

PLANET SOURCEBOOK



★ JOVIAN
CHRONICLES





► DREAM POD 9

▼ WRITING

Marc A. Vézina Senior Editor/
Developer

Wunji Lau Editor

Colin Dunn Contributor

Scott Lette Add. Writing

Robert Beck II Add. Writing

Garry Morgan Add. Writing

Lloyd D. Jessee Add. Editing

▼ PRODUCTION

Pierre Ouellette Art Direction/
Designer

Jean-François Fortier Layout Artist

Ghislain Barbe Illustrator/Colorist

Bobbi Burquel Illustrator

Marc Ouellette Computer
Illustrator/Colorist

Patrick Boutin-Gagne Additional Art

▼ ADMINISTRATION

Robert Dubois Administration

▼ SILHOUETTE

Gene Marcil System Designer

Stephane I. Matis System
Designer

Marc A. Vézina System Developer

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"Every Lunar day we would all go the windows and watch the Earthrise. Someone would always start to sing some old song: 'When Johnny Comes Marching Home Again.' Even as a kid, that song made me cry. Earth was gone, and even a 5-year-old kid knew nothing would ever be right again.

"Now, finally, Johnny has come home."

— Evan Greene, mayor-emeritus of Tycho City, at the signing of the Articles of Reunion, July 4, 2182

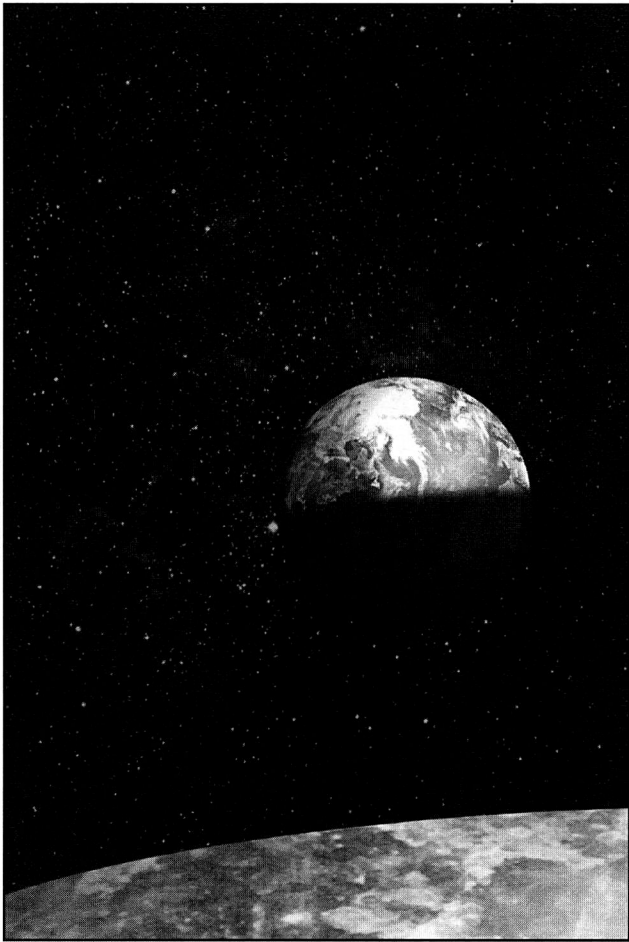
THE LUNAR AND ORBITAL COLONIES ◀

When the rest of the Solar System looks toward Earth, they tend to see Earth, the Moon and the Orbital Colonies as one single entity, an idea often reinforced by the CEGA representative to the United Solar Nations. The truth, as usual, is more complicated than this.

The moon and the Orbitals have been on their own from the start of the Fall, and have only recently come under the domination of CEGA. During the long years of isolation, the Lunar and Orbital people came to rely heavily upon one another, with Lunar materials and ice being exchanged for orbital-grown food-stuffs and manufactured goods. Even with this sensible arrangement, both societies often found themselves facing near-critical shortages of food and water.

With the relative abundance of Lunar raw materials, virtually free energy from the Sun, and the efficiency of Orbital manufacturing, the Lunar and Orbital colonies were well placed to withstand the Fall. Many important Earth organizations relocated to orbit during these dark days, bringing a sense of order to balance the chaos of the refugees fleeing outwards as well.

What no one could foresee were the psychological effects of the crisis, especially on the Lunar colonies. All the other settlements in the Solar System were manifestly isolated from Earth. With long communication lags, travel times measured in weeks, and Earth visible, at best, as a pale blue dot, the connection with the homeworld wasn't as profound for these outer colonies as it was for the people living on the Moon or in orbit. Their communication lags were, at most, less than three seconds, and travel times anywhere in the Earth-Moon system were on the order of only a few days. The loss of Earth hit these colonies hard, and the psychological repercussions of that loss color their attitudes today, in the Solar System of 2214.



BOOK CONTENT ▼

Starting from the history of CisLunar exploration and settlement, to the first years of construction, to the uneasy reality of modern-day CEGA domination, this book examines how the Lunar and orbital colonies have developed and grown.

This book contains cultural and physical descriptions of the Lunar and Orbital Colonies, which, despite their differences, have been closely linked throughout the history of the Space Age. Included are Lunar maps, descriptions of Lunar cities and orbital colonies, cultural notes on the way the societies have developed and diverged, and what life is like in Earth's nearest settlements. Culture, language art and recreation are all outlined in this book. Specific information is included for Pyrea Station, the seat of the United Solar Nations and the Solar Police, as well as Tycho City, the largest city on the moon. Other spots described will include the Apollo 11 Historical site, and the somber ruins of Copernicus Dome.

Also in this book are statistics and diagrams for modular work stations (including Silhouette-system rules for construction), character Archetypes detailing some of the people and professions of CisLunar space, tools and equipment (including mining and prospecting tools), and new spacesuits and electronic devices. An extensive vehicle section rounds out this book, providing data on the civilian vehicles in daily use, as well as for the Dragonstriker, the most powerful exo-armor to come out of the doors of the Lunar Aerospace Corporation.

1.1.1
 end of section 1.1 The Lunar and orbital colonies



"Better a life of toil inside the house of a drunken prodigal mother than a cold and lonely death on the doorsteps of home."

— Attributed to Evan Greene, mayor-emeritus of Tycho City, after the signing of the Articles of Reunion, July 4, 2182

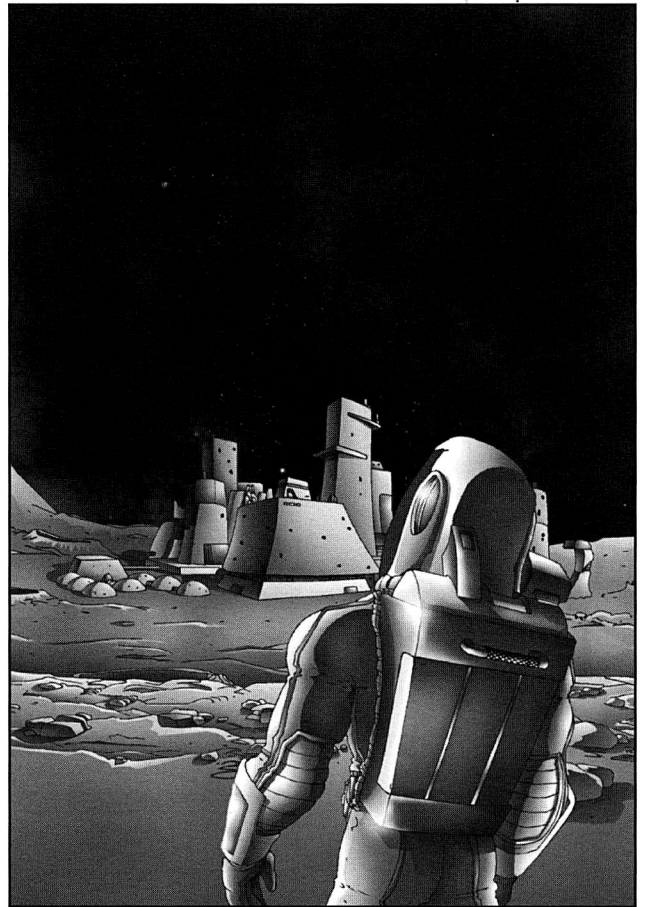
HISTORY OF LUNAR EXPLORATION ◀

For the inhabitants of the Lunar nearside colonies, the Earth is a visually dominating sight, hanging overhead at all times. Even after the collapse of the Earth-bound governments, the people of the Moon still looked to Earth for leadership. When that leadership failed to materialize, the Moon was forced to survive alone save for its Orbital allies, but its inhabitants always waited for the return of Earth.

The scientists and technicians at the observatories and laboratories on the Lunar Farside developed a different attitude. Without the visual and emotional reminder of the great blue globe of Earth above them, they developed a more outward-looking attitude. While the various Solar governments were concerned primarily with survival, the Farside scientists used the telescope network and its backbone of tracking and relay stations to stay connected with their colleagues from across the Solar System. This network later became the backbone of the emergent Sysinstruum, which is still managed from the Lunar Farside.

The moon's first visitors were the unmanned probes of the 1950's and 1960's, when over 24 probes landed on the moon, some crashing into it, some landing and taking photos, and a few landing and returning samples to Earth. These initial robotic visitations were later followed by the Apollo astronauts.

With the famous words "one small step for man, one giant leap for Mankind," Neil Armstrong became the first human being to walk on the surface of the Moon on June 6, 1969. The Apollo 11 mission was the culmination of years of research and development. Over the next three years, five more missions explored other small portions of the moon, while a sixth nearly ended in disaster. In 1972, Apollo 17, last of the Apollo missions, left the moon behind.



PRE-SETTLEMENT ▼

Mankind would not return to the moon for over forty years. In the interim, a few probes surveyed the satellite, looking for ice and other resources. In the early 2000s, the Chinese launched a series of missions aimed at establishing a base on the moon. They first landed automated probes, based off the decades-old Soviet Lunikhod rovers, but with modern computers. They scouted out several sites before soft-landing several vehicles and modules near the east wall of Ramsden Crater in 2012. These were the foundations of a permanent base, and served as a home for several primitive telepresence rovers, which the Chinese space agency leased out to television networks and wealthy private individuals to explore the immediate surroundings.

It wasn't until 2016, however, when the Chinese vehicle *Red Sun* made a landing at the base with its three-man crew, that people returned to the Moon. They stayed on site for over a month, doing detailed studies of the Lunar geography and geology. Upon the ship's successful return, the Chinese offered up their Lunar expertise, and their Lunar base, to the highest bidder. The European mining consortium AlumCorp took them up on it, hoping to provide raw materials for the solar-power projects underway in Earth orbit.

This touched off a storm of protest in the United Nations. The smaller nations protested the privatization of the Moon, arguing that it was a resource to be held in trust for all humankind. China, along with the European Union and the United States, argued that the only way space could be opened up was through private enterprise. After many months of deliberation, the United Nations passed General Resolution 697, giving private companies the right to exploit the Moon and any other body in the Solar System, subject to UN approval and oversight.

◇ THE ALUMCORP ERA

The AlumCorp consortium launched their first series of landers and robots to the Moon in 2017, armed with a contract with the United States government to provide raw materials for the Solar Power Satellites, which were slated to begin construction by 2020. Initially, all work was done by teleoperated vehicles. The Chinese rockets and landers brought in the initial load of robots and a simple smelter and refinery. Within three years, AlumCorp had a functional, nearly automated factory set up to produce refined aluminum and titanium ingots. A High-Energy Laser Orbital Transfer (HELOT) system was constructed to loft the metals into orbit, where an AlumCorp ship would collect them for shipment to the orbital construction projects. This automated base was online and shipping metal by 2019.

By far the most important resource on the Moon, however, was Helium-3. In 2007, researchers had demonstrated a muon-catalysed fusion reactor; these relied on the lower activation energy required in a deuterium-Helium3 reaction, and a supply of Helium3 was required. Helium3 is practically non-existent on Earth, but can be found on the Moon. The mining was a laborious process, requiring about 250,000 tons of Lunar soil to produce one kilogram of Helium-3 — only economical if combined with other mining operations. In 2020, a new series of robotic miners was introduced on the Moon, strip-mining vast stretches of Lunar soil and sifting it for all resources, especially the elusive Helium-3. The silicon, aluminum and titanium was sent to the Solar Power Satellites, the uranium and oxygen were stockpiled, and the slag was carefully set aside, where it would form the basis of the economic boom that would hit the Moon ten years later.

Slow response times with the telepresence units led to catastrophe in 2021, however. A malfunction in the Laser Lift System wasn't noticed until it had launched thirty-two packets at the wrong velocity. The communication delay with Earth was just long enough to be deadly. Instead of coasting into the waiting capture nets in orbit, the thirty-two one-ton packets overshot the receiver. Most continued on into interplanetary space, but four of the massive ingots of aluminum smashed into the SPS-4 solar array under construction in geostationary orbit. The array was obliterated, and eight workers at the site were killed when their work shack was depressurized. The resulting lawsuit wiped AlumCorp out, resulting in their buy-out by MoonCorp, an international consortium.

◇ MOONCORP

MoonCorp's first move was to place a temporary base on the Moon and move some people out to it to provide direct supervision of the telepresence robots and vehicles. By 2024, MoonCorp had built a permanent base near the mines, little more than a collection of Quonset huts and fusion-formed rock domes clustered around a small nuclear reactor, with a radiation "storm shelter" built underneath. This small start, dubbed "Alpha Base" would, eventually, blossom into Luna City, capital of the Moon and the center of its commerce and industry. Their first task was the construction of a massdriver that could be used to accurately send large amounts of cargo to the construction projects planned for the L5 point. This first massdriver was located just north of the Archimedes crater, near the mining projects. The Lunar production costs for refined aluminum and titanium, and later silicon and oxygen, were far lower than what terrestrial firms could offer.

It was shortly after the establishment of this first permanent base that full-scale construction started on the orbital colonies. It was raw material from the Moon that made this construction possible, the Lunar aluminum, titanium and mooncrete (shorthand for Lunar concrete) being the primary raw materials used. The mooncrete was made by heat-fusing the slag from the earlier mining days into a sort of ceramic. The building of these "islands in space" would become the primary industry of the Moon until after the Fall, eclipsing the dwindling demand for Helium-3 production. Gas-giant mining produced Helium-3 more efficiently and economically than the Moon ever could, and by 2042, Lunar Helium mining was effectively shut down.

▼ SETTLEMENT AND EXPANSION

Even after UNGR 697, commercial exploitation of the moon took a while to get going. The early mining efforts were almost completely automated, with only a few on-site observers. It wasn't until the start of construction on the large colony cylinders that private enterprise took an interest in the Moon as a source of raw materials. The success of the first few Lunar observatories also attracted a great deal of attention from universities on Earth, and led to a race to see who could complete and effectively use the biggest synthetic aperture telescopes.

▼ 2.1.2 SETTLEMENT AND EXPANSION (CONT.)

After the establishment of Alpha Base by the LunaCorp Consortium, the next permanent facility was the Northern European Astronomy Union's inflatable facility on the Farside. Rather than being a collection of soft-landed space-station components, the base was assembled onsite from a small lander, which contained the polyethelene bubble material, hardware and all life-support equipment. The twenty-meter diameter sphere was then covered with regolith (Lunar soil) by automated machinery, and was ready within a few days to support up to twenty people. This style of shelter has since become the standard for temporary Lunar accommodation, with the bubbles being reused and recycled almost continuously.

The period of time from 2030 to 2090 was a time of huge growth for the Lunar colonies, and saw the population go from a mere fifty to two million by 2090; it was at this point that the Lunar inhabitants began to refer to themselves as "Selenites," in partial reference to an old H.G. Wells story. Most of this growth was accommodated by new technologies, in particular the new gas-giant plastics coming from the Jovian Mining Corporation. These plastics allowed the creation of large domes over craters, which could be as much as three kilometers across. Under the pressurized dome, buildings and parks could be built, with the blanket of air under the dome being enough protection, most of the time, from radiation. The development of radiation screens during this time also helped the growth of the Lunar dome cities.

Aside from LunaCorp, many other corporations expanded to the Moon, most of them interested in mining and construction. It wasn't until the early 2050s that companies formed to produce goods and equipment locally. Until then, most machinery was imported from Earth or orbital manufacturing facilities, often at great cost. One of the foremost of these new companies was the Lunar Aerospace Company, which got its start building small suborbital vehicles for Lunar use. These became so popular that LAC starting exporting them to other worlds, notably Jupiter, where they saw a great deal of use on the various moons. Another of their products was the PM-400 Orbital Transfer Vehicle, which eventually became the basis for CEGA's Syreen exo-armor many decades later.

OBSERVATORIES □

Aside from the mining and construction industries, another major concern took up residence on the Moon early on. Several Earth universities, principally Harvard, Moscow, MIT, CalTech and Oxford, established observatories on the Farside of the Moon. The Moon was an ideal platform for observatories: geologically dead, no atmosphere, and no magnetic field. The first telescope was the 2-meter Zon telescope, which was set up by a Chinese work crew in late 2017 on the floor of the Leibnitz crater, deep on the Lunar Farside. Over the next six years, another twenty-four telescopes joined the array, while other universities set up optical, radio, x-ray and infrared observatories at other locations. These various locations were all unmanned at first, but the scientists soon found that the communication lags were unacceptable, especially from the Farside. The universities began posting researchers to temporary habitats on a rotating basis, starting in 2019.

In 2020, Julie Girouard, an astrophysicist from the University of Arizona, refused to leave, giving as her reason that she had too much to do to give up her spot. She was the first of many who refused to return to Earth until their research was finished. In 2022, the North American Lunar Astrophysical Association, a coalition of North American Universities, started construction on their first Lunar base. Another thirty-one such bases would be built before the Fall.

INTERFEROMETRY □

Interferometry is a technique used in both optical and radio astronomy. It is a way of increasing resolving power by using two or more antenna or mirrors in an array. By doing this, and combining the results from all the elements of the array with a computer, it is possible to use a number of small telescopes to produce the resolving power of a very large aperture telescope. In effect, an array of ten-meter telescopes that is thirty kilometers in diameter has the resolving power of a single telescope thirty kilometers in diameter.

Most of the Lunar telescopes use this technique, as do the orbital telescopes and the elements of the Intersettlement Geographical Society's Long Baseline Array out beyond Neptune. Most of the Solar nations also have large orbital arrays of telescopes, ostensibly for astronomical purposes, but more often than not used as part of that nation's intelligence services.

The 200-kilometer Oxford-Adelaide Array, for example, can resolve a man-sized target at the orbit of Jupiter, or map a planet 100 light-years distant.



◇ ASIAN IMMIGRATION

During the expansion phase, the Moon saw a great many Chinese immigrants. Since the initial days of Lunar exploration, the Chinese space program had fallen on hard times, but the people still remembered those early days of glory. When China opened its borders to allow emigration, many who could afford it left for the Moon. By 2080, nearly a third of the Lunar population was Chinese, and though this fraction declined during the refugee crisis during the Fall, the Chinese are still one of the largest ethnic groups on the moon today.

