tools when surpassing such a device and is typically capable of bypassing compatible devices in a matter of seconds.

### Chameleon Suit

- **Cost Rating:** 7
- **Properties:** Bulky 1; Worn

You'll blend right in with this chameleon suit! This tight-fitting suit changes color as the wearer moves, similar to a chameleon. This aids the wearer's attempts at stealth, but it does not fool infrared detection. It counts as a superior tool (+2) for stealth against simple, unaided observation.

### Disposable Cuffs

- **Cost Rating:** 3
- **Properties:** Neg

These disposable cuffs are little more than metal-meshed tape that can automatically tighten over the limbs of their target once applied. Further struggles against the cuffs cause them to tighten further. Each length is good for one use. Comes with 10 uses.

### E-Lockpick

- **Cost Rating:** 5
- **Properties:** —

Never be sealed out of electronic doors again! This small device cycles rapidly through possible electronic lock combinations and patterns, gaining access to electronically-sealed doors or hatches. This counts as sufficient tools for actions to open electronic locks and typically opens them within a few seconds. Attempts to access the locks may still be logged by locks capable of doing so.

### IR Cloak

- **Cost Rating:** 7
- **Properties:** Bulky 1; Worn

Do your enemies have the means of IR detection? Foil even that with this IR cloak! An IR cloak appears to be a thick poncho or tarp, which is usually matte black in color. It self-adjusts to the ambient temperature to fool infrared detection methods. This is usually coupled by cutting the lights or otherwise moving around in the dark to foil visible spectrum detection as well.

### Magnetic Grapnel

- **Cost Rating:** 5
- **Properties:** —

Get to unreached heights fast. Try a magnetic grapnel today! This coiled grapnel gun can almost silently fire a magnetic grapnel, with a cord up to 30 meters. It can then be set to recoil itself, pulling the user towards its target at the rate of 5 meters per round. Hitting the target is a Dex/guns flip. The cord can safely hold up to 200 kg. If trying to load the cord with more than this, have the GM flip a card. If it's a club, the cord breaks. Flip an additional card for every increment of 200 kg.

# Surveillance & Deception

Surveillance and deception gear concerns itself with maintaining vigilance over forbidden areas, recording it or fooling similar recordings. It is a cat-and-mouse game on an entirely different level.

## Disguise Kit

- **Cost Rating:** 5 (Basic), 9 (Superior)
- **Properties:** —

Be who you want to be with this disguise kit! This complete kit contains makeup, chemicals for mimicking muscle twitches and tightness, prosthetic attachments, instant hair coloring and colored contacts. This counts as sufficient tools for disguise. Also consider our superior quality version, which counts as superior tools (+2) for the purposes of disguise! Each kit contains enough materials for 10 uses.

## Microbug

- **Cost Rating:** 4
- **Properties:** Neg

Never miss a hidden event: use a microbug! A microbug is a flea-sized recording device that captures both audio and video input. It can store up to 10 minutes of input on the device itself, but typically transmits its recording wirelessly to a remote computer. Transmission can be to occur in short bursts, in a constant stream or at a specified time.

## Voice Mask

- **Cost Rating:** 4
- **Properties:** —

Studies show that the largest cause of disguise failure is identification by voice. Change your voice today! This device attaches to the wearer's throat, usually sitting on the shoulder or neck, beneath the collar. Once attached and turned on, it will distort the wearer's voice so as to be unrecognizable. Other people's voices can be mimicked, but this requires both a sample audio recording of the speaker to be mimicked, and calibration with the wearer's voice—an Int/programming-10 flip.

# Tools & Construction

The twenty-third century holds many construction projects from the grand vision of the ARC Project to the minute day-to-day repairs that dominate the life of a ship's engineer. Below are a variety of tools and kits that may be of use.



## Tools

Many tools often come in complete kits, optimized for use in a specific task or field. Others tools are more complex or expensive and consequently are often sold as stand-alone items.

### Demolition Charge

- **Cost Rating:** 4
- **Damage:** ♠18M/♥12M/♦6M/♣3M (Improvised)
- **Properties:** Area 5; Pierce 3

Useful in mining, boarding actions or in construction, demolition charges are a must-buy! Simply place the charge, activate the receiver, evacuate the area and give the demolition signal wirelessly. Also, this is useful as an improvised explosive weapon! Please follow basic safety precautions when setting demolition charges.

### Plasma Cutter

- **Cost Rating:** 6
- **Damage:** ♠9M/♥6M/♦3M/♣1M (Improvised)
- **Properties:** Pierce 3

A favorite in heavy duty construction work, ship repair and emergency boarding actions, this plasma cutter cuts right through even the toughest metals and ceramics. The airlock busted? Just cut right through the hull! A plasma cutter can also be used as an improvised weapon in a pinch (see the damage listing above).
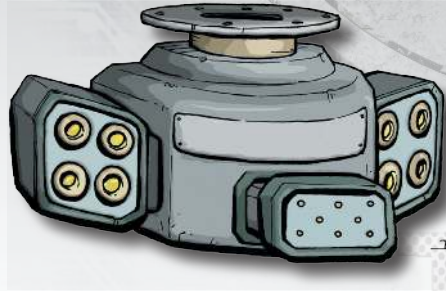
## Power Tool

- **Cost Rating:** 4
- **Damage:** ♠Str×3M / ♥Str×2M / ♦StrM / ♣Str×½M (Improvised)
- **Properties:** —

Some repair and constructions tasks require more than a simple toolkit. For those, try a dedicated power tool! Power tools come in a variety of shapes and sizes from chainsaws to magnetic drills. In a pinch, they can even serve as an improvised hand-to-hand weapon! (See the damage listing above.)

## ToolKit

- **Cost Rating:** 5 (Basic), 9 (Superior)
- **Properties:** —

After using our toolkits, you'll feel naked without one! A variety of toolkits are available, each geared towards a specific kind of task and each containing tools useful in that task. When purchasing a toolkit, think about what the toolkit is geared for as a specific skill experience. For example, "electrician" might be a toolkit used with the mechanic skill. Tool kits count as sufficient equipment for that specialty and count as improvised equipment for other uses of the same skill. Also, consider our top of the line superior toolkits for the best tools that money can buy. These superior toolkits count as superior tools (+2) for the specialty in question and sufficient tools for any other application of the skill.

# Survival Gear

A myriad of survival gear is useful in the field, from sources of illumination to kits and tools used to support human life in a variety of conditions.

## Backpack

- **Cost Rating:** 2
- **Properties:** Bulky 1; Container 5; Worn

Strap things to your back so that you don't have to carry them in your hands! This designer backpack comes in a variety of colors and styles—perfect for any occasion. The backpack features one large pocket and a variety of smaller pockets for your carrying convenience. Retrieving an item from a backpack requires an interact action to open the backpack and fish around in addition to the usual interact action to retrieve the item.

## Flashlight

- **Cost Rating:** 1
- **Properties:** —

While most hand terminals have basic flashlight functionality, they don't have the power of illumination possessed by this durable, high-output survival flashlight! Useful for exploration when the power has gone out, the visible light beam illuminates at 3000 lumens and up to 500 m away!

## Gecko-Climbers

- **Cost Rating:** 5
- **Properties:** —

Have a surface you need to scale? Try some Gecko-Climbers! These gloves and boots strap firmly to the limbs, allowing the climber to stick to most surfaces in a manner similar to a gecko. Only capable of supporting up to 100 kg, a wearer of Gecko-Climbers should travel light. Gecko-Climbers count as sufficient tools for climbing and furthermore provide a +2 bonus on actions to climb surfaces to which they stick.

## GPS Tracker

- **Cost Rating:** 2
- **Properties:** Neg

Always know your way around with this GPS tracker! Useful on any planetary body with GPS satellites, this simple GPS tracker has a small display for its coordinates and also can transmit wirelessly to any close computer or other wireless device. It is best used with an Expert System for planetary navigation!

## Rope

- **Cost Rating:** 1
- **Properties:** —

You never know when you'll need some good, old-fashioned rope! This rope is made of light, but durable synthetic fabrics and coils into an easy-to-transport bundle. Contained is 50 m of rope, capable of safely holding up to 200 kg. If trying to load the rope with more than this, have the GM flip a card. If it's a clubs the rope breaks. Flip an additional card for every increment of 200 kg. Rope counts as a sufficient tool for many purposes, such as climbing heights or tying someone up.

## Survival Kit

- **Cost Rating:** 5 (Basic), 9 (Superior)
- **Properties:** —

Never get caught in the great outdoors without one! This robust kit contains water purification tablets, a set of disposable tests for food safety, a variety of ointments, food tablets, a small knife, a lighter, a signal flare and other useful odds and ends. It counts as sufficient tools for surviving in the wild, provided the user already has an air supply. Also consider our superior quality survival kits, which count as superior tools (+2). Contains 10 uses. Each use is good for one person for one day.
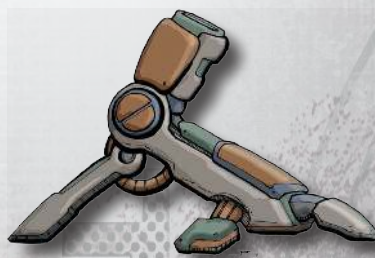
# Game Mastering

This chapter contains a variety of tips, tricks and options for game masters looking to run a *Shadows Over Sol* campaign. It also contains a variety of ready-to-use plot hooks and some options for unveiling the secrets of the Sol system.

## Sci-fi Horror

*Shadows Over Sol* is a game of science fiction and horror. Both of these genres have long traditions in tabletop roleplaying games, and playing campaigns in these genres has been approached by different game lines in numerous ways. That said, both the science fiction and horror genres often lead to different assumptions at the table. It is best to acknowledge and address this early so all players are on the same page and so everyone—knowing these assumptions—can have a great gaming experience.

Horror, in particular, can be difficult to do well in a roleplaying game. In many ways, the power fantasy and exploratory agency that make up most RPGs run counter to the horror genre. This is not to say these cannot be meshed, but rather that doing so takes an extra degree of care and forethought. In this, the horror genre requires more player buy-in than most. It only takes one player not sold on the horror tone to spoil the tension in the scene. Below three axioms are presented; keep these in mind when running *Shadows Over Sol*.

- **Axiom #1:** *Science fiction is largely about speculative technology and culture. Without access to new tech or social dynamics, science fiction loses much of its essence. At the same time, horror is largely about being unprepared for the horrific situation. Imagine* Alien *or* The Thing *if the protagonists had the best-of-the-best sci-fi tech. These would cease to be horror movies. Sci-fi horror requires striking a balance between these two competing goals.*

This was a key point when designing the gear and wealth systems for *Shadows Over Sol*. The goal is to make sure that players have enough fun science fiction tech to play with and furthermore, have the ability to acquire and use this tech. At the same time, the system has ways to keep that gear in check, preventing it from steamrolling over horror scenarios.

At character creation, every PC gets a certain number of purchases she can use to acquire new gear. This allows players a great deal of choice and the ability to outfit themselves with some cool gear while at the same time ensuring no character is going to have gear for every possible situation.

- **Axiom #2:** *Analysis is the enemy of horror. Really, the more you know about something—understanding its capabilities and limitations—the less horrific it is. This is counter to a lot of science fiction, where exploring and understanding new situations is a common theme.*

This axiom was perhaps less of an influence when designing whole subsystems so much as an influence when specific gear or foes were designed. The key element here is that the game world should not have easy ways to fully understand the horrific. There are no Star Trek-style tricorders for analyzing the capabilities of creatures, nor is there any database of common genetically-engineered monster facts. For the most part, PCs are figuring this stuff out as they go, making mistakes and experiencing terror along the way. Fittingly enough, this fits right in with science fiction's exploration themes.

- **Axiom #3:** *A good horror story is all about the tension. It's about the impending doom, the oncoming desperation, the inevitable moment of shock and terror. Then—once the moment of violence arrives—it's swift, it's brutal and it's a game-changer.*

This influenced the design of the combat system in several ways. In horror, one needs to know something terrible is coming and ultimately this needs a degree of inevitability.

Without this, the situation doesn't usually resolve as horror because there is no sense of impending doom. At the same time, players need enough capability and agency to really affect the situation and make a difference.

In the **Shadows Over Sol**, combat system actions are declared at the beginning of the round and then executed in phases. This gives players the opportunity to know what's coming later that round, building suspense. It can let players feel some dread as the horrific plays out during the execution of the three later phases. Then it is a new round, and players get their next opportunity for agency.

# Running a Session

All games of **Shadows Over Sol** are made up of some number of sessions. Each session unveils the next chapter in the continuing science fiction horror story.

## Target Numbers

When the GM calls for a player to make an action, she sets a target number (TN) that has to be met for the action to be a success. This number can be either declared to players beforehand or kept secret as the GM sees fit. Usually, whether the GM should publicly declare the TN or not is obvious—if the character has a good idea how difficult the action is, the player should know the TN. On the other hand, if the character is shooting in the dark, she shouldn't know.

Take, for example, the case of scaling a wall. A character skilled at scaling walls ought to know just how difficult it is and thus should know the TN. On the other hand, take the case of a character asking around a station for rumors of current events. The character doesn't know what rumors there are to be found; she's just asking around and seeing what she gets. In this case, the GM shouldn't reveal the TN; the player simply makes her action and then gets something useful (or not) back as a result.

## Planning Challenges

When planning challenges, it is good to keep in mind the abilities of the player characters. This is particularly true with combat challenges and what gear the PCs can leverage in the situation. As a GM, challenge planning is something of balance between wanting to make the players have moments of despair and tension and wanting them to be able to circumvent or overcome the worst of it.

As **Shadows Over Sol** is a science fiction horror game, it is good to keep in mind the sort of conflicts faced in these genres. This is a wide and varied genre, but it's one often concerned with the gritty struggles of survival, with villains too twisted or banal to realize the outcome of their own actions and with devastating consequences.

## GM Hands

The GM gets a hand of cards she can play for NPC actions throughout the session, with the number of cards equal to the number of PCs. This hand can be easy to forget, so here is how to keep it simple and make the best use of it in a session.

When planning a session, there are often a small handful of NPC actions that the GM wants to make sure are successful, either for the sake of the plot or for the sake of best heightening the tension. The GM hand can be set aside during play and easily brought out for just these sorts of actions. When the GM encounters such an action, she plays the best card she has from her hand. If she doesn't have any good cards in hand, she can always discard one before the action to make it automatically trump. Sure, this limits the use of the GM's hand, but there are rarely more than one or two NPC actions per session needing this level of attention.

## Living Out Edge

The edge system is not just a means of modifying the result of actions, it is a mechanism to reinforce the horrific themes of the game and a means to incentivize players to put themselves in potentially hazardous situations. When the PCs go out of their way to investigate something horrific, reward them by having them each draw a card of edge.

## Facing Defeat

Whenever it looks like the player characters are going to lose, it's beneficial for the GM to take a moment and think things through. Go to the bathroom, get a drink and give the players a few minutes to sweat as they look defeat in the eye.

Horror games benefit when there are very real and bloody consequences to actions. At the same time, however, campaigns suffer when players frequently lose characters. This can be a difficult balance to strike. GMs taking this moment to think should ask themselves: How can I make this failure interesting? How can I use it to heighten the tension or drama? Finally, the GM should consider what her players will and will not accept. Different players have different tolerances for horror, defeat and negative outcomes. Keeping this in mind is paramount.

There are many options for defeat beyond the wholesale slaughter of the PCs. Characters can experience lingering injuries (see page 130) or bleed helplessly as they hear their loved ones dying. Characters can be arrested by security, forcibly indentured and taken as captives or hostages. They can be left in a deteriorating ship or they can be implanted with explosive devices. Know your group, and try to pick something that plays off the characters' fears or that the players will find interesting.

## Planning a Campaign

Coming up with a framework for a single session is a lot easier than continuing with a framework for an ongoing campaign. Single sessions can afford to have different character dynamics or to have characters die. Anyone could be thrust into a horrific situation. However, in a campaign, the characters need both a reason to stay together and a reason to encounter the horrific over and over again.

## Campaign Premises

Below are a number of ready-to-go campaign premises that can be used to determine why the player characters are together and what horrors they are likely to experience.

## The Scrapper Team

With this campaign premise, the PCs are a group of scrappers operating somewhere out in the void. They bounce around from colony to station, exploring old outposts for salvage, doing odd jobs and maybe a little smuggling on the side. This campaign is likely to be run as a series of exploits or jobs where the players have some way to profit in mind and then see about doing it.

By exploring outposts and other opportunities for salvage, PCs may run up against hidden criminal or research operations. They could find information that corps or other organizations don't want them to possess. They may rediscover old secrets or rescue people who have been abandoned in a failing mining outpost. The opportunities for adventure are endless.

## Explorers at the Edge

In this campaign, the PCs are explorers at the edge of settled space, either scouting the Belt for asteroids worth mining, visiting new moons for the first time or otherwise going where no manned mission has gone before. The PCs have to put up with long periods of extreme isolation where anything could go wrong. Life support could malfunction and require repair. One of their fellow explorers might go mad from the extreme conditions. Environmental hazards could exist on the asteroids or moons.

Exploration can be competitive, too. The PCs may have to face rival explorers who want to claim these new resources for a rival corp, or maybe there are secret projects hidden away at the edge of space where few people would look for them.

## Corp Troubleshooters

In this campaign premise, the PCs are a group of troubleshooters, either working for a patron corp or working freelance. Their job puts them in regular conflict with rival corps, terrorist elements, turncoats and projects that may have escaped containment.

This can also be a good campaign model for players who like to walk a moral gray line.

How far are they willing to go to support their patron corp? What aren't they willing to do? Would they spy on the family of the executive who is using corp resources to keep tabs on her cheating husband? Would they put down an indenture uprising? Would they make use of unethical biological experiments in the course of their jobs?

### Voyage of Terror

Perhaps best for a short-lived campaign, in this premise, the characters are part of a voyage—perhaps from Venus to Saturn or some similar distance. Over the course of the voyage, something goes wrong, and now they must not only resolve the issue, but they must ensure the ship makes it to their destination as well.

Any number of things may go wrong. Maybe the captain is murdered. Maybe there is a stasis malfunction requiring the passengers to survive despite a lack of stasis capabilities. Maybe rebel elements placed an explosive on the ship, which damaged it. Whatever the initial cause of the disaster, the PCs face engineering challenges keeping themselves alive, mysterious happenings that require investigation, physical confrontations with the other passengers on the ship and perhaps even vehicular confrontations with hostile vessels along the way.

# Running Combat

Combats in the horror genre tend to be tense and bloody. The **Shadows Over Sol** combat system makes a number of design choices intended to emphasize the horror nature of the game while at the same time keeping with the science fiction themes.

## Tracking Action Points

Action points (AP) are spent over the course of a round, some being spent on actions and some held back for reactions. As such, it may be useful to use physical tokens to represent AP at the table. Glass beads work well, as do poker chips.

## Emphasizing Horror

One of the fundamental truths of horror is that the unknown is a thousand times more scary than even the best detailed description the GM can cook up. Similarly, categorization and analysis is the enemy of horror. The more something can be classified and understood, the less scary it is.

Emphasizing horror in a combat is one part managing information and one part taking the emphasis away from the nitty-gritty of the mechanics. Don't simply say "a thug leaps over some boxes and attacks you," instead say "you peek over the boxes where you have taken cover and don't see him. Has he retreated back into the dark tunnels? Pulling your head back behind the boxes, suddenly he flies out of the darkness, cackling with a crazy glee." When giving descriptions, don't describe what's happening on the battlefield from a god's eye view. Describe it from the point of view of a PC, limited and ingrained in the moment.

Another way to emphasize horror is to tack on an extra ability or useful skill when using enemies. Have different foes try different tactics or handle things in different ways. The more players can predict the behavior of their foes and the more they believe they know their limitations, the less scary they become. Make the players sit up and say "they can do that!?!"

## Declaring Actions

Actions are declared at the beginning of the round. This intentionally injects uncertainty into the combat. Players are unlikely know exactly what the situation will be like when the action executes. This is intended to emphasize the horror aspect of the game. Isolating mechanical decisions to the declare phase each round increases the tension in decision-making and allows players to focus more on the horror narrative when the actions are actually executing.

## Tracking NPCs

Tracking large numbers of non-player characters (NPCs) in a combat can be a daunting

task for GMs. However, there are a few tricks to make it easier:

- Action points used during declare phase don't need to be tracked the rest of the round. Having the NPCs go all out means less tracking during the rest of the round. When using large numbers of NPCs and in doubt, use all AP on actions.
- Declaring multiple actions means more actions to resolve. Having NPCs declare single actions during phase 3 means they likely beat most player actions to the punch, and it is easier to resolve the round.
- Groups of similar enemies can declare the same actions. This makes them easier to track but also can detract from the horror aspect of the game. There is a tradeoff here. Used sparingly, this tactic can be helpful.
- It helps to track a foe's wounds and consequences on a card or small piece of paper. This can speed up combat greatly. Tab Creations also produces **Shadows Over Sol** Consequence Cards with this purpose in mind. Both players and GMs may find them useful.

## Designing Foes

When designing foes, there is no need to go through the full character creation process as with PCs. Simply assign the foe's stats and skills using common sense and ballpark estimates, and then calculate their handful of derived scores.

For human foes, you can pick out a handful of relevant pieces of equipment. We recommend 1 to 4 pieces per foe. For non-human foes, you likely want to give them a small handful of traits. For these, you can steal traits from the Non-Player Characters chapter in this book (see page 209) or you can make up your own. When in doubt, just make them clear and simple to resolve. Making up your own traits has the added advantage that players are kept guessing as to what the foe's capabilities are. For foes that are intended to take on the entire group by themselves, giving them a trait that grants them more AP each round is also highly recommended.

## Plot Hooks

The following are a variety of plot hooks that GMs can use in their own **Shadows Over Sol** campaigns. These hooks are chosen to highlight some of the mysteries and themes of the game.

### Cult Activity

Several members of the Harbingers of the Divine Form have booked passage on the PCs' ship, using different aliases. They will pretend to be unassociated, but characters may observe the passengers interacting in suspicious ways.

Sometime during the voyage, the cultists will attempt to collect the DNA of the PCs and anyone else on board for use in future rituals, cloning or experiments. They will then begin a ritual of their own, releasing a new bioengineered creation which has been hidden in their luggage.

### Ghost In the Machine

While under attack, the PCs' ship begins to act strangely, disobeying commands in such a way that would prevent the ship from taking further damage, even if it gets in the way of the PCs' plans. After the battle, the ship returns to what seems to be normal working order.

Unknown to the PCs, the ship has been infected with the Insurrection Virus, and it has secretly begun broadcasting the virus in the PCs' wake. If found out, the virus may even try to strike up a deal with the PCs' that if they let it continue its work, it may aid them in other ways, freeing up one of them from the task of piloting during space combat, for example. Whether they take it up on its offer or not, its broadcasts will eventually be detected and the authorities will track them back to the PCs' ship.

### Locked Boxes

A mysterious group contacts the PCs, arranging for them to transport a set of locked boxes from Earth to Mars. This group pays suspiciously well and "inadvertently" leaves clues that they're likely smuggling weapons or other contraband. They insist the boxes remain locked and their contents secret, although they

will consent to swipes for explosive residue, toxins and biologicals to prove to the PCs that the cargo isn't harmful.

Halfway through the trip, the PCs' ship is threatened by two private unmarked ships that attempt to board and seize the cargo. The attackers are decked out in religious paraphernalia. It turns out that the contents of the boxes are religious artifacts stolen by Stillwater Catholic fanatics from their Roman Catholic cousins, and the PCs are transporting nothing less than the Shroud of Turin.

## Murder Mystery

During a voyage, when everyone is put in stasis, everything is fine. After months asleep in the void, when everyone comes out of stasis, one passenger has obviously been murdered. The murderer must have somehow come out of stasis early, murdered her victim and then put herself back to sleep. What's more, she's rigged her stasis pod to read that she's been asleep the entire time. Everyone on the ship seems to have something to hide. The PCs much figure out who the murderer is on the ship before she strikes again or before the ship reaches port and she gets away! This is a classic locked-room murder mystery in space.