Throughout this period, though, the primary industry remained the provision of building materials for the orbital colonies. The most important of these was literally garbage, namely the slag left over from earlier mining efforts. The refining process resulted in a large amount of slag, mostly the Lunar basalt known as KREEP. This material was used to provide radiation shielding and micrometeorite protection for the habitats. Lunar aluminum and titanium provided the rest of the building materials, while Lunar volatiles (water and gases, mostly) helped make the habitats livable. In return, the moon received orbital-manufactured goods and orbital-grown foodstuffs.

On the Lunar Farside, the Universities were seeing their budgets from Earth shrinking, a result of government cutbacks in the various nations. They responded by doing more and more of their work themselves, and eventually established a high technology industry, albeit on a small scale. Their biggest concern lay in manufacturing mirrors and other components for their array of telescopes. Next after that, however, was the creation and maintenance of a computer network to connect the universities to other institutions across the Solar System. They hoped to eventually be able to establish an Extremely Long-Baseline Array, an optical telescope with an effective aperture the size of the Solar System.

In 2074, a moonquake of unprecedented power ripped through the northern region of the Farside, devastating some of the largest optical arrays on the moon. The cause was later traced to Moon Metals, one of the start-up corporations flourishing in the wake of AlumCorp. They had used a black-market nuclear weapon to open up the regolith near the Lunar north pole. The underground explosion went unnoticed by the surface communities, but the seismic waves generated were somehow concentrated by a nearby masscon (an area of slightly stronger gravity on the Moon caused by a high concentration of mass), and ended up causing significant destruction on the other side of the moon. The case ended up in court, but the Fall plunged the courts into disarray, and Moon Metals vanished in the interim. It took the Lunar universities several decades to rebuild the array, especially during the materials deprivations of the Fall and afterwards.

▼ THE FALL

As serious as the Fall was in its material deprivations, it was the psychological impact of being all alone that caused the greatest damage to Lunar society. Communication lag time anywhere in CisLunar space to Earth is no more than three seconds for a round trip. Earth was right next door, and the cities on the moon were used to looking Earthward for leadership and advice.

When contact ceased, the thoughts of the Selenites went out to those left behind, to friends and family, coworkers and leaders, whom they would never hear from again. Initially, life went on as normal, as everyone expected contact to be regained shortly. As the months, and then the years, dragged on, an emotional heaviness settled on the people of the Moon. Earth, and its billions, were effectively gone. An attempt by the orbital colonies to send a shuttle down to the surface failed when it was shot down by a weapon fired from its home country. Earth had gone mad, and all the Moon could do was watch. It wasn't until the first fireballs were sighted, however, that they truly gave up hope.

Life in those times was hard, even with the abundant resources that the Moon offered. An enormous amount of work was required from each and every person in the colony. Children went to work at a young age, continuing their education after work, or simply apprenticing on the job. There was little time, and few resources, for entertainment and leisure. The Lunar work ethic was born in these early hard days, as was the typically dour Selenite disposition. Under that surface, though, was a profound sense of loss. Earth was gone, yet, at the same time, it was always overhead, its gentle blue-green light shining brightly over the desolate Lunar landscape. The seemingly grim disposition of the typical Selenite is an expression of the loss and sorrow of these early days.

▼ 2.1.3 THE FALL CONTINUED

Another issue the Selenites had to contend with was the flood of refugees. Luckily for them, the Moon was not seen as an attractive destination, even to the very desperate. Fewer than one million expatriates chose to settle on the Moon, a small fraction of the flood streaming outward from the chaos on Earth. These refugees added their load of despair to the Lunar people, however. Each new shipment of desperate, scared people brought further stories of the horror unfolding below. Even after the torrent of refugees halted in the early 2100s, their stories continued to echo in the Lunar consciousness.

There was little room in the small Lunar dome cities for these newcomers, and that space vanished quickly under the onslaught. The solution was to roof over a crevasse, and dump the refugees in while further work was done on the walls to provide longer-term homes. The Selenites did everything they could for the newcomers, yet there was often trouble brought on by the constant shortages and a perception that the tunnel-cities weren't getting the resources and support that the domes were. This feeling persists even to the modern day, and is part of the schism between the tunnels and domes that is a constant part of Lunar politics.

RECONSTRUCTION AND RECONTACT ▼

Faced with the necessity of living without the support of Earth, the Lunar facilities first allied with one another and then reached out to the Orbital colonies as trading partners. The Lunar universities joined with the mining and construction industries to try and work out ways to deal with the problems. This laid the foundation for the formation of the Lunar Council.

During this time, attempts were made to strike up alliances with the other colonies, with little success; although the colonies were sympathetic to the Selenites' plight, they were all barely surviving themselves. Only their old business partners, the Orbitals, had any use for the people of the Moon now. In many ways, they were just as desperate. The tide of refugees had hit them especially hard, and they sorely needed the resources the Moon had to offer, both in terms of building resources and volatiles. With all contact with Earth lost, and the wealthy colonies like Jupiter too distant to provide any real aid, the Orbitals had nowhere to turn but the Moon. For their part, the Selenites needed the manufactured goods the Orbitals could produce, as well as food. The farms on the Moon were small and inefficient, and the volatiles they required were in far greater demand by the Orbitals, who could produce food much more efficiently, with their constant supply of sunlight coupled with the Orbitals' refined zero-gravity farming techniques.

The Farside universities, in contrast, were in constant contact with their contemporaries in the other colonies through the computer network that they had established earlier. This was never common knowledge; while the Universities never sought to conceal this contact, they also never went out of their way to announce it. In truth, no one really wanted any more than basic contact with the other colonies, justifiably worried that the other colonies would either ask for aid (which the Moon was in no position to provide) or, if they did not need aid, take advantage of the Moon's poverty and impose unreasonable trade or even military arrangement; to the Selenites, it seemed best to simply forge on alone.

In 2150, the first contacts were received from the nascent Mercurian Merchant Guild. They offered to reopen trade with the rest of the Solar System, in exchange for a percentage of the trade, plus the shipping contracts. They were also greatly interested in access to the Moon's Helium-3 deposits, as fuel for the older reactors of their ships. Suddenly, the stockpiles of Lunar fuel were once again a valuable commodity.

Over the next few decades, contacts gradually resumed with the other colonies, now full-fledged nations in their own right. The Lunar colonies remained suspicious of the wealth and power the colonies had gained after surviving the Fall, so contact was guarded, and trade limited to things desperately needed. It was in this time that dome construction restarted, as they now had renewed access to the plastics produced by the Jovians, which allowed them to once again start roofing over craters. Guild ships carried the bulk of interplanetary trade, and even began to make inroads in the localized trade between the Moon and the Orbitals.



▼ THE RISE OF CEGA

The reappearance of Earth on the interplanetary scene was initially a vast relief for the Lunar cities. No longer would they have to look up at that huge blue jewel in their skies and feel nothing but loneliness. The first contacts were through Orbital channels, but soon Earth was contacting the Lunar Council separately. Earth offered material resources that the Moon simply didn't have, like access to water and volatile resources far above what the Moon could recover on its own. More than that, though, the Earth offered itself. There were some good psychoanalysts on the recontact team who correctly determined that the Lunar colonies were suffering from a depression that recontact, played right, could help alleviate. This was also manipulated to the advantage of Earth.

The most important thing the Moon could provide Earth was Helium-3, fuel for CEGA's old-technology fusion reactors. Eager to help, the Lunar Council abrogated its contract with the Merchants Guild, and started providing their surplus to Earth. They increased production, and after about a year could supply both CEGA and the Guild with the fusion fuels they needed. In return for fuel, the Moon received organics and volatiles from Earth to shore up their nearly depleted stocks. More importantly, however, the Moon received communications once more from Earth, including access to the enormous stores of culture and entertainment that Earth still possessed. Earth welcomed the Selenites back, and used its cultural influence to hold them tight.

◇ THE ARTICLES OF REUNION

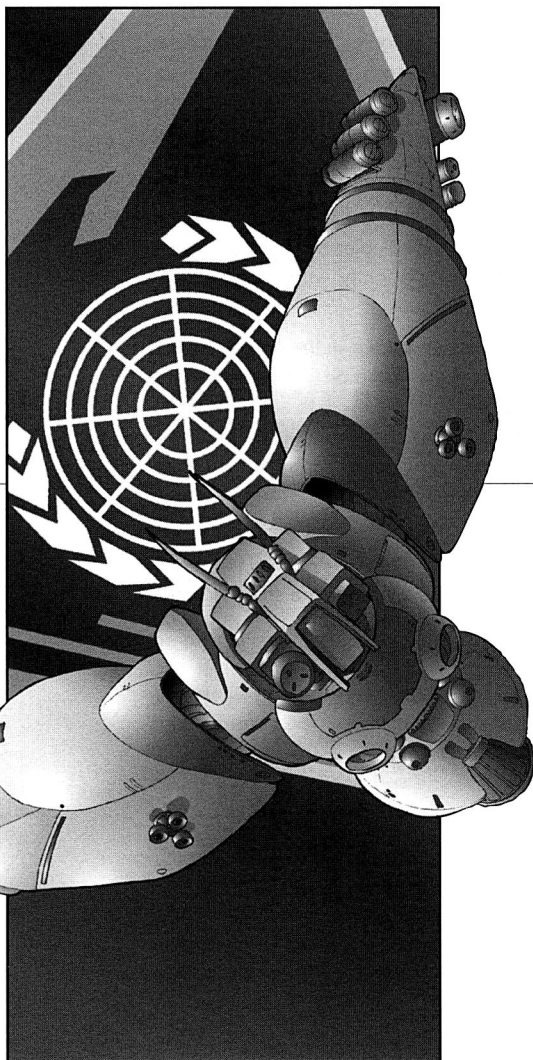
In 2182, CEGA signed two treaties, one with the Moon and the other with the Orbital People's Representative Council. These Treaties, known as the Articles of Reunion, outlined the rights and obligations of the parties involved to each other. The Articles were two separate treaties, and nowhere did either treaty address the relationship between the Moon and the Orbitals. This was intentional on the part of CEGA, as a way to divert the former Lunar-Orbital relationship to a new one with CEGA as the central figure.

In 2182, CEGA was relatively weak, particularly in space and space technologies. It needed the resources and expertise of the Moon and the Orbitals. CEGA offered several concessions to the colonies to entice them to join, as CEGA was not yet in a position to coerce their cooperation..

■ THE DEATH OF COPERNICUS DOME

The events of the Odyssey started a shift in the way Lunar citizens see Earth. Previously welcomed with open arms, the destruction of the Copernicus dome has caused many to doubt the motives of Earth's current leadership. Though Admiral Kleb's actions were eventually disavowed by Earth leaders, the actions of CEGA fleet units following the disaster were very worrisome for the Selenites. In particular, the initial refusal by CEGA fightercraft to allow Solar Cross vehicles and personnel to land caused a huge uproar in the Lunar council. Though the CEGA Navy eventually offered up an apology, and an explanation, many were not satisfied. Membership in the Chang O Society started to steadily increase from that time, and acts of violence against CEGA personnel and facilities are on the rise.

As for the ruins of the Dome, the Lunar council has sealed them off, and declared the whole area a burial site. Scavengers still occasionally venture to the ruins to pick through the rubble, but the area is regularly patrolled, and penalties for looting the site are especially harsh.



LUNAR GEOGRAPHY ◀

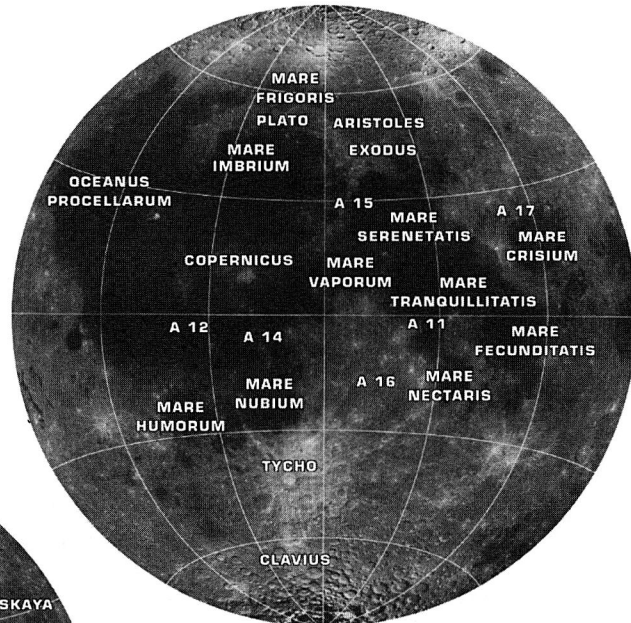
The Moon has been mapped, to some extent, for hundreds of years. A thorough mapping didn't take place until the late twentieth century, however, when probes finally orbited the Moon to see the hidden Farside.

Place names on the Moon were supposed to follow a set nomenclature, but in the years following the Fall, that strict naming convention was set aside for what the inhabitants wanted. Craters were originally to be named after famous deceased scientists, scholars, writers, artists and explorers, but current naming for craters simply states that they should be named after people, living or dead. The Interplanetary Society, after some subdued protest accepted this and all subsequent changes made to official nomenclature on the Moon and elsewhere in the Solar System.

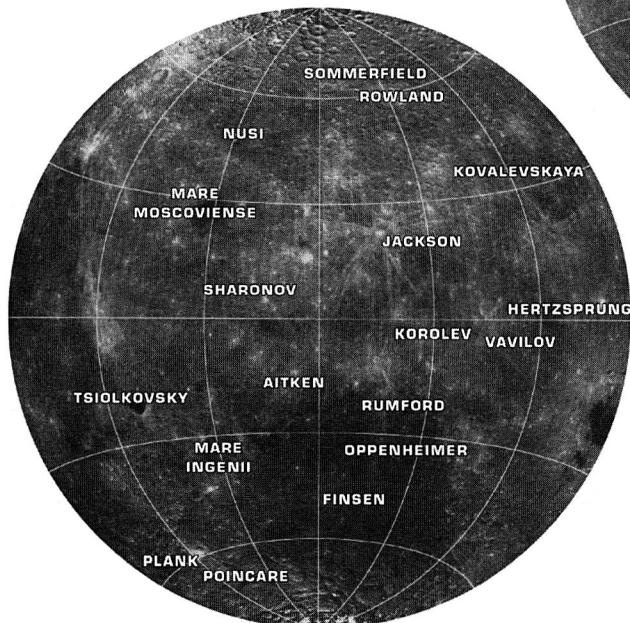
Maria (the Lunar "seas" of dark soil) and similar features are named from Latin terms describing weather and abstract concepts. The only change the Selenites imposed on this was to use English rather than Latin for new features.

Montes (mountains) are named after terrestrial mountain ranges or nearby features. If anything, the tendency has been to use Earth names as much as possible, with even low hills taking on the names of large mountain ranges. Valles, on the other hand, continue to use the original nomenclature of taking the name of nearby features.

NEAR SIDE



FAR SIDE





▼ TYPES OF TERRAIN

When the first astronauts landed on the Moon they were surprised to find not seas of dust and jagged rocks, but dirt and rounded boulders. The top layer of the Moon's crust is called the regolith, which can vary from five to thirty meters in depth. It is made up primarily of debris (ejecta) thrown out of impact craters, and its composition varies from place to place depending on the rock type impacted. The regolith is a loose, fragmented material which can be compared to soil, though without the biological components

There are two primary types of terrain on the moon, *maria* (singular: *mare*), the dark "seas" of the Lunar nearside, and *terrae*, the heavily cratered highlands, which cover the rest of the moon. A third terrain type is formed by ejecta, in particular around the Imbrium and Orientale lowlands. The "rays" from the Tycho and Copernicus craters are examples of this terrain type. Other terrain features include *rille*, which are fissures or channels in the Lunar surface, and *promontoria*, where a brighter area protrudes into a darker area.

The maria originate from upwellings from the Lunar interior after the meteoritic bombardment of the Moon nearly 4 billion years ago. Much of the rock is a type of basalt called KREEP, which stands for Potassium (K), Rare Earth Elements (REE), and Phosphorous (P). In the KREEP can be found other minerals, most notably uranium, aluminum and titanium. The maria stopped forming when the Moon's internal heat ran out, about 3 billion years ago. The terrae are older rock, dating from the formation of the moon itself, and are much lighter.

The moon itself is somewhat lopsided, with the crust on the Farside being considerably thicker than the crust on the Nearside. The Moon's center of gravity is shifted approximately forty kilometers toward the nearside, as well.

Another unusual feature of Lunar geography is the presence of masscons, areas of unusually strong gravitational fields. These mass concentrations are roughly circular, and associated with mare areas. They are higher-density rock formations associated with impact debris and the associated upwellings.

■ GAME NOTES: LUNAR SURFACE RISKS

Even a micrometeorite will do as much damage as a heavy rifle, while increasingly larger fragments can range up to the Vehicle Scale for damage purposes. The chances of being hit by a meteorite, even during a shower, are extremely small. However, there is still a chance, about 1 in 10,000. The Gamemaster can increase the odds for dramatic purposes, but this storytelling device should never be used more than once per campaign. Keep in mind that the Moon is airless, and there will be no warning at all, only the impact itself. Prudent characters may want to check the "weather report" (regular radar scans showing probability of hit for a given time and area) before venturing outside.

The Moon also experiences over three thousand moonquakes a year, most of them so small as to be barely perceptible. The Farside telescopes require minimal shock protection to shield them from these tremors. Occasionally, however, these quakes are much more powerful, and can cause extensive damage to the mostly underground Lunar facilities. These much more powerful quakes seem to be associated in some way with the masscons (see above), though the exact nature of the interaction is unknown. However, the Farside quake of 2074, triggered by an illegal nuclear explosion over a masscon, lent a great deal of credibility to this theory.

The Moon has yet to experience a major asteroid strike in the history of settlement, but should one occur is would be cataclysmic. The aftershock alone would likely devastate most of the Lunar communities, and anything within a few thousand kilometers of the impact site would likely be completely destroyed. One of the tasks of the Farside telescopes is to track Near Earth Asteroids and report their locations to CEGA Naval forces. In 2194, unbeknownst to most Earth or Lunar citizens, one such asteroid was destroyed by CEGA forces. Farside telescopes had reported it on a near-collision course, with a margin of safety of only a few hundred kilometers. The CEGA Second Fleet, led by three Hammerhead-class dreadnoughts, bombarded the asteroid over a course of several weeks, largely diverting it and converting the remainder to dust and small fragments, which the Lunar settlements could easily withstand. To avoid panic, the fragment shower was simply described as an anomalous meteor shower.