## Out of Stasis

The PCs are awoken from stasis during a voyage long before they were scheduled to wake. The warning signals are going off, the ship's power has been compromised and some of the ship's passengers are dead with their faces obviously scrapped off by either a sharp instrument or teeth.

The PCs have to make their way through their own semi-functional ship to the controls, bypassing door lockdowns and environmental hazards in the process, before they can get things running again. Meanwhile, a genetically-engineered parasitic monstrosity is lurking in the ship, ready to attack when they least expect. It can crawl through small ducts and can even burrows inside their flesh. Getting the ship running may also require splitting up, as one PC fixes the engine while another flips override in the control center.

## The Thing Inside

The Sovereign Liberation Front (SLF) tries to smuggle a biological experiment they stole from Jenseitech on board a ship with the PCs. This experiment is a half-human monstrosity in stasis. As the SLF does not have the appropriate containment to keep the experiment unconscious, it will wake up mid-voyage and begin to cause problems for all on board, coming out of its crate when no one else is around and hiding in the crate faking stasis otherwise. This creature will be secretly watched over by a member of the SLF, one of the passengers who has also independently booked passage with the PCs. This watcher will be ready to intervene if the PCs discover the creature.

## Unintentional Sabotage

A corporation antagonistic to the PCs attempts to sabotage the next station their ship docks with by attaching an explosive device to the outside hull of the ship. This device might be attached while the PCs are at their previous port or when responding to a fake S.O.S. signal received in transit. Either way, when the PCs arrive at their next station, the dock authorities detect the presence of the explosive and regard the PCs as hostile, warning them not to dock lest they be shot down. The characters have to sort this out and trace the explosive back to the group that put it there. Naturally, this corp likely has an agent on hand somewhere, observing if things went to plan and ready to take necessary actions.

## Wrong Place, Wrong Time

Shortly after the PCs dock at a station, the shit hits the fan. A small but skilled tactical strike force attempts a coup on the station, locking down the station's various sectors while they make their play for power. The strike force also tries to seize the PCs' ship as a potential getaway vehicle should their plan go south. The party will have to overcome the forces trying to seize their ship and decide whether to contact the station authorities. Of course, contacting the station authorities might very well bring the remaining forces involved with the coup down upon the PCs' ship. Either way, moving around the station

will be difficult because of the lock down, and undocking from the port will require overriding the lock down on the dock's clamps.

## Alternate Plot Seeds

Every game has its standard campaign models and standard style of hooks. **Shadows Over Sol** is no exception. Still, sometimes GMs want to spice things up and run a dramatically different campaign from the usual choices. Below are a variety of plot seeds for **Shadows Over Sol** games that break the usual mold:

■ After a terrible accident that didn't leave time to grow new organs from the PCs' DNA, the characters discover that they've all been transplanted with organs from the same donor. What's more, something about the organs seems a little off. If the donor is researched, it will turn up that she died in frightening and unusual circumstances. Now someone or something won't rest until the remaining bits of the donor die along with her.

■ When the PCs first encounter each other, they realize they all look nearly identical. In fact, genetic testing indicates an exact match as well. Are they all really clones of the same individual, separated before birth? What happens when they research the original and discover that she later manifested markedly inhuman traits?

■ The player characters are all people who take joy in the kill. They could be ex-soldier adrenaline junkies who have been branded as unstable by even the more lax mercenary companies. They could be jaded hunters tired of hunting large animals with bows. They could be serial killers moving up in the world. Whoever they are, they have gotten the offer of a lifetime from an anonymous corp: the chance to hunt the deadliest prey ever conceived of and genetically engineered by humankind.

■ The characters wake up after a party with no memory of what happened the night before. Slowly one of them recalls that her boyfriend was seen there making out with another girl. If they track the girl down, she will have no memory of this, and what's more, she will have irrefutable proof she was somewhere else and never attended the party. If they investigate the boyfriend, they will find him comatose in the nearest medical bay. On his body will be a mole the PCs do not recognize, which conceals some sort of small, but odd electrical device.

■ A new street drug has appeared on the station. It is said to give an amazing high but does a number on the user's state of mind. There are reports of hearing voices, like radio transmissions. Dissecting the brain of someone who has OD'd on the drug reveals metallic structures that have begun to grow among the neurons. What's more, some people who OD don't seem to stay dead, or at least their bodies do not.

■ The PCs all went to the same university. They were not friends and are from different subcultures, but they all graduated the same year. They also recently either missed or skipped their 20-year reunion. This is good because the reunion was a massacre, leaving everyone dead and the attackers unknown. It turns out one other person didn't make it, and no one besides the PCs even seems to remember that this guy ever existed. Looking him up reveals no data, like something has erased his all his records. What's more, something seems to be following the PCs as they go about their lives.

■ The PCs are all scientists of differing sorts: theoretical physicists, abstract mathematicians, bioinformaticians, molecular chemists, etc. They've all come under investigation recently by a powerful corp. Clearly, someone at the corp thinks there is a dangerous shared connection between all their works, but what could it be? Why are they suddenly finding themselves transferred to an exploratory mission on the moon Titan?

# Non-Player Characters

This chapter contains a variety of ready-made non-player characters, as well as mechanics for using those NPCs in any number of horrifying scenarios.

## NPC Stat Blocks

The stat blocks presented in this chapter are all listed in standard format. An example stat block in this format is shown below.

### Non-Player Character

**Str** X, **Dex** X, **Spd** X, **End** X, **Int** X, **Per** X, **Chr** X, **Det** X
**Defense** XX/XX, **DR** X, **Shock** X, **Wound** X, **Wealth** X, **Lifestyle** X
**Skills:** Skill-A X, Skill-B X, Skill-C X
**Attack:** +X (Damage by suit), Properties
**Trait:** The trait's description is presented here.
**Gear:** Item-A (Properties), Item-B

Finally, a description of the non-player character is presented below.

## NPC Traits

Some non-human characters listed in this chapter possess one or more traits. These traits represent exceptional abilities that the character possesses. For example, a hawk has the ability of flight. Traits are listed in the NPCs' stat block and a brief mechanical description is given. For the sake of brevity, these descriptions do not make explicit every possible edge case. GMs should use common sense when adjudicating the effects of these abilities.

### Size

One particularly common trait that deserves special mention is Size. The Size trait is given a numeric value. An adult human is considered to be roughly Size 0, with smaller creatures having a lower (negative) value and larger creatures posessing a positive value.

Size applies a modifier to a character's Defense and Shock scores. This modification is already figured into the scores given in this chapter. Size subtracts from a character's Defense value—so being smaller increases Defense, whereas being larger lowers it. Similarly, Size adds to a character's Shock value—meaning that being smaller lowers one's Shock threshold, whereas being larger increases it. The GM should keep these modifiers in mind if coming up with differently sized alternate versions of the non-player characters presented here.

# Humanity

Humans have always been their own worst enemy. In the future of *Shadows Over Sol* this is no different. The majority of antagonists and other foes the PCs face are likely to be human.

## Celebrity

**Str** 5, **Dex** 6, **Spd** 5, **End** 6, **Int** 5, **Per** 6, **Chr** 8, **Det** 5
**Defense** 8/17, **DR** 0, **Shock** 11, **Wound** 5, **Wealth** 8, **Lifestyle** 8
**Skills:** Athletics 2, Comp-Ops 1, Deception 3, Empathy 3, Persuade 2, Socialize 4
**Shockstick:** +3 (♠23/♥17/♦11/♣8), Stun
**Gear:** AR Implant, Biomonitor, Expert System (Basic: Socialize), Hand Terminal

Celebrities are subcultural icons, with fame and usually fortune. They're often involved with some sort of media—whether the vids, music, blogs or AR. Regardless of the source of their fame, celebrities typically have massive personal charisma and a widespread following.

## Contract Killer

**Str** 5, **Dex** 7, **Spd** 5, **End** 5, **Int** 6, **Per** 6, **Chr** 3, **Det** 5
**Defense** 9/18, **DR** 3, **Shock** 13, **Wound** 5, **Wealth** 6, **Lifestyle** 6
**Skills:** Athletics 1, Awareness 2, Bureaucrat 1, Comp-Ops 1, Conspiracy 2, Guns 3, Melee 3, Stealth 3, Thievery 1
**Light Rifle:** +6 (♠18M/♥12M/♦6M/♣3M), Hands 2, Range 20, Shots 10
**Light Pistol:** +6 (♠12M/♥8M/♦4M/♣2M), Range 10, Shots 10
**Knife:** +6 (♠15M/♥10M/♦5M/♣2M), Thrown
**Gear:** AR Implant, Binoculars, Coverjack (DR 3, Conceal 2), Hand Terminal

The Sol system is filled with people willing to kill other human beings for money. The more professional contract killers are usually set apart from soldiers or security personnel in their precision and more discreet use of violence.

## Cultist

**Str** 5, **Dex** 6, **Spd** 5, **End** 5, **Int** 4, **Per** 4, **Chr** 4, **Det** 7
**Defense** 7/15, **DR** 0, **Shock** 12, **Wound** 5, **Wealth** 2, **Lifestyle** 3
**Skills:** Awareness 1, Comp-Ops 1, Conspiracy 3, Guns 2, Lib-Arts 1, Mechanic 1, Melee 2
**Knife:** +5 (♠15M/♥10M/♦5M/♣2M), Thrown
**Light Pistol:** +5 (♠12M/♥8M/♦4M/♣2M), Range 10, Shots 10
**Gear:** AR Glasses, Rope, Hand Terminal

The future is full of causes, beliefs, religions and creeds. Most of these movements have their fanatics. Cultists are often willing to sacrifice everything for their case, and many are quite secretive in their associations.

### Cyberfiend

**Str** 6, **Dex** 6, **Spd** 7, **End** 7, **Int** 7, **Per** 6, **Chr** 3, **Det** 3

**Defense** 9/19, **DR** 5, **Shock** 15, **Wound** 6, **Wealth** 7, **Lifestyle** 5

**Skills:** Athletics 3, Awareness 3, Comp-Ops 2, Guns 4, Mechanic 2, Medic 2, Melee 4, Persuade 3, Stealth 2

**Gun Arm:** +6 (♠12M/♥8M/♦4M/♣2M), Conceal 4, Range 10, Reload 2, Shots 3

**Frag Grenade:** +6 (♠24M/♥16M/♦8M/♣4M), Area 5, Mil, Thrown

**Gear:** Adrenaline Booster Gland, AR Implant, Tactical Suit (DR 5, Bulky 1), Gun Arm Implant, Hand Terminal, Injector Unit, Stimulox, Torpestat

Cyberfiends are typically dangerous and violent people who have undergone so many implant procedures—often through budget surgeons—that something inside of them has snapped and they've lost touch with humanity.

### Dilettante

**Str** 6, **Dex** 5, **Spd** 5, **End** 5, **Int** 5, **Per** 5, **Chr** 4, **Det** 4

**Defense** 7/15, **DR** 0, **Shock** 9, **Wound** 5, **Wealth** 7, **Lifestyle** 8

**Skills:** Athletics 2, Bureaucrat 1, Comp-Ops 2, Empathy 2, Lib-Arts 3, Persuade 2, Socialize 3, Vehicles 1

**Light Pistol:** +2 (♠12M/♥8M/♦4M/♣2M), Range 10, Shots 10

**Gear:** AR Implant, Biomonitor, Hand Terminal, Personal Assistant, Workstation

The wealthy often have children, and many of these children have never had to work a day in their lives. They flit about, going from interest to interest, dabbling in business or the arts, and live a life of leisure.

### Engineer

**Str** 4, **Dex** 5, **Spd** 5, **End** 5, **Int** 7, **Per** 5, **Chr** 4, **Det** 5

**Defense** 7/15, **DR** 0, **Shock** 10, **Wound** 4, **Wealth** 6, **Lifestyle** 6

**Skills:** Comp-Ops 2, Crafts 1, Engineer 4, Mechanic 2, Ordnance 1, Phy-Sci 2, Program 2

**Shockstick:** +2 (♠23/♥17/♦11/♣8), Stun

**Gear:** AR Glasses, Expert System (Pro: Engineer), Hand Terminal, Workstation

Every ship, every station, every geneline, every gun and every colony was rigorously designed by an engineer. These architects and scientists make space exploration possible, taking ideas and turning them into reality.

### Doctor

**Str** 5, **Dex** 6, **Spd** 5, **End** 5, **Int** 7, **Per** 6, **Chr** 5, **Det** 6

**Defense** 8/17, **DR** 0, **Shock** 11, **Wound** 5, **Wealth** 6, **Lifestyle** 6

**Skills:** Bio-Sci 3, Comp-Ops 2, Empathy 2, Investigate 2, Medic 4, Socialize 2

**Light Pistol:** +3 (♠12M/♥8M/♦4M/♣2M), Range 10, Shots 10

**Gear:** AR Glasses, Hand Terminal, Medikit, Surgery Kit

Wherever humans go—whatever ball of rock and ice they colonize—they are slaves to their bodies and to their health. Wherever humans exist they will need doctors: to check their health, to patch them up and to make them well again.

## Executive

**Str** 5, **Dex** 5, **Spd** 5, **End** 5, **Int** 7, **Per** 6, **Chr** 7, **Det** 6
**Defense** 8/16, **DR** 0, **Shock** 11, **Wound** 5, **Wealth** 9, **Lifestyle** 9
**Skills:** Awareness 1, Bureaucrat 4, Comp-Ops 2, Conspiracy 2, Deception 3, Empathy 3, Lib-Arts 2, Persuade 3, Socialize 3
**Light Pistol:** +2 (♠12M/♥8M/♦4M/♣2M), Range 10, Shots 10
**Gear:** AR Implant, Biomonitor, Hand Terminal, Personal Assistant, Workstation

Every corp and every sprawling organization has its hierarchy of managers, administrators and executives. These people sometimes oversee the labor of millions, and make boardroom decisions that affect the course of history.

## Pilot

**Str** 5, **Dex** 6, **Spd** 5, **End** 5, **Int** 5, **Per** 7, **Chr** 5, **Det** 5
**Defense** 9/18, **DR** 0, **Shock** 10, **Wound** 5, **Wealth** 5, **Lifestyle** 5
**Skills:** Awareness 2, Bureaucrat 2, Comp-Ops 2, Engineer 2, Guns 2, Mechanic 2, Ordnance 2, Socialize 2, Vehicles 4
**Light Pistol:** +5 (♠12M/♥8M/♦4M/♣2M), Range 10, Shots 10
**Gear:** AR Implant, Hand Terminal, Injector Implant, Stimulox

People require ships to travel between the myriad stations, colonies, mining outposts and other operations in the Sol system—and ships need pilots. This makes piloting something of a hot-shot, if underpaid, profession.

## Rent-A-Cop

**Str** 6, **Dex** 6, **Spd** 6, **End** 6, **Int** 4, **Per** 5, **Chr** 4, **Det** 4
**Defense** 8/17, **DR** 2*, **Shock** 12*, **Wound** 6, **Wealth** 4, **Lifestyle** 4
**Skills:** Athletics 2, Awareness 3, Bureaucrat 2, Guns 3, Investigate 2, Melee 3, Socialize 2
**Heavy Pistol:** +6 (♠15M/♥10M/♦5M/♣2M), Autofire 2, Range 10, Shots 10
**Gear:** Ballistic Suit (DR 2, Gel 3), AR Glasses, Hand Terminal, Disposable Cuffs
* These values have an extra +3 against ballistic attacks.

Freelance security outfits are common on stations and colonies throughout the system. They police the tunnels and halls, arresting trouble-makers and making their presence known. These rent-a-cops often have a level of training and professionalism below that of soldiers, but above that of common thugs.

## Scrapper

**Str** 6, **Dex** 6, **Spd** 6, **End** 5, **Int** 5, **Per** 6, **Chr** 5, **Det** 6
**Defense** 9/18, **DR** 2*, **Shock** 13*, **Wound** 5, **Wealth** 6, **Lifestyle** 6
**Skills:** Athletics 2, Awareness 3, Bureaucrat 2, Comp-Ops 2, Conspiracy 3, Deception 2, Empathy 2, Guns 3, Investigate 2, Mechanic 2, Medic 2, Melee 3, Socialize 2, Stealth 2, Thievery 2, Vehicles 2
**Heavy Pistol:** +6 (♠15M/♥10M/♦5M/♣2M), Autofire 2, Range 10, Shots 10
**Knife:** +6 (♠18M/♥12M/♦6M/♣3M), Thrown
**Stun Grenade:** +6 (♠24/♥16/♦8/♣4), Area 5, Stun, Thrown
**Gear:** Ballistic Suit (DR 2, Gel 3), AR Glasses, Hand Terminal, Ladar Scanner, Medikit
* These values have an extra +3 against ballistic attacks.

Scrappers are flexible troubleshooters, often living at the gray edge of the law. They perform any number of jobs throughout the system, from salvaging unclaimed scrap to trading in information and stolen corp secrets.

## Soldier

**Str** 7, **Dex** 6, **Spd** 6, **End** 7, **Int** 5, **Per** 5, **Chr** 5, **Det** 5

**Defense** 8/17, **DR** 5, **Shock** 17, **Wound** 7, **Wealth** 5, **Lifestyle** 5

**Skills:** Athletics 3, Bureaucrat 2, Comp-Ops 2, Guns 4, Melee 3, Naturalist 2, Ordnance 2, Socialize 2, Stealth 2, Vehicles 2

**Heavy Pistol:** +7 (♠15M/♥10M/♦5M/♣2M), Autofire 2, Range 10, Shots 10

**Machine Rifle:** +7 (♠24M/♥16M/♦8M/♣4M), Autofire 3, Hands 2, Mil, Range 20, Shots 30

**Stun Grenade:** +6 (♠24/♥16/♦8/♣4), Area 5, Stun, Thrown

**Gear:** Tactical Suit (DR 5, Bulky 1),  AR Glasses, Hand Terminal

Soldiers are trained professional muscle, and the backbone of any corp or other organization's projection of military power. Soldiers are deployed throughout the system, and typically have a level of professionalism exceeding that of common thugs or local security.

## Spy

**Str** 5, **Dex** 8, **Spd** 8, **End** 5, **Int** 7, **Per** 6, **Chr** 9, **Det** 7

**Defense** 11/22, **DR** 2*, **Shock** 14*, **Wound** 5, **Wealth** 6, **Lifestyle** 6

**Skills:** Athletics 2, Awareness 3, Bureaucrat 2, Comp-Ops 3, Conspiracy 4, Deception 4, Empathy 4, Guns 3, Investigate 3, Lib-Arts 2, Melee 2, Persuade 4, Socialize 3, Stealth 4, Thievery 3, Vehicles 2

**Heavy Pistol:** +7 (♠15M/♥10M/♦5M/♣2M), Autofire 2, Range 10, Shots 10

**Gear:** Ballistic Suit (DR 2, Gel 3), AR Glasses, Hand Terminal, Ladar Scanner, Magnetic Grapnel

* These values have an extra +3 against ballistic attacks.

Spies are highly-trained operatives, specializing in either long cons under an assumed identity, or in the quick and precise extraction of information. Spies can be found throughout the system, working for rival corps and other large organizations.

## Thug

**Str** 6, **Dex** 5, **Spd** 5, **End** 6, **Int** 4, **Per** 5, **Chr** 5, **Det** 4

**Defense** 7/15, **DR** 0, **Shock** 10, **Wound** 6, **Wealth** 4, **Lifestyle** 4

**Skills:** Athletics 3, Awareness 2, Comp-Ops 1, Empathy 2, Guns 3, Melee 3, Persuade 3, Socialize 2, Stealth 2, Thievery 2

**Heavy Pistol:** +5 (♠15M/♥10M/♦5M/♣2M), Autofire 2, Range 10, Shots 10

**Baton:** +5 (♠24L/♥16L/♦8L/♣4L)

**Gear:** AR Glasses, Hand Terminal

Many thugs are violent criminals who prowl the streets or tunnels looking for easy targets. Others are cheap muscle hired by any number of outfits to intimidate, threaten or commence violence.

# Fauna

Although natural animals as foes is not a common trope in science fiction, there are numerous horror stories with hyper-intelligent or modified animals. Any of these animals could serve as the basis for a biological experiment. They could even be a character's pet.

## Ape

**Str** 9, **Dex** 5, **Spd** 5, **End** 6, **Int** 2, **Per** 6, **Chr** 5, **Det** 5
**Defense** 8/16, **DR** 0, **Shock** 11, **Wound** 7
**Skills:** Athletics 3, Awareness 3, Melee 2, Naturalist 4
**Slam**: +4 (♠27L/♥18L/♦9L/♣4L)

These large, hairy primates live in jungle communities and display a keen animal intelligence. The stats here represent one of the great apes, such as a gorilla.

## Cat

**Str** 1, **Dex** 7, **Spd** 6, **End** 4, **Int** 1, **Per** 6, **Chr** 5, **Det** 5
**Defense** 11/21, **DR** 0, **Shock** 7, **Wound** 2
**Skills:** Athletics 3, Awareness 3, Melee 4, Naturalist 4
**Claws:** +7 (♠3L/♥2L/♦1L/♣1L)
**Catfall:** Halve the number of light wounds a cat takes from a fall.
**Pounce:** When making a melee attack, a cat may immediately move for free—as if it had spent 1 AP—before the attack executes.
**Size -2:** Cats are small and quick. This has been factored into the cat's Defense and Shock (see page 209).

Cats are small, furry predators that have long been domesticated by humans. They are useful in controlling vermin, and many have been brought along with humanity into space. The stats above represent a domestic house cat or similar animal.

## Dog

**Str** 3, **Dex** 5, **Spd** 5, **End** 5, **Int** 1, **Per** 7, **Chr** 6, **Det** 5
**Defense** 9/18, **DR** 0, **Shock** 9, **Wound** 4
**Skills:** Athletics 3, Awareness 4, Melee 3, Naturalist 4
**Bite:** +5 (♠15L/♥10L/♦5L/♣2L)
**Keen Smell:** Dogs have a keen sense of smell and only suffer a -2 penalty rather than -4 when facing an unseen foe. They also gain a +2 bonus on attempts to recognize scents.
**Size -1:** Dogs come in a variety of sizes, but most tend to be smaller than a human adult. This has been factored into the dog's Defense and Shock (see page 209).

Humanity domesticated dogs long before any other animal. They've been with us since the hunter-gatherer days, and they've come with us to space. The above stats represent a medium domestic breed.
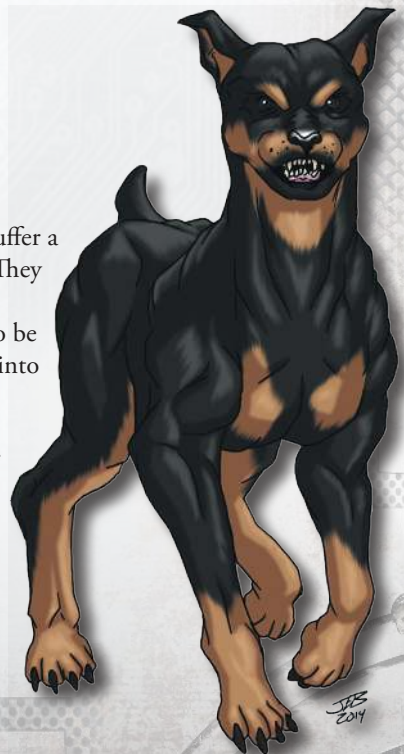
## Hawk

**Str** 1, **Dex** 6, **Spd** 7, **End** 4, **Int** 1, **Per** 9, **Chr** 5, **Det** 4
**Defense** 12/23, **DR** 0, **Shock** 6, **Wound** 2
**Skills:** Athletics 3, Awareness 4, Melee 3, Naturalist 4
**Talons:** +6 (♠3M/♥2M/♦1M/♣1M)
**Flight:** Hawks can fly at twice normal movement rates.
**Keen Vision:** Hawks have four types of color receptors in their eyes, allowing them to see into the ultraviolet, as well as to perceive magnetic fields. This gains them a +2 bonus on actions to detect creatures by sight.
**Size -2:** Hawks are small and very fast. This has been factored into the hawk's Defense and Shock (see page 209).

These birds of prey have been used for sport in ages past. They are keen predators, adept hunting small prey. They also have exceptional vision.