LUNAR ENVIRONMENT ▼

The Moon is a dangerous place. Aside from the extremes of temperature, ranging from +110 Celsius in the Sun to -100 Celsius in the shade, and the lack of atmosphere, there are more subtle hazards. The low Lunar gravity, only 0.163 G, can lead people to make fatal mistakes. A sixty-meter fall will hurt as badly as a ten-meter fall on Earth, and people forget that while their weight changes, mass remains the same, and that it is mass that hurts. All Lunar facilities share the common spacer concerns over pressure and radiation, but the Moon has other hazards as well.

Meteor showers on the Moon have the potential to cause considerable damage, even to people and vehicles left unsheltered. Without an atmosphere, even micrometeorites will hit the surface, and pack the force of a high-powered rifle. The most dangerous times of the year occur during August and October, when two major meteor showers sweep across the Earth-Moon system. The Perseids, occurring in August, are the most dangerous of the two, while the Orionids are usually less so.

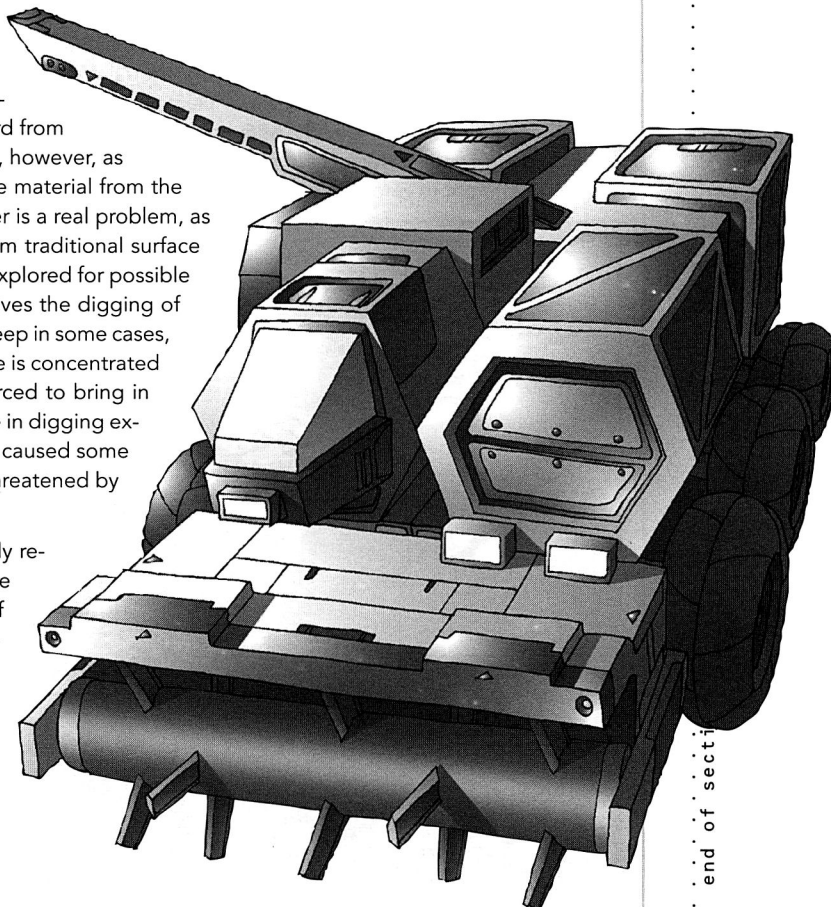
LUNAR RESOURCES AND MINING ▼

The majority of mineral exploitation is carried out in the maria, regions of upwellings from the Lunar interior that occurred billions of years ago. Further mining is carried out at the poles, both for so-called fossil ice, and for Helium-3. The regolith of the mare areas is richer than that of the highlands, even though it is considerably thinner. The highlands are better for the less valuable minerals, such as silicates and some aluminum, while the maria have more of the heavy metals, like uranium and iron.

Helium-3, once the most valuable Lunar resource, can be extracted anywhere from the Lunar surface, though, of course, in extremely small amounts (which are constantly replenished by the solar wind). With the wide acceptance of third-generation fusion plants, however, the market for Helium-3 has shrunk enormously. Only the Merchant Guild and the Nomads still run the older second-generation reactors. Even CEGA has switched to the new designs, which reduces their dependence on off-world resources.

The main market for Lunar minerals remains the Orbitals, as construction is still ongoing on new facilities and stations to meet the continuing population problem. Every day sees hundreds of tons of material stream skyward from the Moon's twenty-seven massdriver installations. Earth, however, as part of its rebuilding efforts, is starting to demand more material from the Moon, especially aluminum, titanium and iron. The latter is a real problem, as the Moon is scarce in iron; very little can be gained from traditional surface harvesting. The masscons, deep as they are, are being explored for possible heavy resources, in particular iron and nickel. This involves the digging of extremely deep mining shafts, up to twenty kilometers deep in some cases, to get at the buried masscons. As Lunar mining expertise is concentrated on surface mining, the Lunar Cooperative has been forced to bring in Mercurian engineers, with their considerable experience in digging extremely deep shafts for their sub-surface cities. This has caused some tension with the surface miners, as they see their jobs threatened by the new techniques.

Another important resource on the Moon, though usually retained for domestic use, is ice. The deep craters of the Lunar poles hold millions of tons of fossil ice, fragments of comets and icy meteors that has been collecting in these deep, permanently-shadowed craters for nearly two billion years. It is called fossil ice because it can never be replenished, and its use is a matter of constant worry for the Lunar Cooperative.



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► LUNAR CITIES

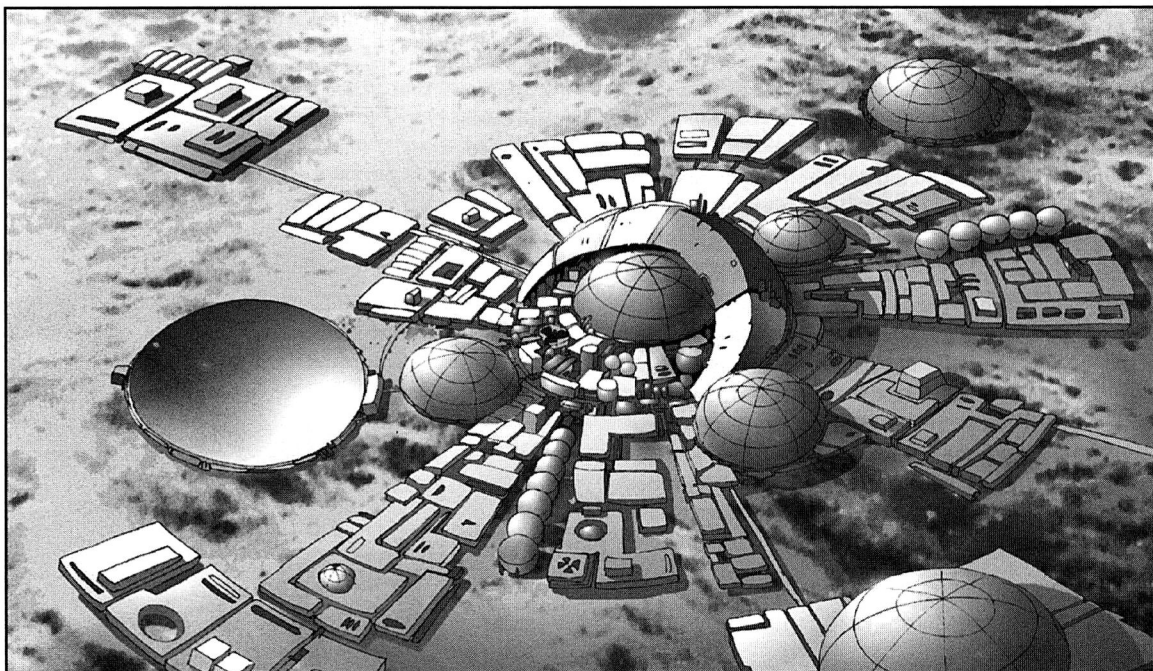
There is a strong dichotomy between the two types of Lunar cities: tunnels and domes. The domes date from either before the Fall or from after the resumption of interplanetary trade. The vast plastic bubbles used to roof over the craters were not available in between those periods. The tunnel cities date from the interim period, and are usually burrowed in the sides of ravines that have been roofed over with Lunar glass. The glass was unsuitable for making domes, but good enough for roofing the crevices of the tunnel cities.

The dome cities tend to be expansive places, with big parks and a great number of buildings out in the open under the dome. Clustered around the dome are a number of buildings and facilities, most having to do with mining and manufacturing. The regions surrounding the cities look like freshly plowed fields, a result of the work done by the mineral harvesters. Every year, the circles of plowed regolith reach out farther and farther from the cities.

The tunnel cities are generally much smaller, with tunnels and side caverns leading off from the central ravine or fissure. The central area is roofed over with glass. Everything in the tunnel cities has a harder look than in the domes. Green areas tend to be very small, and all housing and facilities are tunneled into the rock. Safety concerns are much more evident in the tunnels as well, with multiple hatches between the tunnels and the central area. In case of a blowout, the tunnels can seal themselves off. There is rarely an interconnection between the tunnels, creating a close sense of community down each tunnel. Status in a tunnel city is determined by one's distance from the crevasse or small crater that forms the center of the city.

The tunnels are rarely the center of mining efforts unless they are suburbs of a dome. During the years after the Fall, when refugees were arriving daily from Earth, tunnel cities were built wherever it was convenient. That so many of these convenient spots were located a long distance from established cities is officially labeled a coincidence, but many Selenites suspect there was a deliberate policy to isolate the refugees in case of civil unrest. The other result of this alleged policy was that the new tunnel cities rarely had much in the way of resources to support them, and ended up relying on the goodwill of their neighbors.

On the Lunar Farside, the universities took a different route with their generally small installations. Each university site was about the size of a small town, containing around two to three thousand people. The community was built around a central shaft, bored deep in the Lunar rock, with an LTEC (Lunar Thermal Energy Conversion) power plant at the bottom. Status in the university shaft towns was based on one distance from the top, with academics and professors at the top of the shaft, and the lowest technicians and support workers at the bottom.



ELLESWORTH STATION ▼

Ellesworth Station was established in 2106 as a resettlement camp for a group of refugees from North America. The original crevasse, found in the Lunar highlands to the east of Mare Crisium (Sea of Crisis), was 510 meters long, fifty meters wide at the widest point, and close to sixty meters deep. It was initially roofed over with sheets of mooncrete, which were later replaced with an array of glass panels. Nearly two thousand people were first settled here, with another ten thousand to follow over the next five years. Most of the early work was concentrated on tunneling into the sides of the crevasse to provide proper housing for all the people. Later efforts concentrated on finding some way the community could contribute to Lunar society as a whole. This emphasis on contribution caused many problems for the refugees at first, who felt they should have a chance to adapt to their new homes and establish their community. Another source of resentment was the location of the community, in the Lunar highlands, with its more rugged terrain and fewer, less easily accessible resources.

The surrounding regolith did have a higher concentration of silicates than was normal, and the pioneers of Ellesworth came across an old idea: by combining spun glass fibers with metals, they could create fabrics with the flexibility of cloth, the strength of fiberglass, and with no skin irritation due to the presence of the metal. Within a few years, Ellesworth Station was the center of a booming Lunar industry in fabrics and clothing, even exporting to the Orbitals. Today, Ellesworth is proud of its heritage as a tunnel city and a home to refugees. Every year, they celebrate a Holiday called Sanctuary, where the normal dour and staid Selenite disposition gives way to a raucous street party.

VITAL STATISTICS ▢

Name:	Ellesworth Station
Affiliation:	Lunar Cooperative / CEGA
Location:	62 degrees east by 54 degrees north
Population:	28,500
Principal Economic Resources:	Glass fiber clothing and textiles

LANDMARKS ◇

The floor of the crevasse is now a park dedicated to memory of those who built the city. A small lake, really more of a large pond, forms the centerpiece of the park, and serves as a reservoir for the community. Lining the walls of the ravine are hundreds of balconies whose pressure-tight doors open into the homes of the upper-class members of the community. The remainder of the community lives along the seventy tunnels that bore outward and downward from the central park.

In addition to the reservoir, the central park also boasts a small museum devoted to the Lunar textile industry. There are examples of the various types of cloth produced, as well as a virtual-reality tour of a textile factory. The factory itself, the first of its kind on the Moon, is still in service. It is located just north of the Ellesworth Crevasse, and is surrounded by a churned-over field of regolith, along with piles of slag and other waste products.

ADVENTURE SEED: SHE SELLS SANCTUARY ▣

The Sanctuary Festival of Ellesworth Station is renowned as a fantastic party, so much so that the city's inhabitants have had to limit the number of attending non-residents in recent years. Last year, anti-CEGA demonstrations turned the party into a brawl, and Ellesworth Station wants to avoid future such incidents. In addition to extra security measures, CEGA military police will be on hand in case things get political. Over ten thousand people attend the celebrations, and someone always has a political agenda.

Player Characters may be additional security, demonstrators, military police, or legitimate party-goers caught up in the riots as the MP attempt to move in on some protesters. In any case, the characters' primary goal will be to get through the riots in one piece.

▼ TANAKA DOME

First established in 2064, Tanaka Dome is the center of the Lunar financial community. Most of the major Lunar banks have their corporate head offices here, and even VenusBank established a branch office here in 2184. The relationship between the various banks is very close, close enough, in fact, to trigger a SolaPol investigation every five years or so. Underneath the four interconnected bubbles of gas-giant plastic live nearly three hundred thousand people, most of them employed by the banks or in support of the banks. Tanaka Dome is not home to any major mining operations, unlike most domes.

The central dome, nicknamed "Dark City," is the city's business district; here are found the banks and other business concerns. The buildings here are carved from Lunar basalt, a dark, heavy rock shot through with flashes of color. This district is somber, but not oppressively so. The atmosphere here is quiet and business-like, with masses of people moving about their purposes with dignity and composure.

The other three domes are habitation domes, varying in population according to social class and cost. The first dome, New Hong Kong, is the domain of the bank executives and managers. Access to this dome is tightly controlled, and non-residents can only gain access with an invitation. The second dome, called Wested, is the home of managers and executives for the other corporations, and also contains the main shopping district for the city. The shopping district is dominated by a huge mall that contains not only shops and stores, but also an amusement park and other attractions. The last and largest of the habitation domes is Parkland. This heavily built-up dome houses nearly two hundred thousand people, and has little in the way of shopping or other conveniences.

▣ VITAL STATISTICS

Name:	Tanaka Dome
Affiliation:	Luna / CEGA
Location:	22 Degrees north by 5 degrees west
Population:	300,000
Principal Economic Resources:	Banking and finances

◇ LANDMARKS

Wested Mall is the most prominent of the local man-made landmarks of this city, and the one that garners the most attention from the rest of the Lunar population. It even attracts attention from off-world, with footage of the mall making it to special-interest news pieces as far away as Jupiter. Its 300 stores offer just about anything one could want.

Besides the mall, Tanaka Dome is also known for the Tanaka Tower, a black basalt and glass tower that rises up fifty stories from the very center of the financial district. The top of the tower comes to within twenty meters of the apex of the dome itself. The largest Lunar bank, the Hong Kong Bank of the Moon, is located in this tower, along with several other banks. On the walls of the first story are inscribed thousands of names; known collectively as the Memory Wall, it is a memorial to all those who died on the Moon during the Fall. Researchers and investigators come from Earth and all over the Solar System to read the names, hoping to find a clue to the fate of family or friends long lost. The complete list is maintained and codified by Tanaka Dome's city council.

▣ ADVENTURE SEED: FACES OF MEMORY

Whether they have lost relatives or not, most people who come to Tanaka Dome find the time to visit the Memory Wall. People can often be found running their fingers along the list of names, their lips soundlessly moving as they recite name after name. The experience is very powerful.

The Player Characters are from elsewhere, whether Earth, Mars or Jupiter. They are at Tanaka Dome for two different purposes. The first, and most public, is to try and track down missing family through the Memory Wall. As for the second, a number of options exist. They could be challenging the bank bureaucracy, in an attempt to get a loan or clear up a credit problem, they could be here to rob a bank, or perhaps infiltrate a VenusBank facility. Or they could be here for the shopping. In any case, they likely will find the name of a relative on the Memory Wall. How this affects their subsequent performance on the mission is up to the Player and the Gamemaster.

FARSIDE ▼

Far from the dirty world of the nearside mines and factories lie the telescopes and homes of the Farside scientists. The Farside structures tend to be buried deep within the Lunar rock, safe from the extreme conditions and day/night cycle of the surface. Only the telescopes themselves sit on the surface. Spacecraft are forbidden to overfly the telescopes, and most Farside communities use sheltered landing pads a considerable distance from the telescopes, often on the other side of a crater wall.

Oxford 17 is a typical example of a Lunar University community. It is one of twenty-two stations constructed by Oxford University before the Fall, all of which are part of the consortium of Lunar universities. Oxford 17 is one of four shaft communities in the Shayne Crater (in the northern hemisphere) servicing the Oxford-Adelaide Optical Interferometer Array, a y-shaped array of 67 ten-meter telescopes.

The community is constructed around a shaft 500 meters deep and twenty meters in diameter. At the top of the shaft is a clear plastic dome, with a small park directly beneath the dome. Three large elevators travel up and down the shaft, along the sides. Below the park are the offices and classrooms of the university itself: up to 1500 students can study here at any one time, but enrollment is often much lower. Academic and researcher housing is right below the university, in the nicest apartments in the town. After the academic housing, there is the shaft's small commercial district, with most of the shops owned in some way or another by the university itself. Student cafeterias and bars can also be found on these levels.

Down from the commercial sector is the technician housing, with those responsible for maintaining the telescopes at the top, and those who maintain the computer and electronics systems at the bottom. Support staff is situated below the technicians, and are graded from the administrators to the cleaners, with the administrators right below the technicians, while the cleaners are practically sitting on top of the vehicle pool and storage. A long, slanted road leads up from the deep garage to the surface, and is large enough to accommodate a harvester. The vehicle pool itself is a large open area deep underground; it contains several vehicles, mostly Rovers, along with maintenance and repair facilities. This level also connects, via an underground monorail, to a spacecraft landing pad and associated hanger, which are located 31 kilometers away on the other side of the crater wall.

The bottommost level is the power plant, along with environmental control and recycling. The power plant is an LTEC design, which uses the temperature difference between the deep end of the shaft and the Lunar surface to generate power.

VITAL STATISTICS □

Name:	Oxford 17
Affiliation:	Lunar Cooperative / CEGA
Location:	32 degrees north by 179 degree east
Population:	3000 residents, 1500 students
Principal Economic Resources:	Education, specialized high-technology manufacturing

LANDMARKS ◇

Each Farside shaft community supports an array of telescopes, and Oxford 17 is no exception. The Oxford-Adelaide Array is the one of the larger optical arrays on the moon, and is a favored destination for tourists and students. Day tours are run out of Oxford 17, which lies near the center of the array. Each ten-meter telescope is located about three kilometers from the next, making the entire array nearly 200 kilometers in diameter. Because of the sensitive optics of the telescopes, overflights of the crater are forbidden by the Lunar Cooperative. Occasionally, CEGA Naval units ignore this restriction, resulting in protests being filed with the Cooperative. All too often, however, these are ignored.