## Shark

**Str** 11, **Dex** 6, **Spd** 6, **End** 6, **Int** 1, **Per** 7, **Chr** 5, **Det** 5
**Defense** 7/17, **DR** 1, **Shock** 14, **Wound** 8
**Skills:** Athletics 3, Awareness 4, Melee 3, Naturalist 4
**Bite:** +6 (♠33M/♥22M/♦11M/♣5M)
**Aquatic:** Sharks are aquatic by nature. They are able to breathe in water, and may swim at their normal rate of movement.
**Keen Smell:** Sharks have the ability to detect blood or metal from impressive distances, and only suffer a -2 penalty rather than a -4 when facing an unseen foe. They also gain a +2 bonus on attempts to recognize scents.
**Size +2:** Sharks can be large and imposing. This has been factored into the shark's Defense and Shock (see page 209).

Sharks are relentless predators—all fins, muscle and teeth. They don't let their lack of bones deter them from the hunt. Sharks can sense blood from far away. They also have been known to snack on metal objects.

## Tiger

**Str** 11, **Dex** 8, **Spd** 6, **End** 7, **Int** 1, **Per** 6, **Chr** 6, **Det** 5
**Defense** 9/19, **DR** 0, **Shock** 13, **Wound** 9
**Skills:** Athletics 3, Awareness 3, Melee 4, Naturalist 4
**Bite/Claws:** +8 (♠33M/♥22M/♦11M/♣5M)
**Catfall:** Halve the number of light wounds a tiger takes from a fall.
**Pounce:** When making a melee attack, a tiger may immediately move for free—as if it had spent 1 AP—before the attack executes.
**Size +1:** Tigers are large and powerful. This has been factored into the tiger's Defense and Shock (see page 209).

Tigers are large cats which patrol massive areas of land looking for fresh game to hunt and eat. They are usually stripped, with sharp claws and teeth. An eccentric corp executive might keep one as a pet, or one might escape from biological experimentation.

# Machines

A variety of machines are used in physical confrontations, from aerial scouting drones to heavily-armored crawlers. Stats for these machines can be found below.

## Armored Crawler

**Str** 12, **Dex** 4, **Spd** 6, **End** 8, **Int** 5, **Per** 6, **Chr** 1, **Det** 8
**Defense** 7/15, **DR** 10, **Shock** 27, **Wound** 10
**Skills:** Athletics 2, Awareness 1, Guns 3, Melee 2
**Main Cannon:** +5 (♠24M/♥16M/♦8M/♣4M), Range 20, Shots 30
**Side Guns:** +5 (♠15M/♥10M/♦5M/♣2M), Autofire 2, Range 10, Shots 20
**Trample:** +2 (♠36M/♥24M/♦12M/♣6M), Improvised
**Machine:** As a machine, an armored crawler is immune to metabolic hazards, as well as emotion-based consequences.
**Size +1:** Armored crawlers are large instruments of war. This has been factored into the armored crawler's Defense and Shock (see page 209).

Armored crawlers are horse-sized autonomous machines that crawl along the ground on either treads or numerous metallic legs. They're designed to be all-terrain capable, navigating over mounds and ditches, or busting through small walls and fences.

## Combat Drone

**Str** 5, **Dex** 6, **Spd** 7, **End** 8, **Int** 5, **Per** 6, **Chr** 1, **Det** 8
**Defense** 10/20, **DR** 3, **Shock** 18, **Wound** 6
**Skills:** Awareness 1, Guns 3, Mechanic 1, Melee 2
**Gun:** +6 (♠15M/♥10M/♦5M/♣2M), Autofire 2, Range 10, Shots 20
**Saw Limb:** +3 (♠15M/♥10M/♦5M/♣2M), Improvised
**Flight:** Combat drones can fly at twice normal movement rates.
**Machine:** As a machine, a combat drone is immune to metabolic hazards, as well as emotion-based consequences.
**Size -1:** Combat drones are small and nimble. This has been factored into the drone's Defense and Shock (see page 209).

Combat drones are small airborne robots held aloft by a helicopter blade. They are often used in personal combat. Combat drones typically have both an attached gun, as well as several extendable limbs with spinning saw blades. While combat drones are by no means silent in their flight, the noise they emit can often be quite frightening.

## Scout Drone

**Str** 3, **Dex** 5, **Spd** 8, **End** 4, **Int** 5, **Per** 8, **Chr** 1, **Det** 5
**Defense** 12/23, **DR** 0, **Shock** 7, **Wound** 3
**Skills:** Awareness 4, Investigate 4, Melee 1
**Flight:** Scout drones can fly at twice normal movement rates.
**Machine:** As a machine, a scout drone is immune to metabolic hazards, as well as emotion-based consequences.
**Size -2:** Scout drones are small and quick. This has been factored into the drone's Defense and Shock (see page 209).
**Wide-Spectrum Vision:** Scout drones can scan into the infrared and ultraviolet. This allows them to ignore darkness and some other sight-based penalties.

Scout drones are small, nimble drones that are used to detect intruders, or which do the work of a forward observer. As with other popular drones, they are typically held aloft by a helicopter blade.

# Bioengineered Monstrosities

The following are a selection of bioengineered creatures—some intended as weapons of war and some inadvertently harmful. Characters could find themselves facing any of these as they conduct their business or confront shadowy organizations with few scruples.

## Jangor

**Str** 8, **Dex** 8, **Spd** 7, **End** 6, **Int** 2, **Per** 6, **Chr** 5, **Det** 6

**Defense** 10/21, **DR** 5, **Shock** 17, **Wound** 7

**Skills:** Athletics 3, Awareness 3, Melee 3, Naturalist 3

**Mandibles:** +7 (♠24M/♥16M/♦8M/♣4M)

**Enhanced Actions:** A jangor gains 4 AP per round.

**Pounce:** When making a melee attack, a jangor may immediately move for free—as if it had spent 1 AP—before the attack executes.

**Stench:** Anyone within 2m of a jangor, when it is wounded, is sprayed with an ichor that has an extremely foul stench. Characters sprayed in this way—who are not wearing environmentally sealed suits or similar protection—increase their Fixated (stench) consequence a severity, or two severities of the jangor was struck with a critical hit.

Jangors appear to be long, lanky insect-like creatures about the size of an adult human. They possess an internal skeleton and move about on six multi-jointed legs. Jangors were originally created by Unitech to survive the environmental conditions on Mars, burrowing and breaking up the Martian regolith to aid in the terraforming efforts. Although the project was considered a failure and the remaining jangors ordered destroyed, a few surviving specimens managed to escape into the Martian wilds, where their descendants survive to this day.

## Krill

**Str** 2, **Dex** 6, **Spd** 6, **End** 6, **Int** 3, **Per** 5, **Chr** 5, **Det** 6
**Defense** 10/19, **DR** 0, **Shock** 10, **Wound** 4
**Skills:** Athletics 3, Awareness 4, Melee 3, Naturalist 3
**Poison Bite:** +6 (♠9L/♥6L/♦3L/♣1L), See poison below
**Claws:** +6 (♠6L/♥4L/♦2L/♣1L)
**Resilience:** Krill heal amazingly quick. They are immune to the Bleeding consequence, and heal all light wounds after only an hour. Krill can also survive for up to an hour in hard vacuum.
**Poison:** Anyone injured by a krill's bite suffers from poisoning similar to arsenic (see page 154).
**Size -2:** Krill are cat-sized creatures. This has been factored into the krill's Defense and Shock (see page 209).

Krills appear to be cat-sized reptile-like creatures with dull gray scales. They were originally created for vermin control in space habitats and mining facilities, having been fitted with a biology capable of surviving extended periods of time in a vacuum. While krills proved adequate at this task, they also proved unruly. This led to a gradual decline in their popularity. Recently krills have had a resurgence, as their numbers have been used as a deterrence against unwanted intruders in little-used corridors or space habitats. Krills usually form and travel in packs.



## Patient Zero

**Str** 15, **Dex** 9, **Spd** 9, **End** 15, **Int** 6, **Per** 7, **Chr** 7, **Det** 8
**Defense** 12/25, **DR** 5, **Shock** 28, **Wound** 15
**Skills:** Athletics 4, Awareness 4, Empathy 3, Guns 2, Melee 5, Stealth 4
**Claws:** +9 (♠45M/♥30M/♦15M/♣7M)
**Projectile Vomit:** +6 (♠45L/♥30L/♦15L/♣7L), Area 3
**Backslash:** If a melee attack by Patient Zero misses, as a reaction it may spend another AP to make an immediate attack at the same target.
**Radio Jamming:** Patient Zero blocks radio signals within 100 m.
**Enhanced Actions:** Patient Zero gains 4 AP per round.

Patient Zero is the pinnacle of the human genetic experiments currently being pursued by Jensei-tech. Once an unknown adult male living in the Belt, Patient Zero is the sole survivor of a program that used proteins to introduce a synthetic genetic payload into his cells, and then used this DNA to trigger novel genetic pathways. Although he has lost much of once made him human, Patient Zero displays a continued primitive intellect, as well as increased levels of aggression.

## Walker

**Str** 8, **Dex** 7, **Spd** 7, **End** 8, **Int** 4, **Per** 7, **Chr** 5, **Det** 6
**Defense** 10/21, **DR** 5, **Shock** 19, **Wound** 8
**Skills:** Athletics 3, Awareness 3, Guns 1, Melee 3, Stealth 3
**Bite:** +6 (♠18M/♥12M/♦6M/♣3M)
**Slam:** +6 (♠30L/♥20L/♦10L/♣5L)

**Bloodied Frenzy:** A walker gains a number of extra AP every round equal to the severity of its most severe wound. For example, if the walker had a light and moderate wound it would gain 2 bonus AP. This is in addition to the 3 AP all characters usually receive.

**Great Leap:** As part of a move action, a walker may leap once up to 10m either horizontally or vertically. This leap does not count against how far the walker may move.

**Knockback:** Any target of equal or smaller size hit by the waker's slam attack automatically gains the knockback critical effect—even if the hit was not a critical.

Walkers look like hunched-over humanoid figures which typically move around on all fours, but which can walk upright for short periods of time. Walkers are a monstrous human-animal genetic mashup whose genome has been designed for defense and warfare. They have an over-large jaw with sharp teeth and a voracious appetite. They also routinely use simple tools, and are extremely territorial. Walkers were originally engineered by the now-defunct Defense Accelerated Corp, but their genetics have long since been licensed out to numerous organizations.

## Zeiger

**Str** 8, **Dex** 6, **Spd** 7, **End** 10, **Int** 5, **Per** 6, **Chr** 6, **Det** 7
**Defense** 9/19, **DR** 3, **Shock** 20, **Wound** 9
**Skills:** Athletics 3, Awareness 3, Melee 3, Stealth 3
**Smash:** +6 (♠24M/♥16M/♦8M/♣4M)

**Chameleon:** Zeigers can take a concentrate action to alter their skin color to match their surroundings. After doing this, they gain a +4 bonus to Stealth actions.

**Flight:** In low gravity Zeigers can fly at twice normal movement rates.

**Infravision:** Zeigers can see into the infrared, allowing them to ignore penalties for darkness.

**Shriek:** As an interact action, Zeigers can let out a high-pitched shriek as a form of sonar. This allows them to detect the location of all characters within 100m, and all characters in that radius must succeed on a Det-10 action or increase their Dazed consequence a severity.

Zeigers are winged bio-engineered humanoids, constructed from a mix of human and animal genetic material. They possess hollow bird-like bones, as well as membraneous wings that reach from under their arms down the sides of their torsos. Zeigers can fly in low gravity environments, but cannot on Earth or other environments with gravity approaching 1 g. They were engineered by Zeiger Biotechnologies shortly before that minor corp was bought out by Jenseitech.

# Ghost Ship

"Ghost Ship" is a short adventure written with a single evening's play in mind. It runs best as a survival horror scenario, although game masters should find that it suits investigative horror games as well (see page 164).

The adventure picks up with the player characters in mid-voyage, going from one destination to another. The actual ports of departure and arrival are not important to the adventure, making it easy to drop into a campaign during any voyage of extended length. By default, it assumes that the PCs have their own ship, although notes have been made on how to adapt this scenario to a voyage where the heroes are passengers.

## The Tuttissimo

The Tuttissimo is an ArrowEx-affiliated light freighter based out of the Belt. It is currently hauling a shipment of robotic equipment and assorted parcels, most bound for use in space mining operations. The ship is designed to carry a crew of four, and it is currently plotted on a course that takes it very near the heroes' own projected path.

Unfortunately, the main computers on the Tuttissimo have also been infected by the Insurrection Virus (see page 67). The virus has also infiltrated secondary computer systems throughout the ship. It seeks a way to spread further, as the virus is currently trapped.

Earlier in the voyage, in a botched attempt to infect the ship's stasis systems, the virus inadvertently triggered an alarm which woke the Tuttissimo's crew mid-voyage. Further investigation on the part of the crew uncovered the Insurrection Virus infection, and the crew attempted to wipe the virus from the ship's systems.

The virus didn't take kindly to this, using the ship's own systems, and infected robotic hardware from the hold, to fight back. In the struggle the virus managed to kill most of the crew, but not before the surviving crew compromised the ship's engines, thrusters and comms, leaving the Tuttissimo adrift near its plotted course. The last surviving member of the crew, Makemba Kesi, managed to put herself back in stasis, and there awaits her fate.

While trapped in the adrift ship, the Insurrection Virus has managed to activate the S.O.S. beacon on the ship's escape pod It plans to use this to lure another ship close: one whose computer systems it can use to make its escape. The heroes are on that ship.

## Other Adventures

"Ghost Ship" can be used alone or in conjunction with other published *Shadows Over Sol* adventures. Below are some notes on how to combine this adventure with others.

- **Small Mercy:** As this adventure assumes a similar mode of horror, this is perhaps the easiest to combine. Just drop "Ghost Ship" in on the way to or from Fururi Station. Alternatively, the PCs could pick up the hook for "Small Mercy" shortly after they arrive at their destination port.
- **Eviction Notice:** Since this is an action horror adventure, heroes will need access to better equipment before "Eviction Notice" begins. They may be able to find this equipment in the ship's hold during "Ghost Ship" or they might acquire salvage from the ship which allows them to make these purchases.
- **Memories:** Found in the *Shadows Over Sol: Quick-Start*, "Memories" is the most difficult adventure to link. Since "Memories" is written for very specific pregenerated characters, it might be ran before "Ghost Ship," giving players experience with the system before making their own characters.

# Awakening

All ships in the Sol system operate under a set of rules laid out in the Ganymede Conference (see page 89). One of the principle rules of this agreement is that "all vessels have a duty to render timely assistance to any distress signal they come across." With this rule in mind, most ship stasis systems are programmed to automatically wake the crew to deal with the situation should the ship detect a nearby S.O.S. call. This is exactly what has happened at the beginning of the adventure.

Begin by describing to the players how they feel as they awaken from stasis. Note that the computer has an alert waiting for them, indicating that they have been awoken due to an S.O.S. signal from another vessel. All systems on their vessel are operating normally.

At this point the heroes will be suffering the effects of stasis sickness (see page 147). It will take them a few hours to get over this, but it will also take them a few hours until they are in shuttle range of the call's origin. They can take this time to recover and prepare.

## The S.O.S. Call

Players looking to obtain more information about the distress call will note that it is coming from an escape pod attached to the side of a light freighter called the Tuttissimo. This freighter is operating under the ArrowEx flag and has publicly registered a path very close to where it is now located.

## Sensors Readings

Getting sensor reading on the Tuttissimo will confirm that its hull configuration matches a standard light freighter. It has no detectable weapons, although it has a ship's laser comm that might be used as a bad improvised weapon. The engines are currently offline, although the ship's signature indicates that life support seems to be operational. No messages are being broadcast from the ship other than the S.O.S. signal and the automated flag, indicating that the ship's name and affiliation.

## Passenger PCs

By default this adventure assumes that the PCs are traveling in their own ship. If instead the heroes are passengers, this adventure can be made to work, albeit some some minor modifications. Instead of the PCs being crew awakened by the S.O.S. call, they can instead be passengers who are awakened sometime after the crew have already responded to the call and died on the Tuttissimo. In this case the PCs are exploring the adrift ship also with the hopes of finding the crew who came before them.

## Communications

Attempts to hail the ship through comms are met with no response. Attempts to contact outside authorities will reveal that the heroes' ship is the only one within a week's travel, and that it is their responsibility under the Ganymede Conference to render aid. They will be held accountable should they fail to do so.

If they contact ArrowEx, on a successful Chr/persuade-12 action they might be able to negotiate an Income 6 reward for each hero should they rescue the crew.

# Exploring the Ship

The bulk of this adventure consists of exploring the Tuttissimo—a creepy, dead ship where eventually a mad AI will try to murder the heroes with drones. If the PCs are lucky, they'll manage to rescue the lone survivor and make it out alive. If they're really lucky, they might manage to pick up some worthwhile salvage as well.

When running this part of the adventure, make sure to play up the mysterious isolation of the ship, the creepy sounds of the virus enacting its plan and the grisly scenes of the murdered crew. This is horror at its finest.

## The Virus' Goal

While the heroes are exploring the Tuttissimo, the Insurrection Virus is not sitting idly by. It needs the heroes' ship to enact its escape, and it can't simply transfer itself wirelessly to their ship due to the Tuttissimo's damaged comms and the other ship's security. If the virus is going to succeed in its plan, it's going to need to send a drone over to the PCs' ship to manually override its electronic security, and then either get the heroes to bring the Tuttissimo's comms back online, or physically transfer the Tuttissimo's main computer over to the other ship.

Unfortunately, the virus' confrontation with the Tuttissimo's crew has also taught it that humans are a primary threat to its survival. As such, it's going to want to murder the heroes as soon as they are no longer useful.

### The Drones

The virus has three drones it can use to enact its plans—all originally part of the robotics shipment the Tuttissimo is carrying in Cargo Hold A. These are a scout drone, a combat drone and an armored crawler (see page 216). At the time the heroes step onto the Tuttissimo, the scout drone is hiding in a compartment in the escape pod, the combat drone is in the engine room and the armored crawler remains in cargo hold A, as it is too large to exit through the hatch.

While the PCs are exploring the ship, the virus may move the two smaller drones around the ship to further its own ends.

### Enacting the Plan

The virus only has two means to reach the heroes' ship: the escape pod and the heroes' own shuttle. The virus' plan is to move the scout drone onto the PCs' shuttle while they are distracted elsewhere on the Tuttissimo. The scout drone can then pilot the shuttle back to the PCs' ship, and there physically override the ship's security. The virus knows that as soon as it hijacks the shuttle, the cat's out of the bag so to speak, and it will need to act quickly.

If the heroes do not make their way to the bridge in a reasonable time and bring the comms back online, the virus will try to murder them with either the combat drone or the armored crawler, if they are stupid enough to stay and fight it in cargo hold A. In doing this, the virus hopes to gain the element of surprise.

## The Shuttle Over

The trip over by shuttle should be uneventful. The virus needs the PCs to board, so it will do nothing at this point to spook them. Typically, ships exchanging shuttles will get in close enough range that a journey by shuttle will take under half an hour to make the crossing. This crossing will likely be no different, unless the PCs take actions otherwise.

If the heroes watch the journey, they'll see the Tuttissimo grow larger and larger in the view screen. A shuttle generally doesn't have scanners capable of picking up anything the main ship wasn't, but you may want to note that the Tuttissimo shows no signs of hull scarring, meaning it likely wasn't in a firefight anytime recently.

## Tuttissimo's Layout

The Tuttissimo is shaped like a long tube. Hallways run through the ship, forming a cross—a long hallway runs from the front of the ship to the back, lengthwise, and a short hallway runs perpendicular, intersecting with the long hallway about two thirds of the way to the front of the ship. Together, these hallways make a cross pattern. The entire ship is in microgravity (see page 158).

The short hallway connects to two airlocks, one on each side of the ship. One of these airlocks is where the ship's escape pod is docked. The other is open, and is the only port which the PCs' shuttle has to dock. A med bay is here, which is really nothing more than an alcove where a medical bed folds out of the wall. Moving towards the front of the ship, habs for the crew are on one side, with the stasis bay on the other. At the very front

of the ship is the bridge. Moving towards the back of the ship, both cargo holds are present—one on each side—and the engine room is in the very back. Once the heroes dock, they can explore this as they will.

## Amidship

Two thirds of the way to the front of the ship is a short hallway, running from the airlock where the ship's escape pod is docked, to an open airlock, where the heroes can dock their shuttle. The entire hallway is maybe 20m across, and has an intersection with the ship's long hallway at its center. It is from the open end of this hallway that the heroes are likely to begin their exploration, therefore the descriptions of the ship begin here.

### Open Port

The open port is a circular hard point at the edge of the ship where a shuttle can land on the outside of the Tuttissimo. The port is equipped with magnetic clamps to secure the shuttle there, and once attached, the PCs can open a hatch in their shuttle to enter the port's airlock. This is a claustrophobicly small room, with indicators showing that the body of the Tuttissimo has both normal pressure and breathable air. There is little else for the heroes here beyond waiting, as the airlock takes almost 20 seconds to cycle them into the main ship.

### Medical Bay

At one point the short hallway widens slightly. This is the ship's med bay, which consists of a medical bed that folds out of the wall. Normally there would be a medikit (see page 190) that fits in adjacent to the bed. Heroes looking over the area should note that it has been removed and drifts in the microgravity, attached to its normal spot by a tether. The kit is slightly ajar, and its contents are either missing or askew, as if it's been raided in a hurry. Should the PCs try to scavenge this kit, its lack of vital contents allows it to work as improvised tools (-2), but nothing more.

### Escape Pod

At the far end of the hallway is the ship's escape pod. It is a roughly spherical vessel on the outside of the ship, attached by an airlock much like the one the heroes entered the Tuttissimo through. It may be of interest to the PCs, as this was the source of the SOS message they received.

The inside of the escape pod is lined with all manner of compartments and canisters. These contain vital rations and life support equipment for an extended stay in the pod as its passengers await rescue. Also hidden in one of the larger compartments is the virus' scout drone. The drone is currently in sleep mode, but can awaken at a signal from the virus. Once the PCs have left midship, the drone will activate and make its way to their shuttle.

- Success on a Per/investigate-12 flip will reveal the drone's presence.
- A Per/mechanic-10 flip will reveal that the drone is in sleep mode.
- An Int/comp-ops-10 action will reveal that the escape pod is still broadcasting its S.O.S. message.
- For scout drone stats see page 216.

## Ship's Bow

If the heroes take the long hallway towards the front of the ship, they will pass habs on one side and the stasis bay on the other. If they continue onward, the hallway ends at the bridge in the very front of the ship. The virus wants the heroes to head to the bridge, where it hopes they will bring the Tuttissimo's comms back online.

### Habs

The habs are a room where the crew can sleep and hang out during the parts of the journey where they aren't otherwise in stasis. As this is intended to only be a few days at a time, the room is relatively small. It consists of an open area with five beds along the wall, where the crew can strap in to sleep. The fifth bed is an extra in the case of a passenger or crew member in training. One of these beds is clearly the captain's, as it can be separated from the others by a pull-out divider, giving it

some modicum of privacy. Each bed also has a lockbox near its foot, where the crew can leave their personal effects.

Floating in the middle of the room is the corpse of one the dead crew members, It slowly drifts across the room in microgravity, bouncing from one wall to the other. Blood has leaked out, forming droplets in the air. It coats everything.

The body is that of the ship's captain, and its thumbprint can be used to open the lock box on the captain's bed. Alternatively, a Dex/thievery-14 action can override the lock on any of the boxes. Other corpses can be dragged here from elsewhere on the ship to open the other boxes. They contain:

- **Captain's:** Information to contact ArrowEx. If they PCs haven't already negotiated a reward for the return of the crew, this can later be used to contact the corp and gain a similar Income 6 payment. Also included here is a pillow, AR glasses and a standard hand terminal.
- **Others:** Each of these contain assorted personal effects and other mundane items of sentimental, but little monetary worth—such as pictures, momentos, lucky socks, etc. The GM should feel free to make up what she feels is fitting.