The park at the top of the shaft is a popular destination for the locals, with its collection of tropical plants and trees and even a few birds flitting about. There is even a small plot for residents who wish to have a garden, an almost unheard-of luxury on the Moon. Most of these go to Academics, but a few are reserved on a lottery system for people from the other classes. The dome that covers the park isn't anywhere near as large as the city domes of the Nearside, and so doesn't have the atmospheric volume to protect the interior from radiation. A basic radiation screen protects the dome from normal background radiation, using the geodesic dome as the conductive grid, but it can't stand up to intense radiation, like a solar flare. However, armored shutters can close up over the dome in minutes to protect it from solar flares.

▼ TYCHO CITY

Tycho City is a seemingly chaotic collection of old and new domes, with several tunnel suburbs connecting them. It has grown continuously since the initial colonization period. While Luna City is the administrative capital of the Moon, Tycho is the largest city.

The city itself is a collection of six domes (the largest of which is four kilometers across) and seventeen tunnel complexes. All the domes and tunnels are interconnected by underground and aboveground pedestrian and mass-transit lines. The oldest dome dates back to 2051, when the city was founded, while the newest, and largest, is only six years old and made of the virtually puncture-proof fifth-generation gas-giant plastics. The domes all shelter low-slung buildings in the midst of parkland. The newest dome has no trees yet, just some shrubs, but the oldest dome is practically a forest. The buildings, while generally no more than five stories tall, extend another ten to twenty stories underground.

The tunnel cities around the main core date from the years following the Fall. They were originally a stop-gap measure until more domes could be built, but that did not happen for nearly a hundred years. Instead, the tunnel complexes grew, taking over every crevasse and rille within fifty kilometers of Tycho's original three domes. These fared better than most, due to their proximity to Tycho and all the mining and manufacturing industries based there. There wasn't the struggle to find a niche that most tunnels experienced, and less negative impact on the inhabitants.

▣ VITAL STATISTICS

Name:	Tycho City
Affiliation:	Lunar Cooperative / CEGA
Location:	42 degrees south by 12 degrees east
Population:	620,000
Principal Economic Resources:	Mining, refining and manufacturing

◇ LANDMARKS

The tallest building in Tycho City is the Lunar Aerospace Corporation tower, which is built at the very center of the new dome, and towers ninety stories above the Lunar plain. It extends at least a hundred stories underground. As the largest and most powerful corporation on the Moon, LAC and its facilities completely fill the building, despite its size. Previously, the offices of this giant corporation were scattered all over Tycho City. In addition to the LAC tower, the fifth dome also has the largest park area on the Moon. Several tall towers scattered throughout the park support launching platforms for ultralights and parasails, popular sport and entertainment vehicles on the Moon. There is also a shallow lake, part of Tycho's reservoir system and deep enough to swim in. The concept of swimming is very alien to most Selenites, but the activity is very popular with visitors to the dome.

The forest of the old dome is another attraction in Tycho City. The trees are so large that the city has actually allowed several small buildings to be constructed in the branches of the largest trees, including a few restaurants, nightclubs and an extremely expensive hotel.

▣ ADVENTURE SEED: LUCIFER'S CROSS

Plans for the next generation of CEGA exo-armors lie in the reinforced chambers of the LAC tower. Though security is extremely tight, there are many who would risk the chance of being caught for a glance at CEGA's latest offering, especially as war seems increasingly likely with the Jovian Confederation.

Player Characters can be agents of any of the Solar nations, including the USN, trying to get copies of the latest CEGA prototypes' schematics. There are many ways to get this information, including compromising an employee, electronic intrusion (hacking) and the old-fashioned method of breaking and entering. LAC's security is extremely tight, however, and is supplemented by CEGA marines in sensitive areas. Security is highest at LAC's facilities outside of Tycho, where new exo-armors are assembled and tested. The headquarters building is easier to penetrate, in part because it was just built, and not everyone in the building knows each other yet.

The development offices do contain records on the latest LAC exos, including the Fury and the production version of the Dragonstriker. In addition to these plans, however, some hints can be found of a project "Lucifer," along with its companion, "Typhon." There are no specifics for these projects, but they seem to involve cloaking technology.

THE MASSDRIVERS ▼

The massdriver complexes are virtual cities on their own, with factories, smelters, warehouses and played-out mines clustered around them. Security tends to be much higher than in a typical Lunar city, with CEGA military police seemingly everywhere.

The massdrivers themselves are twenty-kilometer long tracks with magnetic accelerator rings every fifty meters. Payloads are launched every twenty seconds, and the massdrivers run for twenty hours a day. Each payload masses about ten tons and consists of mostly aluminum, silicon, and mooncrete. The initial massdrivers were solar-powered, but these could only run for two weeks out of every four. It wasn't long before nuclear reactors, fueled by abundant Lunar uranium, replaced the solar panels. These reactors are still running, having been overhauled approximately every ten years.

Each complex has three or four massdrivers, with two to three of them in operation at any point in time. A continuous stream of loaders and rovers feeds the launchers, each of which flings 36,000 tons a day to various orbital construction projects.

Around the long tracks of the massdrivers is a maze of warehouses, smelters, slag heaps, refineries and mines that stretches to the Lunar horizon, with workers' housing and CEGA barracks thrown into the sprawl. The massdriver zones are the most heavily built-up areas of the Moon. Generally located far from any city, they are connected by monorail to the nearest major community, though most workers live on site in crowded, spartan apartment blocks. Luxuries and amenities are few, though the pay is generally quite high.

VITAL STATISTICS ▢

Name:	The Massdrivers
Affiliation:	Lunar Cooperative / CEGA
Location:	Various, mostly clustered in the Tycho and Mare Imbrium mining regions.
Population:	3000-4000
Principal Economic Resources:	Mining, smelting, refining, cargo launching.

LANDMARKS ◇

The most memorable part of any massdriver complex is the massdrivers themselves, hurtling cargo spaceward like some sort of enormous machinegun. Due to electromagnetic effects, it is dangerous to approach within 100 meters of the accelerator rings when the launcher is charged. Even robots have to be heavily shielded to approach the rings. The rings themselves are twenty meters in diameter and spaced fifty meters apart except at the initial loading point, where the spacing is only ten meters between rings.

Aside from the drivers themselves, the most imposing part of the launch complexes are the old fission reactors, with their huge cooling fins extending far into the sky. Even larger heat sinks are buried deep within the Lunar crust, in an attempt to lower the high temperatures generated by the power plant and the intense heat of the Lunar day.

ADVENTURE SEED: THE WAN-GO INCIDENT ▣

Massdriver Complex 4 was captured by terrorists from the Non-Aligned Powers on Earth in 2104. They threatened to use the massdrivers against CEGA cities if their demands were not met. The CEGA Marines were called in, but negotiation saved the day when scientists convinced the terrorists of the extremely poor accuracy of Lunar-based massdrivers against Earth.

The massdrivers are logical targets not only for terrorists, but also for smugglers. Contraband material can be smuggled into a load and retrieved at the destination without anyone being the wiser. Most customs patrols are CEGA troops, but some are local as well. Notoriously overworked and underpaid, many local patrol officers can be convinced to look the other way while something untoward makes its way onto an outbound cargo.

However, Orbital authorities are starting to tire of this. Recently, a cargo retrieval crew stumbled across some smugglers while catching a shipment, and a firefight ensued. Three of the retrieval vessel's five crew were killed. The Orbitals want a stop to the smuggling, and have petitioned the CEGA Navy to do something about it. The Navy has responded by sending in a specially-trained military police team. They are not there so much to check the cargos as to keep a watch on the staff who do.

2.3.5

end of section 2.3 lunar cities



► LUNAR CULTURE



The people of the Moon went their own way for a very long time, and developed a culture divergent from Earth. Each city and dome tended to go its own way to an extent, but all had points in common, in particular the Lunar work ethic. The work ethic had its foundations, like so much else in Lunar society, in the turmoil surrounding the Fall and the long, hard years that followed. Everyone had to pull their own weight. There was no room for luxuries or deadbeats.

Most of the cultural divergences started as exaggerations along ethnic lines. The Chinese started wearing robes off-duty, and the Germans of the Farside began making lederhosen and draft beer. Even the class-based culture of the Farside universities has its basis in the stratifications found in university staff, as well as the tensions between academics and support staff. Though this trend started before the Fall, it gained momentum afterwards, rooted in the need to establish community identity. Without the strong social force of Earth, things could and did change.

An example of the changes are the Lunar marriage laws, which are not so much laws as guidelines. Any type of consensual union is legal, including same-sex, polygamous and group families; the only restriction is that there must be contingency plans in place to ensure that any children or dependents are cared for. The Moon was a harsh place to live, and still is in many ways. Group families became very common in the years following the Fall. Age-old concerns over jealousy and paternity were less important than forming tight familial alliances, both for safety and to ensure that one's children would be cared for in the event of an accident. Even today, nearly half of all adult Selenites are involved in group marriages.

▼ NEARSIDE VS. FAR SIDE

The differences between the Nearside and the Farside are not just geographical, but cultural as well. The Nearside inhabitants were largely miners and support workers, while the Farside residents were academics and researchers. On the Nearside, everyone had to work side by side to ensure survival, and most class structures broke down in the face of the Fall; the revived economics of the post-CEGA years have since rebuilt a class structure based on income, but the line is quite fluid.

On the Farside, however, the Fall served to reinforce the existing class structure, which saw the academics and researchers taking precedence over the technicians and support staff. Even back on Earth, most universities had a definite separation between professors and support staff. On the Moon, this separation became a wall. Given the tradition of freedom of thought and action long espoused by universities, this was, and still is, an ironic situation to most observers. It is possible, but extremely difficult, to move up in class on the Farside.

Despite the class-based restrictions, the culture of the Lunar Farside is generally freer and less somber than the Nearside. Farsiders also lack the emotions felt by the Nearsiders toward Earth. The astronomers and physicists at the universities had always looked outward toward the stars, and their cultural mindset looks outward as well. These differences in attitude are easy to see, particularly in clothing and hairstyles. The Farsiders tend to be a great deal more daring. They also tend to be more outspoken, even those in the technical and support classes. Despite the class differences, the Farside communities have high standards of living, and there is little in the way of internal strife.

BAR-HOPPING ▣

"It was just a group of us, you know. Our hopper was down for repairs at some little shaft called MIT 11. We had taken them a load of aluminum, and some glass cloth. Place had maybe a couple thousand residents, along with less than a thousand students. We took a 'vator up from the vehicle bay, almost to the top, and went looking for a bar. Why not? That hopper wasn't going anywhere.

"Well, me and me mates popped into the first bar we find, and plop ourselves down at the bar and order some beers. The tender looks at us kinda odd-like, but brings us our beer. The people in the bar were dressed kinda funny, real tight clothes, lotsa colors. Saw more skin there than I have in years. Only a few minutes go by before some security guy, real official-looking, is ever-so-politely tapping on our shoulders and telling us to move along. Suggests a bar down on the fifth level that might be more 'suitable.' Seems that bar was only for professors, and they didn't appreciate rubbing elbows with us working stiffs.

"Down on the fifth level, the bar looked almost the same inside. All the folks were dressed much the same way, but a little less colorful. More friendly though, and the beer was better."

LANGUAGE ▼

While English is the common language of the Solar System, many other languages survive on the Moon. German and Russian are very common on the Farside, while Chinese is common throughout the Tunnel cities of the Nearside. It was the Chinese, after all, who were the first to return to the Moon and use their expertise to jump-start commercial exploitation of Lunar resources. A great number of Chinese, primarily Mandarin, words have worked there way into the Lunar lexicon, often used as slang or curse words. However, everyone knows a little Mandarin, especially in the tunnel cities. Even spoken English in the tunnels has a tonal quality that implies nuance and meaning that non-Selenites don't comprehend.

2.4.2

FOOD ▼

The Lunar soil is lacking most of what is needed to grow crops, but it can be slowly cultivated over time. Most of the early farms used hydroponics or aeroponics, and these technologies still form an important part of Lunar agriculture. However, crops are still difficult to grow, and most grains and other vegetables are imported from the Orbitals. Some algae farming takes place in the waste reclamation facilities, but most of the food produced on the moon is tank-grown protein. The protein farms are another part of the waste reclamation process, one that most people don't care to think too much about.

The protein from the tanks is nearly tasteless on its own, but can be given practically any flavor and texture desired. Lunar cuisine devotes a great deal of time and effort to preparing the protein in new and exotic ways. Spices are imported from Earth or the Orbitals, and are practically worth their weight in gold. The trick is to subtly flavor the food to either enhance or change the basic factory-supplied flavor without overusing any particular spice or creating a synthetic, chemical-laden taste.

Alcoholic beverages are always popular, and the people of the moon are no exception. Most of their beverages come out of the same facilities as the protein cakes, however. They are brewed from tailored yeasts and garbage, with the yeasts being gene-modified to provide taste and body to the drinks. The most expensive brews are imported from the Orbitals, with real-grain beer being extremely popular, as well as extremely expensive.

2.4.3

ARTS AND ENTERTAINMENT ▼

In contrast to the somber nature of Lunar society, their entertainment is often rather raucous. The environment imposes such strict limits on the people that their rare moments of entertainment are a method of working out confinement stress. Physical humor, to the point of slapstick, is very popular, along with sports such as kickboxing and buggy racing. Team sports are also very popular, having their origins in the days of the Fall, when groups of miners would get together on their one day off each week to blow off steam. These team sports tend to be very rough, with lacrosse and rugby being the most popular. Early versions of these sports were actually played outside, with the participants wearing spacesuits, making these full-contact sports extremely dangerous. There simply wasn't room inside the crowded tunnels and domes for playing fields. Even today, a variant of lacrosse, Lunacrosse, is played outside, using specially designed and extremely tough skinsuits. There is even talk of starting up a Lunacrosse league using exo-suits, but the purists are against it.

2.4.4



▼ 2.4.4 ARTS AND ENTERTAINMENT (CONT.)

Arts and culture are often neglected on the Moon. For far too long the people have been too survival-oriented to permit so-called indulgences. One art form that has prospered on the Moon, though, is singing. Most of the music sung by groups, without musical accompaniment. In this they closely resemble the seashanties of the age of sailing ships, or the work-songs of road and rail crews. Singing was one of the few entertainments available to many Selenites during the hard years after the Fall, when power and life support were priorities, and even computer access was a rare luxury.

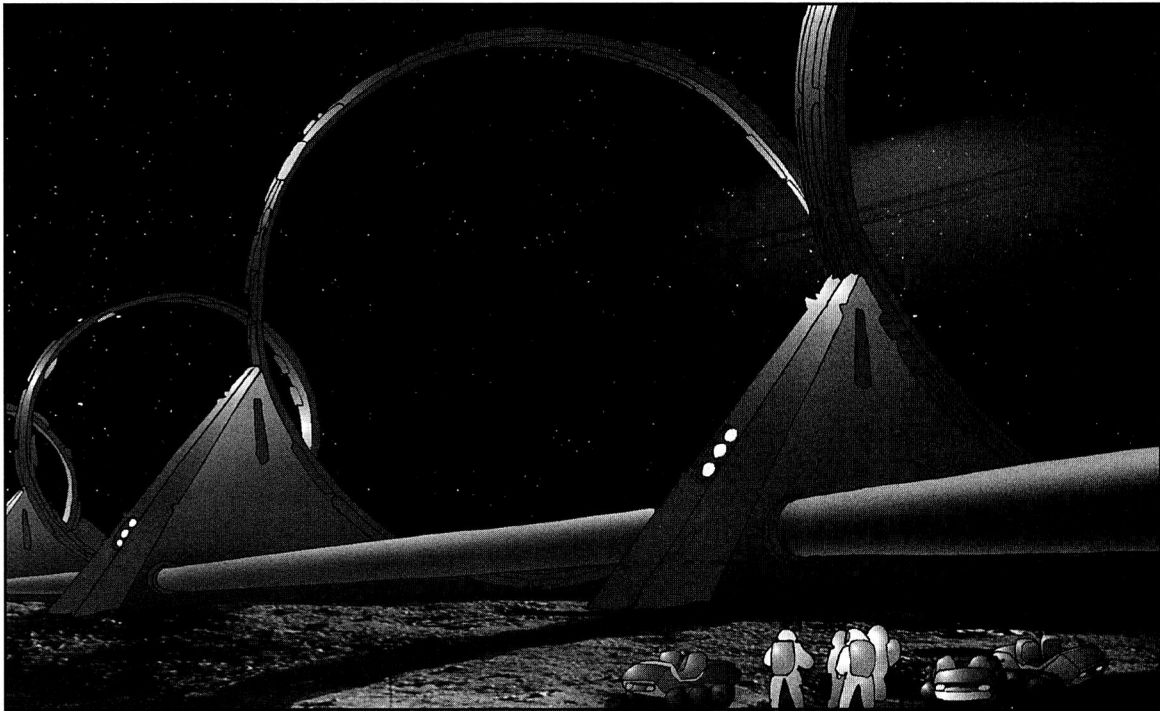
■ SONGS OF THE MOON

"My squad is mostly from old Europe, and this is our first posting off-world. You know, join the Army, see the sights. Horst and Baurie spoke German better than English, and they were surprised to hear it spoken on that trip to Sorbonne 9, a little town on Farside. Me though, what got me was that restaurant or club in downtown Tycho. First, it was thirty meters up in the biggest damn tree I ever did see. The food was great, so long as you didn't look at the ingredients. They were all the same. But it was the music afterwards that really got me.

"You know, you go to a club, they're offering music, you expect guitars, synths, drums, lotsa lights and smoke machines, gyrating young things and a whole lotta noise. Not on the Moon. The lights went down, a couple of spots went up, and there were ten guys standing on stage. But then they started singing. It was rough, sure, but it was real. The realest thing I've ever heard. It was some sort of work song, kinda like a marching cadence, but different. When the lights went down again, me and me squad were up on our feet, hooting and hollering. We were the only ones, though. These moonies are none too expressive.

"Then the lights came up, and a woman was sitting on a stool, well-dressed, with only a mike. She began to sing. I'd never heard the song before, but it cut me to me heart. Saddest thing ever. I looked it up later, back at base. 'Now is the Hour.' It dated from the Second World War, near two hundred years ago, and was based on an even older song, some traditional Maori thing from New Zealand. Seems it's almost some sort of anthem here."

— Staff Sergeant Eric Jarvis, CEGA Army.