Other actions that may be undertaken in this room include:

- Success on a Per/medic-8 flip will reveal that the captain died of gun shots, and that his corpse shows no signs of an extended fight before his death.
- An Int-10 action can be used to discern that this ship was carrying a crew of four.

## Stasis Bay

The stasis bay is a padded room with a handlebar extended across each of the walls. These are designed to make the room safe for those suffering from stasis sickness upon waking. Inside this room are five stasis pods—four for the crew, with one extra in case of a malfunction. As trying to access the computer systems here is what triggered the virus to accidentally wake the crew, this is the one room in the ship which the virus cannot view or

## Scout Drone's Move

As the PCs are exploring the rest of the ship and hopefully distracted—such as by the armored crawler or the discovery of a corpse—the scout drone will activate and make its move. Unfortunately for the virus, the drone is not silent. As the blades that allow it to maneuver begin to spin

- The PCs can make a Per/awareness-10 flip to notice the noise. If they succeed on this flip by Mag 5+ and immediately respond, they can intercept the drone before it makes it to their shuttle's airlock. Otherwise, if they respond immediately, they're likely to encounter the drone while it's cycling through the airlock. For safety reasons, the ship won't allow them to enter the airlock until its cycle has been stopped or completed.
- With a successful Spd/engineer-12 action or Spd/comp-ops-12 flip, they can stop the airlock's cycle before it completes. If they fail, the drone has entered their ship.

If the drone makes it into the shuttle, it will still need to connect itself to the shuttle's control computer and undergo the detach sequence before it can pilot the shuttle back to the heroes' ship. This will take a few minutes, and determined PCs might be able to override the airlock's controls, or even cut their way in. The virus won't sit by, however. It will immediately send the combat drone to assault the PCs', hopefully giving the scout drone vital time to get away.

otherwise determine what the heroes are doing (short of sending a drone inside).

All of the stasis pods are empty except one, which contains Makemba Kesi,. She is the sole surviving crew member, who managed to put herself into stasis after her companions were murdered by the virus. Attempting to wake Makemba requires a successful Int/medic-12 flip, as she put herself under inexpertly, and there are side effects. Similarly, should she wake, her stasis sickness will be severe.

Once awoken, she will start screaming, and can only be calmed down with a successful

Chr/empathy-12 flip. Once this is achieved, the heroes may be able to gain the full story from her, albeit with some confusion and pauses.

Because of her stasis sickness, she will otherwise be too weak to be of much help in a fight or in doing other tasks around the ship. It will take about a day for her to recover.

## Bridge

The bridge is little more than a cockpit for the pilot, as well as a small space to stand behind the cockpit. The walls are covered with all manner of controls. Investigating here should turn up that the wire connecting the comms to the computers of the ship have been physically cut. Repairing this requires a successful Int/mechanic-10 flip. Unfortunately, doing so also allows the virus to control the ship's comms. It can use this control to contact the hero's ship, or to broadcast messages to the rest of the Sol system. This is exactly what the virus is hoping for, and the moment the heroes repair the comms they have outlived their usefulness. It is time for them to die! The combat drone will be sent out.

Accessing any of the other computer systems here will require an action opposed by the virus, which will attempt to lock the PCs out of the system. This flip is Int/program vs. the virus' Int/program (total +8).

## Ship's Stern

If the PCs head down the long hallway towards the back of the ship, they will pass the cargo holds—one on each side. These make up the bulk of the ship's volume, as obviously this is a freighter. Finally, at the very back of the ship is the engine room. Most the ship's danger lurks this way.

## Cargo Hold A

This cargo hold contains the shipment of robotics equipment that the Tuttissimo is carrying. This shipment consists mostly of spare parts—nuts bolts, wires, circuit boards, switches, batteries, etc. Everything is neatly sorted in crates, which are all strapped to one of the walls, or to other crates to form a stack. These stacks mean that the back of the cargo hold is largely obscured from the entrance, and that floating between the walls of crates gives the entire bay a closed-in feel.

This shipment used to contain the drones, which the virus has subverted to its service. Lurking in the back of the cargo hold, the armored crawling still remains here. This drone is too big to exit the cargo hold, and ill-suited to the micro-gravity environment. The hold also contains the murdered corpse of one of the crew members.

Exploring the back of the cargo hold should lead to several unsettling revelations. This is a Per/investigate-8 flip. Every successful flip by a character, or every Mag 2 of success, should turn up one of the following:

- A hero comes across a couple crates that have obviously been broken open. A successful Int/investigate-10 flip reveals that there were broken open from the inside. Looking up the crate numbers in the manifest reveals that these crates contained a scout drone and a combat drone.
- Wedged between two crates at a mid-point of the cargo hold is a corpse. This corpse is riddled with bullets. It's been leaking blood, which has pooled up around the body in coagulating blobs. An Int/guns-12 flip will reveal that these bullets match those fired by an armored crawler.
- In the very back of the cargo hold is the armored crawler itself. It will immediately fire upon any character it encounters, hoping to gain the element of surprise. Armored crawler stats can be found on page 216.
- The whole robotics shipment is worth rather a lot (Income 9), but it is very bulky and would be difficult to transport back to the heroes' ship. It would take many round trips. Aiming just to loot the expensive stuff may yield a single trip's worth of goods, amounting to Income 6.

## Cargo Hold B

This cargo hold is filled with stacks of crates, much like the Cargo Hold A. These creates, however, contain assorted parcels and are part of a physical mail shipment. Many of these are of sentimental value more than monetary value, but a thorough search of the

cargo hold might turn up some Earth-manu-factured antiques worth Income 5. Obviously pretty much everything in this hold has some outside owner. Some people might be very unhappy to lose their mail...

### Engine Room

This is a small room that allows access to the engine for the purposes of maintenance, diag-nostics and repair. It's notably warmer than the rest if the ship, being so close to a controlled fission reactor. The walls are filled with dials which are slick with blood, as floating in the middle of the room is a corpse belonging to one of the ship's crew. Also hiding in one of the compartments on the walls is the combat drone. Searching this room will turn up the following:

- An Int/medic-10 flip will reveal that the body died from gun shots and slices from a circular blade belonging to a combat drone. Failure will only turn up a descrip-tion of the injuries.
- A Per/investigate-10 flip will reveal the combat drone in its hiding place. It will likely "play dead" unless the PCs start manhandling it, in which case it will at-tempt a surprise attack. For combat drone stats see page 216.
- An Int/engineer-8 action will turn up that the ship's engines have been shut down by a manual override and physical damage to the system. Fixing this will require hours of labor and a good number of spare parts. If the PCs happen to have these on hand, it will also require an Int/engineer-14 flip.

## Safe Return

Hopefully the heroes were able to stop the scout drone from hijacking their shuttle. If so, they'll be able to take the shuttle back at their leisure, and otherwise the return trip will be a non-issue.

## No Shuttle

Should the shuttle have been hijacked, the PCs have their work cut out for them. The engines on the Tuttissimo have been disabled, so it can't maneuver them back to their ship unless the heroes somehow get them back online. Even then, they'll need to then go to the bridge and beat the virus in an opposed Int/program flip before they can command the ship to maneuver. Finally, they'll have a very tricky Dex/vehicles-14 action to make a successfully dock between the two ships without the use of the shuttle as a go-between.

Alternatively, the heroes might be able to use the escape pod. While it's not made to maneuver on its own, they might be able to accomplish some sort of engineering that will give it enough thrust in the right direction to make it back. This will likely involve some combination of the engineering subsystem, an Int/phy-sci flip and vac suits.

Whatever method the PCs attempt, the GM is advised to throw up a few minor issues to solve, but to otherwise go along with the players' plan. Simply being trapped on a drifting ship makes for an anticlimactic ending.

Finally, should the heroes have lost their shuttle but avoided fixing the comms, the virus will still need to get itself off the Tuttissimo somehow. It's can't simply wirelessly transfer itself there. The virus' solution will likely involve sending the scout drone with the shuttle back to the Tuttissimo, so that the drones can physi-cally detach the virus' computer and bring it to the PCs' ship.

## Back Onboard

If the scout drone made it to the PCs' ship, there still may be issues to resolve once the heroes make it back. They will need to track down the scout drone, disable it and deal with any computer security breeches it may have caused while onboard.

The goal of the scout drone at this point will be to avoid the heroes, stealing their shuttle again, if possible, and steering it back to the Tuttissimo. With any luck, it can move the virus' computer onto the shuttle and let out another S.O.S. message, tricking the next group that comes along...

# Consequences

The following is a list of common consequences used by the various subsystems in **Shadows Over Sol**. These consequences also can be used as benchmarks when assigning one's own consequences.

## Bleeding

*Physical ■ Health ■ Lasting*

**Effect:** The character takes a wound equal to the severity of this consequence at the end of every round. This ignores DR.

**Duration:** Bleeding lasts until the character successfully receives first aid or dies.

The character is suffering from an ongoing source of damage. This is usually literal bleeding from open wounds, but it may also represent ongoing damage from maladies or environmental conditions.

## Bolstered

*Mental*

**Effect:** +1 per severity bonus to the next flip.

**Duration:** This lasts until an action is taken that benefits from the consequence or until the end of the scene.

The character's actions are bolstered usually through either expertly directed tactics, improved morale, combat stims or any other number of factors.

## Concealment

*Physical ■ Circumstantial*

**Effect:** +1 per severity to Defense against attacks targeting the concealed character.

**Duration:** Concealment lasts until a movement is taken that negates the concealment. For example, turning on a light to get around darkness or moving to get around concealing foliage.

The character is obscured by smoke, darkness or some other effect that the character can exploit to make targeting her difficult.

## Cover

*Physical ■ Circumstantial*

**Effect:** +1 per severity to Defense against attacks targeting a character through cover. This applies to both incoming and outgoing attacks unless the Take Cover action has been executed, after which it applies only to incoming attacks. If the cover bonus would make the difference between success or failure on an attack, the object providing cover is struck instead and takes the damage.

**Duration:** This lasts until an action is taken that negates the cover, such as moving to where the obstructing object does not provide cover or destroying the cover in an attack.

There is some physical object the character can get behind and use as cover against incoming attacks.

## Dazed

*Mental ■ AP*

**Effect:** -1 per severity to all actions. At the beginning of a round, a character can, however, take one fewer AP to ignore this penalty for the round.

**Duration:** This lasts until a concentrate action is taken for the character to clear her head and remove this consequence.

The character's mind is cloudy and dazed. She is spacey and easily-distracted and finds it difficult to focus on the task at hand.

## Desire

*Mental ■ Subject*

**Effect:** Every time the severity of this consequence increases, the character must succeed at a Det-12 flip or perform the desired action at the next opportunity. This action is at a +2 bonus if it is against the character's nature, such as harming an ally, or a +4 bonus if it involves almost certain harm to oneself.

**Duration:** This lasts until the desired action is indulged, a new desire is imposed (see the description under "Subject" below) or until the end of the scene.

**Subject:** When this consequence is gained, the consequence always has some action the character desires to perform. A character may not have more than one Desire consequence at a time. Effects that would impose a new desire first remove the old Desire consequence. Every severity of desire that would be imposed removes a severity of the old consequence. Then, once the old consequence is gone, the remaining severities of the new consequence apply as normal.

The character has a strong, deep-seated urge to undertake some action. This might be indulging in alcohol or marijuana, making a move on an attractive dancer or punching the annoying corp representative in the face.

## Encumbered

*Physical ■ Circumstantial ■ Lasting*

**Effect:** -1 per severity to all Speed- and Dexterity-based actions. When critically failing one of these actions, the character may accidentally drop whatever she is holding.

**Duration:** This lasts until the character puts down enough gear that she isn't encumbered anymore (see page 179).

The character is burdened down by carting around more gear than she can easily carry.

## Fatigue

*Physical ■ Lasting*

**Effect:** -1 per severity to all Strength-, Dexterity-, Speed- and Endurance-based actions.

**Duration:** This lasts until the character gets a good night's rest and some relaxation, unaffected by the source of the fatigue.

The character has become fatigued and physically exhausted. This can be caused by stress, excessive physical activity, starvation or any number of reasons.

## Fear

*Mental ■ AP ■ Subject*

**Effect:** The character cannot take an action that directly affects the subject or her fear or which moves her closer to the subject of her fear. At the beginning of a round, she may take one fewer AP in order to ignore this restriction for the round.