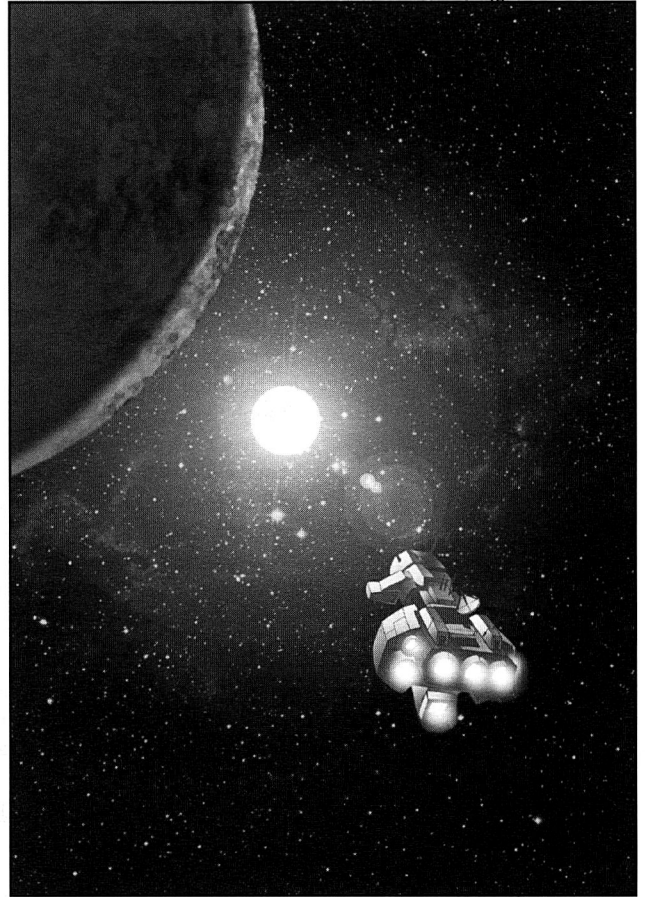


GOVERNMENT ◀

Before the Fall, the Moon was largely administered from Earth, with only local managers and security to handle immediate problems. Any loss of communication, or worse, contradictory orders, from the head offices caused a great deal of hardship and disruption to Lunar society, before the Lunar Cooperative stepped up fill in. The permanent loss of contact with Earth during the Fall caused a great deal of chaos in Lunar society. The people of the Moon lacked the skills to govern themselves, at least initially.

It was the corporate managers who first started to restore order. They at least possessed some legitimate authority, and were able to retain control of corporate resources, and, often, the employees. The loss of communication was initially treated as a temporary measure, and the managers tried to conduct things with a business-as-usual approach. As the silence wore on, resistance to their control began to rise. The managers were still thinking in terms of the return of head office control, and controlled resources on that basis. That control, however, didn't take into account the immediate survival needs of the Lunar population.

It was the arrival of refugee ships from Earth that pushed events over the brink. The corporations had the resources, but their loyalty to the ideals of their companies prevented them from making those resources available. It was a cabal of union heads, Farside professors and a few forward-thinking managers that forced the issue and stormed the recalcitrant corporations with companies of armed miners and refugees. Some of the refugees had military training and were able to overwhelm the corporate security forces with little loss of life. After the coup, a cooperative council was formed to work out how to allocate resources and move the Lunar industries to a new footing, one capable of supporting the new reality of life on the Moon.



THE LUNAR COOPERATIVE ▼

The Lunar Cooperative is a democratic body that includes representatives from each Lunar city, as well as observers from the various corporations, unions and the Farside universities. Initially formed as a loose collective of miners, corporations, and academics, it took a more democratic turn during the latter days of the Fall, when order was starting to return to Lunar society. The tradition of democracy has become deeply ingrained in the Lunar mind, so much so that upon recontact with Earth, CEGA had to forego the customary military control of the government in order to secure Lunar cooperation. Ellen Hartabois currently heads the Cooperative; Troy Rivers is the CEGA representative in meetings. He has lately been pushing for greater privileges for CEGA military staff, as well as opening the possibility of CEGA personnel on the Moon being granted Lunar voting rights.

Each city on the Moon elects one representative to the Cooperative; these are the only members with full voting rights. Delegates representing the unions, the corporations and the Farside universities are also present, but their voting rights are limited. The CEGA representative has no voting rights, but their opinion is taken into account during any votes.

There are effectively two factions within the Cooperative, but the majority of representatives do not fall firmly into either camp, instead voting on individual issues rather than as a bloc. The first faction, led by Anna Minas, the representative for Tycho city, favors closer ties with Earth and stricter adherence to CEGA doctrine. Most members of Minas' faction are cities with defense industries or a strong CEGA military presence.

The other faction favors increased ties with the other colonies, in particular the Orbitals. There are even some within this faction that favor independence from Earth. Ellen Hartabois leads this faction, which is very carefully making diplomatic overtures to the other colonies.

▣ CHANG O SOCIETY

The Chang O Society is a covert organization dedicated to Lunar independence from Earth. They have become larger, more vocal and increasingly more violent since the Copernicus Dome Massacre. Chang O is the name of a Chinese moon goddess, and reflects the aspirations of the growing minority who miss the days of Lunar independence, and wish to see a return to it.

The members of Chang O often have different philosophies, and sometimes even different goals. As a rule, though, they tend to be anti-CEGA, anti-Lunar Cooperative, and pro-independence, but the means to achieve that goal causes much divisiveness in the Society. Some favor violent overthrow of the Cooperative and a declaration of independence, while others see the destruction of CEGA as the true goal. Currently, the majority is made up of a moderate third group whose focus is on trying to find a peaceful way to get out from under Earth's thumb.

▼ EARTH-MOON RELATIONSHIPS

The people of the Moon welcomed Earth with open arms upon CEGA's return to space. There is a tendency for both the people in general and for the Cooperative in particular to overlook the excesses of CEGA, though this attitude is fading in the wake of the Odyssey. Contact with the Non-Aligned Nations is minimal, due to CEGA interference. In addition, the CEGA Navy is pressuring the Cooperative to allow the military observers voting rights. The Cooperative sees this as a prelude to military control of the Lunar government, and is resisting. However, the events of the Odyssey, and the destruction of the Copernicus Dome, may force the Cooperative in a new direction. The Lunar settlements are utterly at the mercy of the CEGA military, so some sort of diplomatic solution is most likely required. The Lunar Cooperative supports the moderate faction in CEGA, and Ignatius Chang himself has visited the Moon on many occasions.

Most Selenites only see the military side of Earth, primarily the Army and Navy troops stationed on the Moon. The Moon is becoming more involved in the civilian sector, however, especially in aid of the rebuilding efforts on Earth. The destruction of so much that was beautiful saddens the Selenites, and they want to help. For them, despite the long years of separation, Earth still represents home. The constant blue-green globe overhead is a constant reminder of everything their ancestors had.

▼ MOON-ORBITAL RELATIONSHIPS

Since the Fall, the Selenites and the Orbitals have had very close relations. They relied on one another heavily for support, and finished goods and raw materials flowed back and forth from one to the other, along with food, water and the necessities of life. The advent of CEGA has weakened these bonds, in part due to CEGA policy. Very recently, however, elements in the Cooperative has been exploring closer, though covert, ties, with the People's Representative Council. The Orbitals, aware of their hideous vulnerability to attack, are very wary of any actions that may provoke the Navy.

The L1 Orbitals were the first outside agency, after the Solar Cross, to respond with aid after the Copernicus Disaster. This has endeared the Orbitals anew to the Lunar populace, and prompted increased calls for a renewal of the old relationship. The Orbitals are still the Moon's largest customer, as construction continues on new habitats. In turn, the Moon is the Orbital's main market for finished goods, though Lunar industries are slowly making inroads in that direction. Trade between them is always high, and both groups seem to strive to preserve honest dealings and good relationships.

RELATIONSHIPS WITH THE SOLAR NATIONS ▼

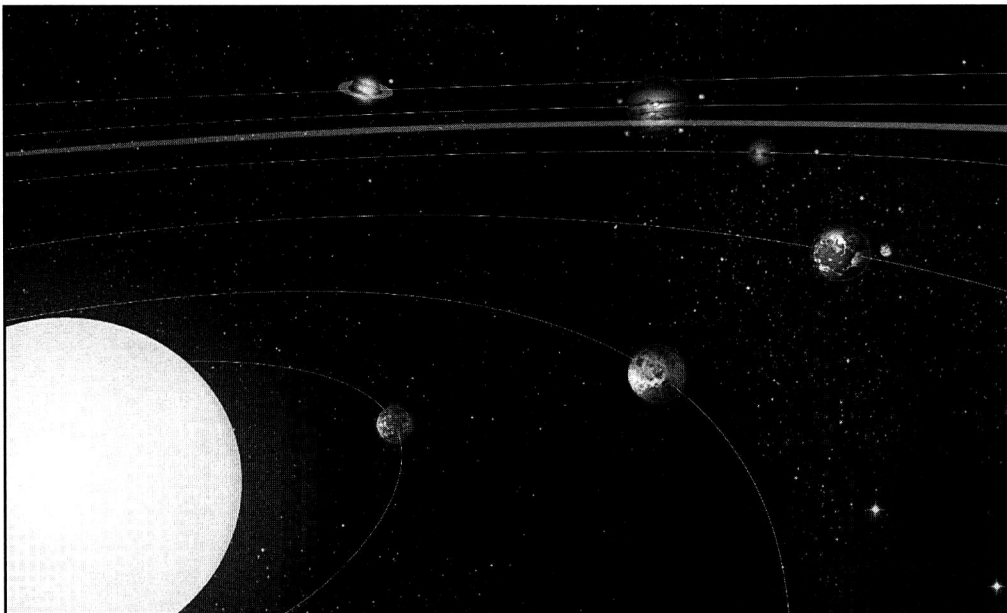
The people of the Moon share the resentment felt by Earthers toward the other colonies. The sense of abandonment is very strong, as well as a sense of entitlement, that the colonies owe them something. The attitude of the Farsiders is somewhat different, having been in touch with academics in the colonies since before the Fall. They feel that the colonies have earned the right to stand on their own, but this cosmopolitan attitude is unpopular elsewhere on the Moon. Only the Merchant Guild, which reopened trade, has any earned any sort of friendship from the Selenites. This friendship was severely strained when CEGA appeared and the Selenites broke their contracts with the Guild in order to provide CEGA with the Helium-3 fuel it so desperately needed. The Lunar Cooperative eventually restored the contracts, and gave Mercury a hefty compensation in the form of lower prices. Relationships with the Guild are thus still cordial.

The Venusians are seen as money-grubbers, and the alleged involvement of VenusBank in the events of the Odyssey, indeed even as the instigators of those events, has done nothing to improve matters. The Martian colonies are looked upon as squabbling children, and the Moon has little contact with them. The Jovian colonies are viewed with a mixture of awe and disgust. They are seen as fat-cats, lording their wealth over the rest of the Solar System, but the fact that their wealth was gained through hard work and sheer perseverance gives pause to even the most xenophobic of Selenites. The Moon still maintains trade relations with Jupiter, mostly for the plastics and volatiles that make the dome cities possible.

THE SYSINSTRUUM ▯

It is the SysInstruum that the Moon is best known for throughout the rest of the Solar System. The foundations of that vast computer network lay in the academic network that the Farside universities maintained with other universities across the Solar System. This high-bandwidth network used an array of lasers, masers and high-frequency radio links that the various Solar nations have since expanded and built upon. All lines, however, go through the Moon, and the offices and supercomputers of the SysInstruum are considered neutral territory by the Solar Powers. SolaPol and its Edicts Enforcement Bureau keeps a close watch on the SysInstruum, as it is considered the most likely place for an emergent system to arise spontaneously; an uncontrolled AI is the sort of disaster the EEB was created to avoid. Outside of SolaPol Headquarters, the SysInstruum complex is the only place in the Solar System that has a legally-licensed quantum computer, designed to keep track of the massive amounts of traffic going through the links, and to make sure the connections are optimized.

The SysInstruum, through its multiply-redundant links, provides the vast majority of civilian data and communications traffic in the Solar System. The SysInstruum organization, along with the USN, also manages the three Jovian-built relay stations just past Mars' orbit, which route traffic through the outer system.





"We need, I believe, to lift our eyes..... to remind ourselves of the shared vision for which our work is done. Ultimately that vision will expand our physical, political and mental boundaries from the confines of a single planet to the much broader limits of a race freely expanding its habitat throughout our solar system, and from there to the stars."

— Gerard K. O'Neill

HISTORY OF ORBITAL SETTLEMENT ◀

Soaring far above the war-racked world below, the Orbital colonies seem to be islands of peace and prosperity. In many ways, the Orbitals are the most comfortable places in the Solar System, challenged only by the colony cylinders of the Jovian Confederation.

From the first small workstations to the massive "sunflower" cylinders of the modern era, orbital stations have been occupied for over 200 years. Peoples of all nations have made space their home, and in the process built new nations.

PRE-SETTLEMENT ▼

The first orbital settlements were relatively small affairs not intended for long-term habitation. These early stations would be considered work-shacks today, though extremely expensive ones. The first long-term station was a hotel, constructed by the Hilton-Renaissance Corporation in 2007. As a means of separating the extremely rich from their money, it worked very well, though it took nearly a decade to turn a profit. It was only the advent of the Megaloader-class launch vehicles that allowed it to finally generate decent revenue, opening space up to more people than governments and the insanely wealthy.

The pre-settlement period was also marked by an increase in private-sector space exploitation. Orbital crystal allowed the construction of the first post-silicon computers, based on diamond-film technology that was too expensive to be readily made on Earth. This technology would become even more important later, with the advent of true nanotechnology. Pharmaceutical companies found that they could produce drugs of the highest purity, the extreme value offsetting the heavy transportation costs. As for space tourism, the advent of the Megaloader spacecargo in 2011 changed that, bringing down launch costs enormously, and enabling an entirely new set of industries to move into space.

The last major industry in the pre-settlement times was power generation. The first powersat test was completed in 1999, showing that space-based power stations were technically feasible. Economically, however, they were not a winning proposition; it simply cost too much to ship the materials up from Earth. Even the Megaloader didn't change that much; it took the industrialization of the Moon to enable the construction of large-scale solar power stations (the first coming on-line in 2014) made with lunar materials.

SPACE VACATIONS ▣

"Space: the Final Frontier. Now open for business! The Hilton-Renaissance Corporation is proud to present our Orbital Hotel! From our luxurious glass-floored dining lounge, gaze down upon the Earth in all its beauty rotating below. Our restaurant and accommodations are all at just under half Earth's gravity, allowing you to enjoy all the pleasures of lighter gravity without the discomfort of zero-gee. Enjoy our fabulous five-star restaurants; you can even sample the foods enjoyed by astronauts, should you so desire. At the core of our station is our zero-gravity Wonderland: fly like a bird and experience the thrills of life in space that were previously available only to astronauts and cosmonauts. For the more adventurous of spirit, we even offer zero-gee rooms in the Wonderland (limited availability, training course or previous certification strongly recommended).

"All this, for only \$500,000US a night, (minimum 5 nights) plus shuttle flight to and from the station."

SETTLEMENT AND EXPANSION ▼

It was the promise of unlimited free solar energy that spurred the construction of the orbital colonies as well as industry on the Moon. The first experimental power satellites were joined, over the years, by dozens more much larger, more efficient powersats.

As industry moved into space, so too did the need for skilled, on-site support staff. Telepresence robots could only do so much, and for critical operations even the smallest communications lag between the ground station and the further orbital projects was unacceptable. The first large, permanent station was built at the L-1 point between the Earth and moon in 2014 to act as a way station for the three-day journey. A small design by modern standards, this torus-style station housed 200 permanent staff, along with up to 5000 transients by the time it was abandoned and broken up thirty years later.



▼3.1.2 SETTLEMENT AND EXPANSION

This station, called Goddard by its inhabitants, was used to house workers for the first true colony, called Island One, a 500-meter Bernal Sphere built at the L-5 point. Island One came online in 2030, soon joined by two more Bernal Spheres at the L-4 and L-3 points. These new colonies were used to house the workers for the construction of the second-generation powersats, which were to supplement, and eventually replace, the earlier experimental powersats.

By the end of the 2030s, twenty-four large colony stations had been built, most of them of the Bernal Sphere variety. These stations were built to accommodate workers for the solar power satellites, but by the end of the decade, that industry had peaked. The corporations on Earth saw a great deal of opportunity in space, however. New industries emerged, including businesses whose function was the building of colonies rather than powersats. The large Russian corporations date from this period, as does Waldsen, a German engineering firm that would partner with a Japanese corporation to form one of the largest space construction firms in the Solar System, Waldsen-Nishiyama.

Throughout the 2040s, over a hundred colonies were constructed, most of them Island 2 types and, later in the decade, the first of the massive Island 3 designs. Along with the space-support industries, these new colonies were developing manufacturing capabilities for export back down to Earth, and even to the rest of the Solar System. These commercial products took advantage of inexpensive gas giant plastics, lunar metals, and volatiles from the asteroid belt to produce goods competitive in price with Earthside industries.

Further colony construction concentrated on the Island 3 designs, which provided the greatest living area and made the best use of available resources, in particular energy and materials. Right up until the Fall, construction continued on new colony cylinders, with the primary motivation in the final decade before the Fall being the deteriorating conditions on Earth.

Along with their counterparts on the Moon, many universities chose to relocate to the Orbitals as conditions on Earth worsened. This preserved a great deal of knowledge and technical resources from the destruction of the crisis, and the Unification Wars which eventually followed. The most notable of these was the Eastern University Consortium, consisting of Harvard, MIT, Yale and Johns Hopkins, along with many smaller colleges and schools. Their presence in orbit provided access to information and technology that the Orbitals had previously lacked.

By 2090, when the last of the Earthside governments had folded, the Orbitals were up to over 300 colonies, most of them the massive Island 3 designs, and had a population in excess of 250 million.

◇ ISLAND ONE

Island One was the first true colony, a sphere 500 meters in diameter, with additional toroidal structures along the spin axis on both sides of the sphere. An arrangement of mirrors brought light into the sphere 24 hours a day, with shutters to simulate night and day. The inside of the sphere was buried under 2 meters of lunar regolith, with selected biological packages (worms, healthy bacteria, organics) introduced from Earth.

The station eventually came to house nearly 20,000 people by the time of the Fall, when its population briefly boomed to 40,000 until new stations could be brought online to absorb the excess.

Today, Island One has the most well-developed biosystem of any Orbital, and its population has been reduced to under 10,000 to let it become a park. There are even wild animals in Island One, including a small herd of very spoiled deer, along with rabbits, mice and other small animals. Birds never did well, in particular the predatory birds, perhaps because of the wildly variable winds and gravity on a Bernal Sphere.

A visit to Island One, where it all started, is one of the things on every Orbital citizen's list of things to do in their life. Fortunately, it is quite accessible to anyone in the L-3, L-4 or L-5 clusters, and still fairly easy to get to from the other zones as well.

◇ THE RUSSIAN MOVEMENT

Until the close of the Twentieth Century, Russia had been a major player in space exploration, holding many records for manned space flight. With the collapse of the Russian economy, this disappeared, but the Russian people remembered. When the orbital construction boom started in the 2030s, Russia was determined to put its hard-won expertise to work. Reopening the Baikonur cosmodrome in Kazakhstan, Russia leased Megaloaders from American and European firms, and used its facilities to establish orbital construction firms.

◇ THE RUSSIAN MOVEMENT (CONT.)

Russian workers, highly skilled and motivated, became the backbone of the early construction phase. They turned their country's considerable expertise in space construction into a blossoming industry. Companies like Korolev, Mikoyan-Gurevich, and Kazakh Heavy Industries became some of the largest companies in orbit. Unfortunately, along with the Russian corporations and workers came the Russian Mafia, who soon became responsible for much of the organized crime in orbit, dominating the drug trade in particular.

During the Fall, when refugees piled on to Megaloaders heading into orbit, many Russian refugees stopped at the Orbitals. They had family, friends and connections, whether in legitimate or illegitimate concerns, making the Orbitals more desirable to them than most of the other colonies. Russian immigration to the Orbitals reached its peak in 2103, when nearly 50,000 Russians arrived in the homes of family and friends spread across dozens of colonies.

Over the past hundred years, Russian influence has dwindled as the immigrants either were absorbed into mainstream Orbital society or isolated themselves on culturally-Russian stations like Ekaterina and Voskhod.

THE NEW NAVAHO NATION ◇

Another group who made an impact in the early days of space construction were the Navaho Indians of the southwestern United States. With a long reputation as high-beam construction workers on Earth, it was only natural that Native Americans would gravitate to space construction, the ultimate high-beam work. Many native groups had members join the space construction companies, but none more than the Navaho nation. So many went into orbit that they established for themselves a New Navaho Nation.

At first, this Nation existed only where the workers happened to be, a collection of traditions and shared experiences that brought them together as a group. Over time, this group expanded as others were found who shared the ideals and goals of the original members. Membership was not based on race, but on attitude and a willingness to work. Though the Nation was never large, they achieved renown for their skills. During the Fall, and the dark years which followed, they were always on the job, building colony after colony for the stream of refugees fleeing the dying Earth below.

After the ships stopped coming, the Nation settled down, occupying a small Bernal sphere at L4 called Anasazi. They continued their tradition of excellence in construction, however, and maintained the traditions that had brought them together in the first place.

The coming of CEGA marginalized them, however, as the record of the unification in North America, especially among the Native American tribes, was not a good one, and the Nation feels considerable bitterness toward those events.



ORBITAL CONSTRUCTION ◇

By 2040, the construction of orbital colonies had become unremarkable. The engineering challenges were met squarely by high technology, including supercomputers, autofacs, robots and even nanotechnology. One engineer compared the task to building roads on Earth; material went in one end, and a new road (or colony cylinder) came out the other. The tricky part was in ensuring that material was available in a timely fashion.

Due to the need to keep production high, stations produced since the Fall are largely "cookie-cutter," identical in all important areas. This has allowed continuous station production. Stations are always in the process of being built, with at least three to five coming on-line every year.

◇ ORBITAL CONSTRUCTION (CONT.)

The process was largely automated, and still is, though the degree of automation has gone down as employment pressures increased, and the watchful eye of SolaPol's Edicts Enforcement Bureau tightened controls on the highly capable robots used in the process. The average team of 500 people and 5000 robots can still complete a colony construction job in less than three years, however.

◇ NANOTECHNOLOGY

Though largely banned now, nanotech was instrumental in the construction of the first orbital colonies, but moreover it was essential in the construction of the materials used to make the colonies. Nanotechnology was responsible for weaving titanium thread through the mooncrete layers to provide greater strength, and for knitting together the framework of aluminum and titanium supports for the stations. Nanotech also allowed far fewer people to be involved in the construction process, and even then those individuals served largely as supervisors.

Initially, the Orbitals refused to sign the Edicts, citing the impossibility of habitat construction without them. The New Paris incident of 2187 convinced them, however, when a rogue nanotech "black goo" ate the industrial spine of the station and was only contained through intensive particle beam bombardment by a flight of CEGA Bricriu-class corvettes. The Orbitals signed the Edicts within a week of the New Paris disaster, restricting nanotechnology to basic undifferentiated material assembly and molecular welding.

▼ THE FALL

The Fall came as a great psychological shock to the Orbital colonists. More than any other colony, aside perhaps from the Moon, they depended on Earth, both physically and emotionally. The Orbital colonies had the primary purpose of supporting Earth, with energy, electronics, consumer goods, pharmaceuticals, whatever could be made cheaper, or caused less environmental damage. Even the stated goal of helping Earth export some of its surplus population was still an action in support of Earth. The Orbitals were never intended to function independently. In the late 2070's though, some far-sighted corporations moved their headquarters into orbit, anticipating the problems that were already starting to be felt on Earth. These corporations were few, however.

The event that prevented complete anarchy in the Orbitals was the relocation of the Terran Provisional Government to Pyrea Station. These men and women brought with them extensive knowledge of governance, laws and procedures. They also possessed the mantle of authority that allowed them to get things organized. The psychological effects of the Fall wouldn't become apparent for many years, and never became as severe as the ones suffered by the Selenites. Unlike the Moon, the Orbitals were intended as permanent habitations, and the people of them were immigrants, not temporary workers. The sense of loss wasn't as profound, then, and came as more of a sense of abandonment. Earth had gone away, and left the Orbitals alone. In the early years, this translated into a sense of bitterness directed at Earth and her peoples, which made the task of resettling refugees just that much harder.

◇ THE DEATH OF ELLIS STATION

The loss of communication with home offices and governments caused immediate problems. The orbital citizens, being used to instant access to information, found out about the communications losses almost as soon as they occurred, and over the succeeding few weeks, each new loss fed the growing sense of panic. Finally, on August 6, 2191, a riot started on the streets of Ellis Station, where the last American consulate was closing its doors, the ambassador having lost all contact with his superiors. This last bit of news closed the door on Earth, and many people just could not handle it. Within hours, the cylinder was choking on smoke as fires raged out of control, emergency services as paralyzed by the events as the rioters were enraged. The life-support systems, overloaded, began to fail. Within a day, people were starting to die from the lack of fresh air; the fire had spread to the fields surrounding the urban areas, consuming the genetically-engineered plants that scrubbed the air and renewed the oxygen.

Outsiders were powerless to help the station, with their own populations in danger of rioting, and without the resources to intervene. The Terran Provisional Government sent aid, though its resources were limited. They were able to save over five thousand people, but another 22,000 perished in the fire. The station was sealed off, a floating tomb for its people. The horrible images of the fire were warning enough to the people in the stations that they had to pull together and find new answers.

THE LOSS OF THE SANCTUARIES ▽

Along with the several hundred colonies, three Sanctuaries had been created in the years before the Fall. Two were located in Earth orbit, while the other went to the Vanguard Mountain colonies. These stations were a combination of zoos and gene-banks, funded largely by the National Geographic Society and other philanthropic organizations.

The two Earth-orbital Sanctuaries were victims of the Fall, however, overwhelmed by desperate refugees. The Vanguard Mountain facility managed to survive, largely by virtue of its distance from Earth. It is now a sore point between Earth and the Jovian government; CEGA wants access to the Sanctuary for its rebuilding efforts. The Jovian government is hesitant to allow CEGA access, prompting some CEGA delegates to the USN to call for a SolaPol investigation. They are apparently concerned that the Confederation may be conducting illegal research at the station, and possibly jeopardizing the animals and genebanks on the station. So far these requests have gone unfulfilled, but CEGA is becoming increasingly anxious to get access to the station. It is even possible that they may attempt some covert activity to recover the information they need.

RECONSTRUCTION AND RECONTACT ▼

After the first few years of the Fall, the Orbital colonies were able to adjust to the loss of Earth, largely thanks to the resources of the Lunar colonies. Water was still scarce, and would remain so until decades after recontact with the asteroids. However, they were able to provide for the huge increase in their populations by restructuring their manufacturing capability. More resources were placed into the agricultural sector, and there were many stations, mostly large torii, designed solely as agricultural facilities. The production of consumer goods beyond the bare necessities ceased, and those resources were put into food production and colony living space. The huge influx of refugees put a great deal of strain on the Orbitals' resources. Although no one was turned away, each new arrival carried with it increased resentment at the deprivations being forced on the Orbital citizens.

In the wake of the Fall, only the few corporations which had fled Earth early enough had the resources and the capability to exercise power. Along with the Provisional government, they maintained order in the colonies until 2102, when the democratically elected governments of the individual stations gathered together at Takoda Station to draft a new form of government for the Orbitals. The Provisional government wholeheartedly supported the idea, while the corporations were understandably lukewarm to the idea. It would mean a loss of power for them, but they didn't want to appear to be despots, so they acquiesced to the Conventions of Representation, which established the groundwork for the People's Representative Council.

The Orbitals had survived, but only just barely. Life was still very precarious, and the Orbital population still threatened to overwhelm the available resources. In the late 2120s, the PRC was contacted by the Mercurian Merchants Guild, which up until that time had been unknown. By this time, all contact aside from the other Orbitals and the Moon had been lost, as each Solar Nation expended its energy on survival. The Guild offered to restart trade between the colonies, with itself as the go-between.

The Orbitals leapt at the opportunity to gain access to more resources. They had little to offer at first, due to the restructuring of their economy to accommodate the refugees and the shortages of the Fall. Knowledge was the most important commodity that had to offer. Eventually, however, with the influx of new resources from the asteroids and Jupiter, the Orbitals' manufacturing capability could once again be used for consumer and industrial goods and materials.

THE SYSINSTRUUM ◇

In addition to the efforts of the Guild, the SysInstruum served as an agent to bring the other colonies into closer contact with the Orbitals, and the Moon. Based off the research network maintained by Lunar researchers and their counterparts in other colonies, the SysInstruum later developed into a broadband computer network capable of serving all of the Solar System. While each colony cylinder and city had its own internal network, their outside contacts were minimal. The SysInstruum changed this by allowing these local networks to connect to other networks across the system. People were no longer isolated as they had been after the Fall.

In 2165, the Lunar University Consortium somewhat sheepishly admitted to the existence of the network, and offered the Lunar Cooperative and the Orbital's PRC access to it. The two governments made the network accessible to their citizens as well, and the usage spread. The other Solar nations soon learned of the network, and petitioned (or forced) their universities to give them access. Earth was the last nation to get access to the network, and most people on Earth aren't even aware of its existence, let alone have access.



▼ THE RISE OF CEGA

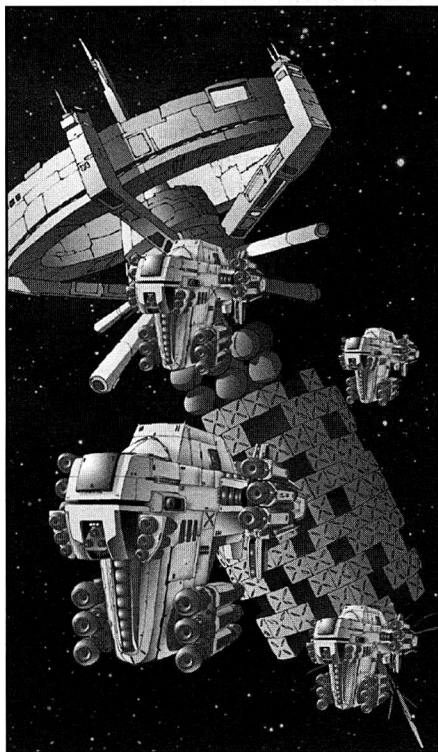
CEGA was hastily formed just prior to recontact with the rest of the Solar System, and it took some time for it to reach a final shape. The current status of the organization is at odds with the original image projected by CEGA representatives to the Orbitals, and the Orbital leaders are having trouble reconciling it. At the same time, there is the recognition that Orbital colonies are hideously vulnerable, a fact made only too obvious by the attack on Elysee in 2211.

CEGA representatives established contact with the PRC in late 2184. Initially wary, having observed the results of the Unification War over the last few decades, the PRC nonetheless convened a special session to listen to what the diplomats from Earth had to say. Privately, however, most of the PRC delegates were overjoyed at contact from the Mother planet.

CEGA's offer of alliance was rather aggressive, however, considering CEGA's relative weakness, and the militant stance of some the CEGA diplomats made the PRC nervous. The Orbitals had enjoyed democratic traditions since the Fall, and had no desire to backslide. Over the next several months, a treaty, the Articles of Reunion, was eventually hammered out. The Orbitals got to join CEGA as member nations, and retain their democracy and enjoy internal self-government. In return, CEGA received an instant space fleet in the form of the fifty or so Bricriu-class corvettes owned by the PRC, as well as preferential access to the Orbitals' manufacturing capability. The latter was especially important, as CEGA needed to re-industrialize, but they needed to do so without causing further ecological damage to Earth.

In the years since, the relationship has undergone some changes, but the Orbitals still enjoy preferential treatment from the Earth governments. CEGA, while increasingly militant, needs the Orbitals' industrial capability, and is unwilling to jeopardize it. With the events of the Odyssey, however, the view in the Orbitals is starting to shift. CEGA is no longer seen as basically benign, and the reality of the vulnerability of their homes was made clear by the attack on Elysee. Some in the Orbitals are starting to seriously question their relationship with Earth.

◇ CONTACT WITH THE NON-ALIGNED STATES



Though contact with any of the Non-Aligned States is forbidden by CEGA law, many of the Orbitals have been in contact with select NAS states since the formation of the CEGA, or even longer. CEGA officials tend to turn a blind eye to these activities, as long as sensitive material or data isn't involved. Officials fear that a crackdown would generate too much civil unrest, given the current state of CEGA-Orbital relations. CEGA keeps a close watch on all NAS contacts, aware that some elude them, but take no further action for now.

The L-5 colony of New Jerusalem, in particular, has been in contact with Israel since the mid-2100s, though neither side could arrange face-to-face meetings until after the return of CEGA to space. Even then, however, contact had to be surreptitious, as not only would CEGA not approve, but the refusal of Israel to sign the Edicts meant that even SolaPol would keep a close watch on any contact.

Other stations had similar reasons for underground contact with NAS states, mainly ethnic and cultural. These Orbitals either sought to offer aid, or, in some cases, to ask for it. New Canton, at L3, for instance, desperately wanted recontact with China, in order to get women and girls sent up. This was a direct result of the Orbitals' restrictive breeding regulations, and the wide, though clandestine, availability of gender-selection technology. The cultural demand for sons, even now, meant that New Canton found itself facing a dire shortage of women by 2180.

ORBITAL COLONIES ◀

The shells of the Orbital complexes are all that stand between the comfortable life of the inhabitants and the vacuum of space. There are several types of Orbital colonies, ranging from the smaller torus designs up to the staggering immensity of the largest O'Neill and Vivarium stations, with the composite Bernal Spheres considerably smaller. The notes in this section also apply to colonies in the Jovian Confederation and other Solar nations.

The process of constructing an orbital colony is largely automated, with humans being primarily in supervisory positions. Material comes up from the Moon, mostly mooncrete and refined aluminum and titanium stock. Vast nets at L4, L5 and in geosynchronous orbit catch the material and feed it to the autofacs, which turn out structural members and large sheets of mooncrete. Mooncrete on its own doesn't have much structural strength, but in zero-gravity, it doesn't need it. Layers of mooncrete are sandwiched with titanium steel structural members to form the outer hull of the station, typically about two meters thick. These huge sections of hull are maneuvered into place by armies of drones and construction exo-armors. Once the hull plates are in place, another army of drones goes through and uses molecular welding techniques to join the sections. Before the formation of CEGA, this was done with nanotechnology, but since the signing of the Edicts this type of construction machinery has been banned.

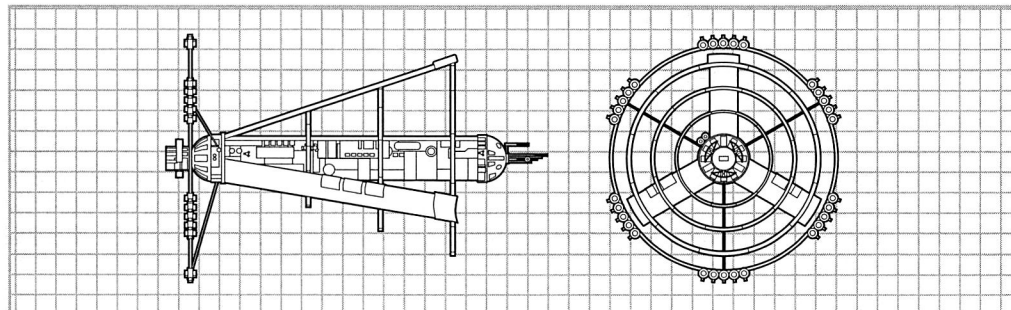
All the necessary infrastructure then goes in on the inside of the hull, in tunnels and large-diameter pipes, all made out of extruded mooncrete and titanium steel. This is covered with a layer of Lunar regolith, at a depth of ten meters, to provide soil and a radiation shield. Buildings will eventually go on top of this layer, to a depth of no more than four meters.

The windows, vast geodesic plains of lunar quartz, go in last. Each individual pane is a block five meters long and wide, and three meters thick. The windows are the most difficult part of the assembly, because the same molecular-welding techniques used for the hull cannot be used between the individual panes of glass and the framework holding them.

After the windows are mounted, the mirrors are extruded and attached. The extruder is a mobile, autonomous factory that takes Lunar aluminum in one end and rolls out light-weight mirrors on the other end. Attaching the mirrors is tricky, as the fragile structures must spin at the same rate as the station. In the smaller habitats this isn't much of a problem, but in the largest of the Island Three designs, the outer ends of the mirrors have to sustain stresses of three or more gees on a continual basis. Though almost impossible to see in most images of the stations, the mirrors are actually tethered to the station by long-chain carbon macro-molecules, precursors of the materials used in skyhooks and the now destroyed Martian elevator.

It takes about eight months to complete the basic exterior construction. The last step before spinning the colony is to create the atmosphere. Oxygen extracted from lunar rocks is injected into the station, along with nitrogen and other gases, either recovered from the moon or, more commonly now, extracted from certain C-type asteroids. This process can take several weeks, during which construction continues, both inside and out.

The last step is to spin the station up, which is accomplished with rockets or tugs attached to the outer hull. This is done very slowly, and the structure carefully monitored for stress. During this time, no real construction can be accomplished, and the crews and robots move on to start work on another station. The spinning up process can take a few months, as the internal gyroscopes must be brought up to speed at the same time and at the same rate. With this initial construction complete, next comes the work of creating a livable world inside the station, a process that can take another year or two.





► LIFE IN ORBIT

Living on an O'Neill Island is not particularly like living on Earth or any other planet. Life within the immense colony cylinders has many unique characteristics derived from the design and the conditions on the stations. Space is at a premium, and so reproduction is tightly controlled. Every person is allowed to have one child. After that child has survived past their first year, the parent must submit to voluntary (but usually reversible) sterilization.

The basic unit of organization is still the family, but the structure tends to be looser. Orbital citizens enjoy great freedom of movement, and the state ensures that all children are provided for, so the social and economic inducements to remain in unsuccessful relationships are not present. Few children end up spending their childhood with both parents, and instead are paired up with one or the other if a relationship fails.