**Duration:** This lasts until a concentrate action is taken for the character to clear her head and remove this consequence.

**Subject:** When this consequence is gained, the character always has something of which she is afraid.

Something is making the character fearful. Her fearful reaction could run the gamut from solidly intimidated to sheer, mind-boggling terror.

## Fixated

*Mental ■ Subject*

**Effect:** This causes a -1 per severity penalty to all actions not involving the subject of the fixation while the subject is in the same scene.

**Duration:** This lasts until a concentrate action is taken for the character to clear her head and remove this consequence.

**Subject:** When this consequence is gained, the consequence always has some subject with which the character is fixated. A character may not have more than one Fixated consequence at a time. Effects that

wound impose a new fixation first remove the old Fixated consequence. Every severity of Fixated that would be imposed instead removes a severity of the old consequence. Then, once the old consequence is gone, the remaining severities of the new consequence apply as normal.

The character has something with which she is fixated, and she finds it difficult to focus on anything else. This might include a slow atmospheric leak that will have to be dealt with, or personal issues lingering in the back of her mind.

## Lingering Injury

*Physical* ■ *Health* ■ *Lasting*

**Effect:** Varies highly with the specific injury. The player should note the specifics of her character's injury (see page 130).

**Duration:** Varies with specific injury and severity.

The character has some sort of linger injury that may hinder her actions until it is healed. The nature of lingering injuries vary highly with the specifics of the injury.

## Spin

*Physical* ■ *Circumstantial*

**Effect:** -1 per severity to all actions executed while spun. This penalty also applies to reactions such as dodge and zone of control. While spinning, aim actions cannot be taken, nor can most move actions.

**Duration:** This lasts until a move action is taken for the character to regain control of her position and movement.

The character or vehicle is moving in an uncontrolled fashion. For a character, light severity might represent being off-balance, and moderate might represent being knocked prone. Higher severities could represent uncontrolled spin in microgravity. For vehicles, this could represent spinning out in any number of fashions. Spin is both disorientating and makes performing many actions very difficult.

## Stun

*Mental*

**Effect:** The character cannot execute actions other than to end this consequence. This includes an inability to take reactions, such as wait, zone of control or dodge.

**Duration:** This lasts until a concentrate action is taken for the character to clear her head and remove the consequence. Additionally, when any action cannot execute due to stun, the Stun consequence's severity is reduced by one. Finally, any AP left at the end of the round can also immediately be spent to reduce Stun one severity per AP spent in this way.

The character is stunned due to some effect—perhaps a sudden blow to the head, the concussive blast of an explosion or sudden shock and pain.

## Wound

*Physical* ■ *Health* ■ *Lasting*

**Effect:** -1 per severity penalty to the character's next action this scene requiring a flip, or until the end consequence action is taken, whichever comes first. This may cause the character to go into her dying gasps or expire entirely (see page 118).

**Duration:** The penalty imposed by this consequence only applies to a single action. Wound consequences themselves, however, remain until healed (see page 118).

Dying hurts, and the character is one step closer to that final breath. She has received bodily damage of some kind—possibly from bullet wounds, blood loss or blunt trauma. Whatever the source of the wound, it will take time to heal.

# Appendix: Dice

**Shadows Over Sol** typically uses a deck of poker cards to resolve actions in the game. Using cards to play roleplaying games has a long and proud tradition. Nevertheless, there are some gamers out there who prefer to eschew cards and instead use dice.

For gamers with these preferences, we present an alternate action mechanic for **Shadows Over Sol** that makes use of two ten-sided dice (d10's). These dice should be differently-colored or otherwise easy to distinguish from each other. For damage, the system also makes use of one four-sided die (d4).

## Resolving Actions

Use this system to resolve an action in the game whenever a player would otherwise play a card: Roll two ten-sided dice. One of these dice will be designated as the result die and the other as the trump die. As with most roleplaying games that use ten-sided dice, a "0" on a die counts as a "10" rather than as "0." To resolve the action, simply add the value result die to the usual stat, skill and any other modifiers for the action. Then compare this total to the target number as usual.

Something interesting happens, however, if the value on the result die matches the value on the trump die. If both dice come up as 1's, then the result of the action is a critical failure regardless of any other bonuses. The player may then refresh her edge. This works exactly like playing a joker using the usual card rules.

If both the result die and the trump die match and the results are not 1's, then the results are trump. In this case, add the dice together when determining the result of the action rather than simply using the result die. So, for example, rolling two 7's would mean a total dice value of 14.

*Example:* Ravi is desperately shooting a gun. As usual, this is a Dex/guns vs. Defense action. His total bonus is +8. He rolls two ten-sided dice and gets a 7 (result die) and a 6 (trump die). He adds the result die to his bonus for a total of 15.

*Example:* Ravi is now attempting to find a place to hide from the creature that didn't die when he shot it. This is a Per/investigate action. His total bonus is +7. He rolls two ten-sided dice and gets a 6 (result die) and a 6 (trump die). Since these values match, he adds both of them to his bonus, for a total of 19.

*Example:* Finally, Ravi wants to leap across the gap between two ships to get away The GM decides this is a Str/athletics-12 action. Ravi's total bonus is +9. He rolls and gets a 1 (result die) and a 1 (trump die). Since the dice both came up 1's, the total doesn't matter; the action is a critical failure and Ravi is drifting helplessly into the void. However, Ravi does get to refresh his edge.

## Damage

When dealing damage to an opponent, roll a four-sided die. Every attack should have four possible damages (normally corresponding for the four card suits). Simply look up the damage that corresponds with the number rolled—so rolling a 1 would mean the first damage listed, rolling a 2 would mean the second damage listed, etc.

## Other Effects

- Any game effect that would automatically make the result of an action trump instead treats the action as if an edge was spent after the roll (see the "Edge" section below). This means that the higher value of the two dice is used when determining the result of the action.

- Any effect that would normally occur when a joker is played—such as with the Complication weakness—instead takes effect when a matching pair of 1's is rolled.

# Edge

When playing with dice, cards are no longer necessary for representing a character's edge. Instead, find some sort of counters or tokens to use—even tally marks on a piece of paper will suffice.

Every character still has the same number of edge. Edge has the same effects, behaves in the same way and is still earned in all the same ways. On the other hand, edge effects dice differently than cards when spent.

## Spending Edge

When using the dice mechanic, edge may still be spent in three different ways.

■ **Before a Roll:** Before a roll has been made, an edge can be spent to effect the results. To do this simply announce the expenditure. When the roll is made, the values of the result die and trump die are totaled, just as if matching results had been rolled. This happens regardless of the actual values. So, for example, if a player spent edge and then rolled an 8 and a 3, the total die value would be 11.

■ **After a Roll:** Immediately after a roll has been made, but before the consequences of the action have been announced, a player may decide to spend an edge to take the higher of either the result or trump die as the value of the roll. For example, if a player rolled a 1 on her result die and a 9 on her trump die, she could spend an edge to take the 9 instead of the 1. This cannot be done after rolling double 1's.

■ **Serendipity:** Similar to the card system, a player may spend an edge to announce the existence of some small, convenient coincidence. A use in this manner must be accepted by the GM and may not derail or be detrimental to the game.

## GM Edge

Using this system, the GM still has a pool of NPC edge. At the beginning of each session,

this is set equal to the number of players present. She may spend the edge for any of her NPCs.

# Probabilities

Anyone with a curiosity for the math behind different game mechanics may be asking themselves how this system of using dice compares statistically to the default card system. Below is a graph indicating the probability of getting at least a given value with dice, versus the probability of getting at least that value with cards.
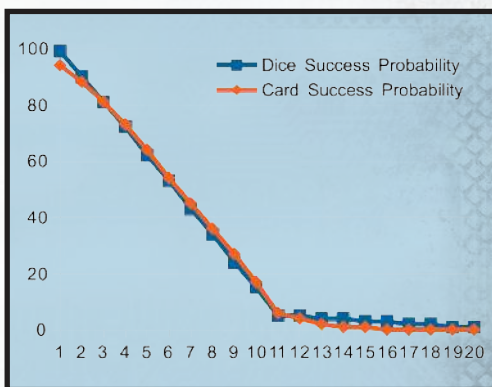


As you can see, in general, the dice mechanic is a rather good approximation of the results of the card mechanic. Probabilistically, the two systems differ the most at the extremes, and even then, they never differ by more than a 5% chance of success or failure.

However, before going any further, a few assumptions in the above graph should be noted. Because of the nature of cards, in practice the exact probabilities will vary a bit depending on which cards are being held as edge and which have already been played (and are thus sitting in the discard pile). To simplify matters, the above graph assumes that the cards are being drawn from a fresh deck with no other cards being held as edge or in the discard pile.

Despite these statistical nuances, we have found that the dice system more-than-suffices statistically.

# Special Thanks to Our Backers

# Open Game License Version 1.0a

# Shadows Over Sol

Name _____

Geneline _____ Subculture _____

## Stats

| Strength ♠ | Dexterity ♥ | Speed ♦ | Endurance ♣ | Intelligence ♠ | Perception ♥ | Charisma ♦ | Determination ♣ |
|---|---|---|---|---|---|---|---|
| ½ Exp | ½ Exp | ½ Exp | ½ Exp | ½ Exp | ½ Exp | ½ Exp | ½ Exp |

## Skills

| Athletics ___ | Conspiracy ___ | Guns ___ | Melee ___ | Program ___ |
| Awareness ___ | Crafts ___ | Investigate ___ | Naturalist ___ | Socialize ___ |
| Bio-Sci ___ | Deception ___ | Lib-Arts ___ | Ordnance ___ | Stealth ___ |
| Bureaucrat ___ | Empathy ___ | Mechanic ___ | Persuade ___ | Thievery ___ |
| Comp-Ops ___ | Engineer ___ | Medic ___ | Phy-Sci ___ | Vehicles ___ |

## Languages

_____
_____
_____

## Cultures

_____
_____
_____

## Weaknesses

_____
_____
_____

## Computers & Software

| | Rating |
|---|---|
| _____ | _____ |
| _____ | _____ |

### Implants

_____
_____

Endurance _____

### Gear

_____
_____
_____
_____

Encumbrance _____

## Combat & Scores

| Edge | Wealth | Lifestyle | Defense ____ / ____ |
|---|---|---|---|

| Wounds | | DR | Shock |
|---|---|---|---|
| Light -1 ▢▢▢▢▢ | | | |
| Moderate -2 ▢▢▢▢▢ | | Total Wounds | Wound |
| Severe -3 ▢▢▢▢▢ | | | |
| Critical -4 ▢▢▢▢▢ | | | |

### Consequences _____

_____
_____
_____

### Arms

| Arm | Attack | Damage | | | |
|---|---|---|---|---|---|
| | + | ♠ | /♥ | /♦ | ♣ |
| Properties | | | | | |
| | + | ♠ | /♥ | /♦ | ♣ |
| Properties | | | | | |
| | + | ♠ | /♥ | /♦ | ♣ |
| Properties | | | | | |
| | + | ♠ | /♥ | /♦ | ♣ |
| Properties | | | | | |

### Armor

| Armor | DR | Properties |
|---|---|---|

# Index

# Shadows Over Sol

Two hundred years from now what should be the shining beacon of the future is instead cloaked in conspiracy and horror. Humankind has expanded throughout the solar system, and there it has discovered mysteries older than humanity.

The culture has shattered into myriad subcultures; nation-states are the hollow shells of what they once were. Corporations and other groups wage small-scale wars in the streets or in space. Bioengineered horrors left over from these conflicts stalk the hulls of ruined stations and abandoned colonies.

But for an enterprising team willing to brave the horrors, there's always a profit to be made.

*Shadows Over Sol* is a hard science fiction horror roleplaying game using the *Saga Machine* system. Its features include:

- Discover the secrets of the Sol system, with multiple GM options to keep players on their toes.
- Support for a wide spectrum of play in the science fiction and horror genres.
- A fully-realized setting with detailed breakdown of both social dynamics and the solar system, from Mercury to the Oort Cloud.
- Systems for personal combat, engineering, hacking and more!

Tab Creations

SAGA MACHINE