Hard work is expected of all citizens, though not to the same extreme as the Moon or Venus. Freedom of thought is a highly-held ideal, and many underground newspapers thrive.

◇ SAMIZDAT

These unofficial newspapers are the voice of the Orbitals, able to express thoughts or opinions in an anonymous manner, much to the annoyance of CEGA authorities. They are reluctant to attempt a crackdown, however, due to the Orbital Council's acceptance, and even support, of these underground papers. That may change, though, as articles increasingly critical of CEGA are turning up more and more in the samizdat. Distributed on polyfilm from streetcorner vending machines, these papers are usually free, in exchange for the recycling of an old issue on which the vending machine prints a new one. All writers are anonymous, with articles going to unlisted SysInstruum accounts.

▼ GRAVITY

The artificial gravity produced by an Island's rotation feels quite similar to gravity on a planet, but there are subtle differences. Liquids don't pour quite the same way, a thrown object acts differently depending on which way it is thrown, and there are special concerns for aircraft.

One of the most important things to remember about gravity on a space station is that it is not really gravity, but centrifugal force. One does not experience the effects of gravity unless there is something solid underneath, or when one steps off a solid object. If a person starts from the spin axis, and gives a push toward the outer wall, he will eventually hit the wall, but be essentially in free-fall the whole time. The wall, unfortunately, has a rotational velocity anywhere from 500-1000 kilometers per hour, so the effects are as bad as a fall in gravity. The winds do act to counteract this somewhat, accelerating anything that is falling through the colony, but this is usually not enough to help objects that "fall" to the "ground." Only microlight aircraft and parasails can really take advantage of the acceleration imparted by wind effects; portable, pocket-sized parasails are standard equipment, however, among pilots and people who work or live near the colony spine.

Aircraft designed for use in a colony cylinder are very different from aircraft used on a planet, or even in a toroidal station. They have to be capable of producing thrust in any direction for free-fall operations, but also sufficiently streamlined to be able to travel at 1000 km/h through an atmosphere. Large aircraft are not very common in colony cylinders, as the conditions favor smaller, more maneuverable aircraft.

The Coriolis effect is another gravity-related issue to watch out for on a colony of any size. Liquids always pour in the direction of the station's spin, so one has to take note of the direction one is facing before pouring any liquids. The higher the rate of spin, the worse this problem gets.

▣ RULES: SPIN GRAVITY AND PROJECTILES.

The rotation effects of the colony tend to affect unwary people's activities in the worst way. Any planet-dweller gets a -2 to all tasks involving throwing any object aboard a spinning station (and usually find that they are incapable of pouring liquids without several weeks of practice). Anyone who grew up on a colony, including Jovians, only suffer a -1 for long and extreme range throws (Coriolis effects are harder to judge over long distances). As well, there is a -1 penalty for all users at extreme range with any chemically-propelled firearm (not gauss or laser weapons), due to Coriolis deviation effects on the projectile.

WEATHER ▼

2.E.E

There is always a breeze in a colony cylinder. The air never rotates at quite the same rate as the station, giving a constant, though somewhat erratic, breeze at street level. Higher up, toward the spin axis, the wind gets even more complex, with the air flowing in a complex helical spiral, induced through the station's spin and the rising warm air from the surface. This complex air flow is difficult to map, and can be quite challenging for any aircraft, including the popular ultra-lights and ornithriders used for recreation. There can also be some violent shear effects, in particular later in the afternoon as hot air is rising to the spin axis. The hours from 2 PM to 5 PM are thus usually off-limits for ultra-light flight.

Along with wind comes rain, usually 2-4 times per day, on a regular cycle. As moist, warm air rises, it meets the cooler air of the axis; the mass eventually reaches a saturation point, and it rains. This can be predicted quite accurately based on humidity levels within the cylinder, subject to a small amount of chaotic unpredictability.

Weather within a cylinder is usually set to be similar to the home country of the corporation or nation that built the colony to begin with, though usually more pleasant. Weather can be set, and controlled, fairly precisely, though there is a chaotic, unpredictable element to weather, even in a closed system like a colony; after all, it is a very *large* closed system. The majority of stations set their climate to be comfortable shirt-sleeve environments, though the definition of "shirt-sleeve" gets a little vague across cultural boundaries. Londinium, built by the British government back when there was a British government, is somewhat cooler and wetter than Big Sur, originally built as a tourist destination prior to the Fall.

WEATHER TOURISTS ▣

The difference in climate between stations, and the ease of travel, have led to a new kind of tourist, one who travels from station to station to experience the weather. From the cool temperate conditions of High Seattle to the torrential rains of Pacifica, the orbital stations run the gamut of weather types. In the course of a single day, one could conceivably visit six or more climates, all within one settlement cluster.

LIVING SPACE ▼

3.E.E

The O'Neill Islands were originally designed to have much smaller populations than they currently hold. The initial plans had called for three urban complexes, surrounded by open space and agriculture. The demands of the refugees fleeing Earth saw continual erosion of the open space, with agriculture moving out to the expanding array of zero-gee farms surrounding the stations. As the populations grew, the amount of living space grew smaller. The basic allotment for an individual in an Orbital is a one-room apartment with shared eating and sanitary facilities, usually with 10-20 apartments sharing one set of facilities.

Marriage and cohabitation merit a somewhat larger apartment, but the real bonus is the addition of private eating and sanitary facilities to the apartment. Should a couple separate, the living space is reduced unless there are children, whereupon the parent with the child can keep the larger apartment.

Recreation space is likewise at a premium, and so great use is made of virtual reality simulators to provide simulated environments. The exercise done in these virtual worlds is real enough, however. Aside from these virtual gyms, there are a few sports complexes, including swimming pools, tracks, and the occasional sports stadium, though there is rarely more than one stadium per cylinder.

TORUS HABITATS ▼

1.E.E

The torus-type colony is the smallest of the colony types, though considerably larger than a typical space station like a Valhalla or Yggdrasil-class design. Similar in form to the classic Ironwheel stations, the torus design is a doughnut-shaped ring surrounding a central hub. The ring is usually one or two kilometers in diameter and has a circular cross-section. The outer surface of the ring is lined with mooncrete for radiation protection, while the inner surface is transparent, though lined with heavy shutters.

Surrounding the inner hub are a set of angled mirrors to direct sunlight into the torus, which reflect sunlight directed from a large, non-rotating mirror which floats above the station. This mirror can be moved to track the sun, always reflecting light to the station. In this way, the torus habitats don't face the gyroscope problem experienced by the larger Island habitats.

▼ 3.3.4 TORUS HABITATS (CONT.)

The torus is divided into six sections, three residential/commercial and three agricultural. Agriculture is intensive, using hydroponics and around-the-clock sunlight to produce the most food from a limited area. The hub is a docking and manufacturing facility, typically joined to a larger zero-gravity factory or laboratory which is the main industry for the colony. In addition, the hub has the solar cells and radiators for the station. The industrial or lab facility generates its own power.

▼ O'NEILL ISLANDS

The classic O'Neill Island is a large cylinder capped by a half-sphere at each end, with three large mirrored panels reflecting sunlight into windows that stretch the entire length of the cylinder. This design is the most popular in Earth orbit, and the one that comes most readily to mind when discussing space settlements.

Both end cap docking areas counter-rotate against the station's spin, and appear to be stationary to an outside observer. The port on the end of the cylinder where the mirrors attach is typically an industrial port, servicing large bulk spacecraft and military vessels. The other spaceport is dedicated to human traffic and light consumer materials. This end often has a large solar power array or a rectenna for an independent SPS array. CEGA policy prefers the latter design, and has been encouraging its use through subsidies to stations that switch over. This gives military forces the option of cutting the majority of a colony's power in the event of civil disturbance or rebellion.

Originally designed to have large open areas surrounding dense urban zones, the pressures of the Fall forced a major revision. Now, the colony cylinders have large, dense urban zones surrounding small, open parks and recreation areas. Space is at such a premium that the buildings grew taller than the original designers had allowed for, introducing unmapped variables into the weather and wind patterns.

Colony cylinders use a variety of means to counter what is known as the Gyroscope Problem: a station, once it is spinning, will stay pointed in the same direction in space, making directional changes and positional alterations very difficult. Early stations solved this by being built as coupled pairs, with 80-kilometer cables joining them, and each rotating in the opposite direction from the other. Newer stations solve the problem with a pair of internal, high-density flywheels which cancel out the gyroscopic effect.

◇ COLONY CYLINDER (ISLAND 2)

This design is an intermediate step between the Bernal Sphere and the full-sized cylinders. The typical design is a domed cylinder two kilometers in diameter and ten kilometers long, with an approximate population of 800,000. This type is most commonly found as a Vivarium (closed) cylinder. Not many of this type were constructed, only around forty or so, as the trend proceeded rapidly toward the massive Island 3 designs. The closed cylinder does have the advantage of a larger interior surface area than an open cylinder of the same size, but it must have provisions for artificial lighting.

Most examples of this type of colony tend to be industrial stations in a closed configuration, with a stationary spine extended over and around the station to provide a zero-gravity business park. In appearance these stations resemble a paper-towel dispenser, with the station being the roll of paper towels, and the spine and endcaps being the holder. The endcaps are docking bays and warehouses, while the spine has manufacturing facilities, labs and additional warehousing.

◇ O'NEILL ISLAND (ISLAND 3)

The O'Neill "Island Three" habitat is an enormous cylinder with domed end caps, thirty to forty kilometers long and six to eight kilometers in diameter, with a habitable surface area of 300-400 square kilometers supporting a population of up to 20 million people (in extreme cases). An Island Three design is divided lengthwise into six alternating "ground" and "sky" panels, so only half of the inner surface is available for habitation. The sky panels are huge windows through which light is reflected off the three mirrors spinning along with the station.

Because the end caps of the cylinders are domed, each of the ground panels has what appears to be a 3-4 kilometer high "mountain" at either end, where the end caps ascend towards the spin axis. The end caps contain a mixture of industrial sectors to support the spaceport and recreation areas for the inhabitants. Mountain-climbing, parasailing and even skiing in more temperate cylinders are all common activities.

▼ O'NEILL ISLAND (ISLAND 3)

Three maglev tracks spiral down the slopes of each end cap, providing access to the spin axis and the spaceports at each end of the cylinder. On reaching the plains of the cylinder, the maglev tracks go underground, with stops every 500 meters along the length of the station. Service runs all day, on a 15-minute schedule. Surface connector buses, electrically powered, service the rest of the station. Individually owned vehicles are very rare, with most belonging to emergency services.

VIVARIUM STATIONS ◇

A Vivarium station lacks the large windows of the classic O'Neill Island, and provides light through a sunline, a system of light guides that channel sunlight into the station's interior. For a given size, a Vivarium has twice the habitable interior area as an Island Three. The hull is stronger as well, as the windows on an O'Neill are the weakest part of the station. Vivarium stations are most appropriate for hazardous environments, like Earth's Trojans, or high-radiation environments, like Earth's geosynchronous orbit or in the vicinity of Jupiter.

BERNAL SPHERES ▼

The Bernal sphere is a fairly common type of habitat at the L2 and L3 points, but less so at the more stable L4 and L5 points. These relatively small habitats were a precursor to the huge Islands that were to follow. The Bernal Sphere is a composite design, smaller than the Islands, but still immense. The main part of these colonies is a large sphere, up to four kilometers across. A band of mirrors around the "equator" reflects sunlight into the interior of the sphere. Extending out along the spin axis from the sphere are a number of torii, primarily for agricultural production.

These habitats consist of a 500-1000 meter diameter sphere, with agricultural torii positioned along the spin axis to either side of the sphere. In order to provide a full 1 G of gravity at the equator of the sphere, the smaller spheres must rotate at 2 RPM. Over time, the physiological effects of the high rate of spin have led to many of these stations being abandoned, or having their spin slowed to 1 RPM (with the population accepting the consequent reduction in gravity to 0.5 G).

Inside the sphere, the land seems to slope up towards the spin axis, so the equator seems to lie at the foot of two large hills. The habitable area of a Bernal Sphere is about 1 1/4 square kilometers, sufficient to support a population of 10,000-20,000. Later versions of the Bernal Sphere were much larger, but the design never proved to be as popular as the Island 3 design.

THE FREE SPACE EXPERIMENT ▣

In 2079, a group called "Free Space" arranged the purchase of a Bernal sphere at the L3 point and renamed it after themselves. Dedicated to the idea of zero-gravity living, they stopped the sphere's rotation, and, using advanced medical techniques to keep themselves healthy, they started living in a free-fall environment. Despite the medical treatments, they found themselves unable to cope with planetary gravity, finding even the Moon's light touch of 0.167 G to be almost too much. Over time, this community has steadily decreased in size, from its peak of 12,000 (shortly after the founding of the colony) to the current population of 2200.

ORBITAL FARMS ▼

Rings of agricultural stations surround the large O'Neill Islands. Each is about 500 meters in diameter, and spins at 2 RPM to provide gravity on the inner surface. An average Island will have up to two hundred of these stations, all arranged in counter-rotating pairs along the ring. These provide the cereals, fruits and vegetables consumed by the orbital population, supplemented with bulk protein grown in the recycling vats.

The 2 RPM spin rate can cause inner ear problems if a person stays too long, so these agricultural stations have no permanent inhabitants. Most of the agriculture is carried out in high-yield, high-efficiency hydroponic gardens, carefully tended by the farm workers and their attendant hordes of agricultural robots.

Some of the stations are used for specialty agriculture, using real dirt instead of hydroponics. Some crops, like grapes for wine, just don't seem to taste right from hydroponically-grown plants. Other foods are grown in the dirt farms simply to add a luxury value to them: dirt-grown carrots sell for roughly five times what hydroponic carrots go for. There is some animal husbandry in these stations, mostly small animals up to the size of goats and sheep. While the smaller animals, such as rabbits and guinea pigs, are used for meat consumption, the larger animals are used for their wool and milk.

9.E.E

2.E.E

▼ LOCATION OF COLONIES

While life in orbit could be considered exciting or exotic to an outsider, it is simply a day-to-day reality of existence for billions of human beings who live, work and play outside the confines of a naturally occurring atmosphere. Training in use of space suits, maintenance pods and emergency evacuation procedures is accepted as normal societal procedure as are many other facets of life in orbit that are in turn looked upon with a sense of awe by Earth-bound folk. But life in orbit is far more than a matter of survival. The vast majority of Earth's collective manufacturing and other industrial bases is in orbit, and entire colonies dedicated to individual pursuits for tourism, arts and sciences are all part of the vast and collective draw and power of the Orbital nation.

The orbital "zones" described below represent actual locations for the various colonies, both habitable and otherwise, that can be found near Earth and its surrounding orbits.

◇ LOW-EARTH ORBIT

Low Earth Orbit (LEO) was the first earth orbital zone to be fully utilized in the early days of space exploration and colonization. The sheer crowding of satellites, other spacecraft, space junk and debris still to this day creates a vast series of hazards making even the most routine and regular trips a dangerous affair. A clean-up of this space in the mid-21st century helped to address these difficulties, but it has proved an ongoing task to maintain a safe and navigable travel environment here and in the related Earth geo-synchronous orbits.

In the 23rd century, transfer stations, work-satellites, and orbital factories are the primary occupants of low earth orbit. The area also functions as the mid-point for the skyhook stations which function to hoist cargo and assist with vehicles leaving Earth's gravity well.

As a result this is an area of space that is both highly regulated and monitored with much of low earth orbit officially designated as "dangerous for habitation." The construction of colony cylinders in LEO is strictly prohibited by USN and CEGA law.

◇ GEOSYNCHRONOUS ORBIT

Geosynchronous orbits, also known as Clarke orbits, are stable orbits above fixed points on the surface of the Earth. Historically the earliest satellites in such orbits were used for telecommunications and other commercial purposes. However, it was only a matter of time until colonies became built in fixed positions above their respective places of national origin. All stations built in geosynchronous orbit have as necessity the capability to sustain long term attitude and altitude adjustment, as the intricacies of maintaining a stable position in orbit require propellant for both casual use and emergencies. Colony cylinders built in this orbit are intended for use as support habitats for those who work nearby and in low earth orbit; although geosynchronous orbit is habitable, most colonies are closed or armored for protection against radiation and space debris.

The major focus of geosynchronous-orbit construction continues to be communications. All the nations of Earth and CEGA maintain a comprehensive array of satellite networks in orbit, built for such endeavors as mass communications, military and scientific purposes. Space traffic control has a series of standardized procedures for all spacecraft entering and leaving any form of this area, although normally the sheer volume of satellites in orbit complicates transportation through this area of space.

◇ LAGRANGE POINTS

Lagrange points are defined as points of gravitational stability in a two-body system. In the case of the Earth, these points are created as a result of the physical relationship between the Earth and the Moon.

The sheer volume of successful habitable colonies, particularly at Lagrange points, is testament to the legacy of the Space Island Project of the early 21st century. A multi-national effort with contributions from the United States, Europe and Russia created a series of colonies beginning with Island One at Earth's L5 point.

The majority of the Orbital colonies are built at the Lagrange points, with the majority of these colonies in turn located at L-4 and L-5, the most stable of these locations. Furthermore there are historical, physical, cultural and ethnic traditions that create further sub-divisions of the L-points, known as clusters. A colony cluster will usually share the same consortium of contractors that helped construct the entire cluster originally, or share a common national founding ancestor nation, organization or religious group.

◇ LAGRANGE POINTS (CONT.)

Examples of such clusters include L4 Cluster 26 "Almaz" for Russian colonists, L5 Cluster 7 "Fortuitous Heaven" from Southern China, L5 Cluster 48 "Liberty Retreat" for mainly US refugees from the Fall and L4 Cluster "Nine Mile" for Central American and Caribbean colonists. There is a further peculiarity worth mentioning regarding the L4 Cluster 4 colony "Stanley Views," nicknamed by many colonists of Chinese descent as the "cluster of double cursed death," Feng Shui and Taoist beliefs in particular put credence in the inherent unluckiness of certain numbers with the number four the unluckiest (sounding like the word for "death" in Cantonese and Mandarin). A doubling of this combination has resulted in many of the more superstitious Orbital citizens avoiding the colony cluster altogether, to a point where travelers will avoid using certain space services that make any contact with the cluster.

TROJAN POINTS ◇

The Trojan points are essentially Lagrange points on a much larger scale, using the Earth and Sun instead of the Moon and Earth as their points of locus. Much as the relationship between the Earth and the Moon, the most stable Lagrange points on a Solar scale are located at the L4 and L5 points. It is these points in particular that are referred to as Trojan points, places of relative stable orbit in relation to both the Earth and the Sun. All the planets in the Solar System have Trojan points; the most famous being those of Jupiter, where the states of Newhome and Vanguard Mountain are located.

Earth's Trojan points are, in the early 23rd century, only lightly settled, with a scarcity of resources a major contributing factor to their relative emptiness. Although materials are available for mining from local asteroids, these points are also unpopular due to the distance from the mother planet and other Orbitals.

This sparseness of Trojan colonies has sparked a renewed interest in the area from the CEGA Navy. An area of the 4th Trojan point is whispered of in Navy command circles as "Space Area Seven," a secret area of space specifically used to test experimental military technologies. CEGA Command reserves only the most top secret of projects for testing in this area; it is rumored that some of the next generation of CEGA exo-armors, space vessels and even more exotic military technologies are tested here away from prying eyes. Access to this area of space is extremely difficult; CEGA has had this area marked as a restricted zone with both the USN SpaceNav and the International Space Traffic Control Office and its privacy is rigorously enforced.

There has also been interest in the Trojans from existing private orbital citizens and organizations seeking to control and govern the fate of these future areas of colonial expansion. A powerful commercial combine known as the *Harmon Foundation*, led by former CEGA officer and orbital businessman Sergei Lo, has taken a recent interest in the 5th Trojan point as a future site for colonial expansion and development.

SPACE TRAFFIC CONTROL ◇

By the early 21st century the legacy of the space race had created need for a centralized form of space traffic control. A proposal backed by China, the United States and France was brought to a meeting of the UN General Assembly and on February 11th, 2022 the formation of the International Space Traffic Control Office was announced. The role of the ISTCO was to consolidate and oversee the process of coordinating all spaceborne vehicles. National databases including all satellites and other known space objects were incorporated into the ISTCO system, creating the world's most comprehensive space traffic control network and administration. The system was at first composed of five control centers, one for each STC Orbital zone (see the diagram in the **Spacer's Guide**, page 34).

ISTCO jurisdiction begins at the 100-kilometer mark from the Earth's surface, extending its initial area of control between five major areas of control as determined by their location over America, Europe, Asia, the Pacific and the Atlantic. With the later establishment of colonial interests on the Moon and the five major Lagrange points, the system was extended to include coverage of all of the surrounding space in between those areas.

The ISTCO is currently run as a public-based organization with income coming from contributions made by member governments and tariffs and excise incurred through use of ISTCO services. The ISTCO operates in turn as a registered member and affiliate with USN Space Navigation Authority, with the ISTCO as the largest local control zone in the Solar System.

L-3-E

▼ PYREA STATION

Pyrea Station is one of the largest stations in Orbit, part of one of the clusters at the L-3 point. It is the headquarters for the United Solar Nations, along with other international organizations such as the Solar Cross and the Inter-settlement Geographic Society. This massive station is over 60 kilometers long, and nearly six km in diameter, and sports a population of over 10 million people.

The United Solar Nations has its headquarters here, along with SolaPol and the Inter-settlement Geographic Society. All the Solar nations maintain embassies here, with the Jovian Embassy being the most opulent. Pyrea Station is the meeting place of the Solar System, and is the most popular destination for visitors to the Earth-Moon system, outside of Earth itself. There is also an element of mystery to the station, an undertone of cloak-and-dagger, likely inspired by the heavy diplomatic presence on the station.

Despite its huge population, Pyrea seems clean and open. Portions of the three window panels are flooded with water, giving extensive recreation access while not taking up any habitable surface area. These large bands of water, more than almost any other station, also give Pyrea some of the most extreme weather of any station, a point of pride to most of the inhabitants, though a source of constant irritation to the staff of the various embassies and missions scattered throughout Pyrea's immense interior.

Between each of these window panels is an extensive built-up urban region, each having a population of over 3 million. Soaring towers, up to 800 meters tall, house most of these people, with more space than is typical for an Orbital habitat. Lower-density housing for the remaining residents is spread throughout the rest of the station, along with the businesses and support services needed for this city.

▣ VITAL STATISTICS

Name:	Pyrea Station
Affiliation:	Independent, USN Treaty Protectorate
Location:	Cluster 17, L-3 Point
Population:	10 million
Principal Economic Resources:	Diplomacy, consumer goods

◇ LANDMARKS

Along with the embassies, the USN General Assembly, and the other organizations making Pyrea home, this station is also known for something else: shopping. The largest shopping mall in the Solar System, the Grand Orbital Mall, is located here, along with entire avenues dedicated to specialty merchandise and manufacturing. If there is something you want, and it's legal, you can find it on Pyrea. Everything from a store that sells Lionfish lightsail yachts to an entire street lined with shops that sell nothing but carved Martian sandstone, Pyrea has it all.

The USN General Assembly meets in the tallest building on the station, a black cylinder just over 880 meters tall, located in the center of land panel 3. Here the delegates and their staff meet to decide the fate of the Solar System. A pair of USN Guards stands silent watch at the entrance, both in exo-armors painted in the blue of the Guards (the exact model varies, but exos from a variety of nations are used). Just down the block from the Assembly Building is a low, squat structure, the Hammerskold Building, which houses the Solar Police Headquarters. Originally faced in plain gray mooncrete, it recently received a facelift of red Martian sandstone. A patch remains bare above the entrance, though, and represents where the last shipment of rock would have gone, had it not been on the Martian Elevator when it crashed.

▣ ADVENTURE SEED: SHOPPING TRIP

Opportunities for diplomatic adventures and espionage abound on Pyrea Station, from tailing USN delegates to arranging defections. In addition to that, though, there is the ability to spend as much money as you want, and buy whatever you want. Player Characters could be part of a bodyguard detail assigned to watch the spoiled young daughter of a CEGA diplomat as she arrives on the station for a week of shopping and club-hopping. Along the way, extremists from one of the Non-Aligned States try to grab her. Whatever happens, the PCs job is to make sure it all stays quiet and that she stay out of harms reach.

TAKODA STATION ▼

Takoda is the location of the Parliament of the People’s Representative Council, and is also the largest of the Bernal-sphere-type habitats. One of the older stations, Takoda was built for the Nihon Industrial Partnership in 2047. The 1500-meter diameter sphere of the habitat makes it the largest of the Bernal spheres in cislunar space. Being so large, it can be spun at a reasonable rate of 1 1/3 RPM, although even this can cause physiological effects over long periods of time.

During the Fall, the Orbital council needed a place to meet, someplace small enough to be secured, but large enough not to cause any psychological problems. Takoda Station suffered heavily from the Fall, due to the loss of business for its specialty manufacturing. The city and corporate board petitioned the Orbital council to locate there, and provided incentives, both physical and monetary, to encourage the move. It was the right thing to do, and ensured the economic survival of Takoda, when so many other stations ended up as virtual suburbs, or even fiefs, of the stations and corporations which survived the Fall.

VITAL STATISTICS □

Name:	Takoda Station
Affiliation:	CEGA
Location:	Cluster 56, L-4
Population:	120,000
Principal Economic Resources:	agriculture, specialized manufacturing.

LANDMARKS ◇

Takoda Station, though old, was never heavily landscaped, and the climate tends to be on the dry side. The non-urbanized portions of the interior resemble old Earth deserts, complete with cacti as a common type of vegetation. The soil is bare lunar regolith, and is largely infertile: very little bio-active material was brought up from Earth to enrich the station’s soils. The Nihon Industrial Partnership wasn’t interested in growing plants, only profits. They only provided enough plants for life support purposes, and little more. However, the granular, sand-like lunar regolith was ideal for another type of garden — Zen gardens. Very popular in the partnership days, they continue their popularity today. The largest, Tranquil State, is under constant care by master gardener Kenshiro “Ken” Mifune, and the design tries to reflect the harmony associated with good government.

ADVENTURE SEED: HOW DOES YOUR GARDEN ZEN ▣

The Tranquil State garden on Takoda is the source of a great deal of pride to the Orbital Council. Even CEGA appreciates the message in the fine-raked sand and carefully placed rocks and plants. CEGA Councilor Ignatius Chang is said to try to visit the garden anytime he is in the L4 area.

There are those, however, who don’t appreciate the message of acceptance and duty bound up in the sand, and they want it changed. Ken Mifune is incorruptible, despite large cash offers to radically alter the rhythm of the garden, so the current dissident plan has two steps. The first is to get Mifune out of the picture for a while, not to kill him, but detain him. This won’t be easy, as the 64-year-old Mifune is a master of the martial arts, including karate and kendo, and thus makes a hard target.

The second part of the plan is to essentially “rewrite” the garden, and detain Mifune long enough for the message to be seen, both by the government and CEGA, as well as by news services. To properly rewrite the garden would require a great deal of artistic and philosophic ability. To address this, the planners have provided an altered map for the garden, with very complete instructions. The Player Characters might have to help rescue Mifune, or they might aid the dissidents, escorting, protecting and (most importantly) calming the frightened “scab” artist they need to properly rework the garden’s design.

3.3.10

end of section 3.3 life in orbit

► ORBITAL CULTURE



The history of Orbital culture begins in the historical roots of the nations of 21st century Earth. Industrial economic imperatives drove many orbital developments, with needs for diversified labor encouraging both opportunists and professionals alike. Although the forces of multinational business sought to meet the demands of commerce, it was the public sector of individual nation-states that supplied labor, colony construction and development. The majority of the first generation of habitable Orbital colonies was supplied by the old nation-states of Earth, with nations such as the United States, India, China and the European Union first to meet this demand for this unique living and work space.

In time, however, the colonies started to be perceived as something beyond a temporary residence. Families were born and raised in Orbit, and increasingly identified themselves outside the sphere of Earth geopolitics. Their collective identities were transformed as a result of the Fall, as an ever-increasing flood of humanity sought permanent refuge from the ravages of total war. By the 23rd century this major event has transformed these colonies from dependent stations to nations unto themselves forged by the collective rebuilding of their lives combined with a sense of history.

▼ LANGUAGE

Language in the Orbital colonies reflects the same spoken diversity that exists on the surface of the world below. Much as in other Solar nations, English is the common language of written and spoken communications. However other languages are also in day-to-day use across the colonies and in some cases takes precedence over English as the individual's colonial language of choice. Mandarin, Cantonese, Hindu, French, German and many other languages find themselves still in everyday use, a tradition that is often the result of the ethnic and historical roots of a particular colony. A diverse series of sub-languages also exists in the form of colloquial slang, with much of this patois having its origins in technical trades and criminal syndicates.

On the whole, Orbital citizens are reasonably well spoken and well educated in comparison to their counterparts in other parts of the Solar System. A comfortable lifestyle belies a sense of calm and tranquility that is actually quite complex. Social games, political games and intrigue are often the norm in Orbital society, as political, business and organizational factions vie for influence within organizational structures. Nowhere is this most serious social game more apparent than on Pyrea station, where individuals and factions loyal to CEGA, the USN and most other Orbital factions play games of social influence during and after business hours in polite tones and sometimes hushed voices.

▼ FOOD

The science of forced, high yield hydroponics supplies much of the demand for food in the colonies. Most foodstuffs normally associated with the dining table can be found being cultivated in orbit. The key to growing vegetable and fruit products in space was first discovered in the mid 21st century, when bio-technicians were able to tailor terrestrial plant strains to adapt to growing in the absence of gravity. Depending on the food product, further factory processing might be required, or the food might be sold directly to market, as in the case of fresh fruit and vegetables. Tastes of primary organic manner can vary; the growth process normally yields very neutral tasting organic matter and extra steps are often taken in the factory processing process to ensure that foodstuffs have a desirable flavor.

Supplying colonists with edible as well as appealing foodstuffs has proved to be a lucrative and exportable business, with companies such as ZeroGro having a sizable market share of Orbital farming cooperatives. Vast arrays of meal possibilities are available in most colonies, from processed bars and canned drinks (such as Orange Glow and Sunshine Solar) through to more traditional Terran fare. The Orbitals also support an especially wide and varied restaurant scene. Among some of the more popular chains are Teriyaki Kaiser and GardenFresh, with Venusian-Foods-Group-based RealBurger a popular (and very rapidly expanding) newcomer.

ARTS AND ENTERTAINMENT ▼

Free of the constraints of gravity, many of the artistic and entertainment endeavors of the Orbitals have embraced the possibilities of an adjustable gravitic environment.

Zero-Gravity ballet is considered at the current forefront for the cultural elite, with the prestigious Thisbe Ballet company of Pyrea station at the forefront of this delicate art. Zero-gravity operas and theatre have also been staged on occasion, with eclectic low-gravity versions of such operas as *Aida* proving popular with the Orbital elites. There have also been experiments with contemporary art, but CEGA influence of late on Orbital politics has seen a revival of more traditional artistic tastes.

Sports also seek to take advantage of conditions, with grav-ball (team-based handball), Orbital martial tournaments, ZeeGee Soccer and orbital Lacrosse among the most popular of the team sports. A consortium of media and business entrepreneurs has recently tried to start an exo-ball league and broadcast games. This sport is still a relative newcomer and it remains to be seen whether dreams of a System-wide exo-ball tournament will come to fruition.

E · h · E

SOLAR SAIL AND ION BIKE RACING ▼

Mercury may hold the biggest races, and may have the best sailors, but the sport of Solar sailing has its proud historical origins in the Orbital colonies. The first and most prestigious Solar race, the annual Verne Challenge, attracts a vast array of contestants from all across the Solar System. One of the oldest races, from the Earth to the Moon, it is considered by enthusiasts and professionals alike the most important event in the Solar sailing calendar. The race is from low earth orbit all the way to Lunar orbit. Most entries have some form of private or corporate sponsor and the race and its associated social events attract some of the most powerful and influential citizens of the Solar System.

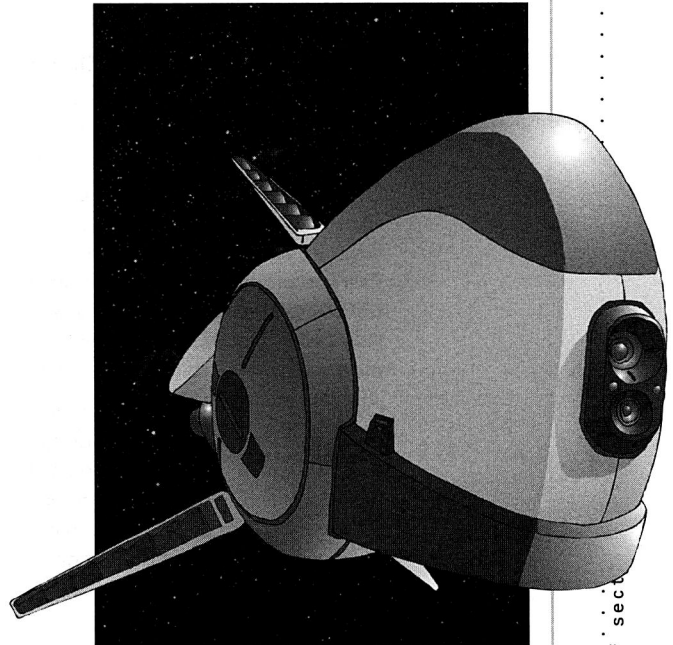
The most popular individual endurance sport is ion bike racing. The annual Pyrean marathon attracts over 10,000 contestants each year with the 80-kilometer long event more of a televised event rather than a strict spectator sport. Smaller and more regular events are also quite popular, with the models of competition and codes of conduct a tradition inherited from 20th and 21st century cycling. Fame and celebrity for top athletes is common, with the very best able to secure lucrative sponsorship contracts and business deals.

h · h · E

ADVENTURE SEED: THE CUP RUN'ETH OVER ▣

Much like sporting events of the 21st century, many of the Solar System's wealthy elite gather for major and prestigious sporting events. The jewel in the crown of Solar sailing, the Verne Challenge, attracts Venusian corporate bankers, major CEGA bureaucrats, Mercurian merchants and politicians and business leaders from around the Solar System. This in turn attracts a whole range of interested individuals, including hucksters, blackmailers, and undercover agents and other espionage personnel from all the Solar nations and the USN. There is always the possibility of a terrorist attack, kidnapping, theft or extortion directed at one or more of the attending individuals. In addition, there is a whole flotilla of ancillary individuals and organizations, including private citizens seeking the attention of the rich and powerful, journalists hoping to catch a prominent citizen unawares (be it for serious journalism or more tabloid based pursuits), high-tech thieves seeking to steal wealth or information, or just about any other individual or group one can imagine.

Many good social-based adventures could be run not only on the social events around the race but also by participating in the race itself. What starts as a seemingly social exercise could in turn become a race for honor, a rescue of fellow competitors with a lost means of propulsion, intrigue against a crewmate or just a lesson in old fashioned teamwork.



end of sect

► GOVERNMENT

3.5

The Fall was a planetary disaster that the Orbital colonies were collectively anticipating but equally unprepared for. The sheer influx of refugees in these years forced individual colonies to abandon their economic imperatives in lieu of an undeniable call for humanitarian assistance. At first there were genuine fears of a major organizational crisis, one that was thankfully diverted due to the guiding hand of a relocating United Nations. UN relief agency support and bureaucratic capabilities were crucial not only in managing the crisis but also fundamental in instilling in Orbital citizens a healthy respect for participatory democracy and civil society in the most uncomplicated of senses.

This rapid period of population growth was entirely beneficial for the Orbitals as a whole. Their sheer population numbers and collective wealth made for a diverse and capable society. Furthermore, it created a healthy fabric for democracy, one robust enough to both accept CEGA incorporation and at the same time maintain their representational heritage.

▼ THE PEOPLE'S REPRESENTATIVE COUNCIL

3.5.1

The formative years of self-rule were founded in some of the Orbitals' darkest and most trying times. Despite the collective need for a coordinated response to the refugee crisis, a majority of colonies were unable to agree upon a replacement form of government beyond respecting their previous standing through a UN-based mandate. A provisional government arose as a result of the efforts of Dr. Jun Sato, a UN diplomat involved in efforts to relocate the UN full time to Pyrea station. Sato's personal charm coupled with his personal friendships with key individual players within the orbital elite ensured the formation of the People's Representative Council on January 1st, 2103.

The role of the People's Representative Council is to govern the relationship between the colonies and to give a collective voice to the other Solar nations at large. Membership in the Council is representational, with each colony given a provision of one elected delegate minimum and up to three delegates for the larger colonies. These officials are required by mandate to be directly elected, the elections themselves held in an Orbital-wide election cycle with set three-year terms. The Council's Chairperson is elected by a Representative Council ballot, with the Council's chambers being located on Takoda station.

The current council chairman is former business leader turned politician; Horangi Seung has acted as a champion for Orbital rights and mediator in the face of both growing CEGA dissatisfaction with Orbital democracy and Orbital distrust of their "dirtside" counterparts and their ambitions.

▼ EARTH-ORBITAL RELATIONSHIPS

3.5.2

Democracy is the very thing that threatens to damage the relationship between Earth and its former colonies. Initial concessions offered by CEGA after the end of the Unification War allowed the Orbital colonies to rejoin the fold under condition that their Representative Council and individual cylinder sovereignty would be respected. Privately the CEGA hierarchy had expected to be able to apply diplomatic influence to remove their "democratic dalliance" and encourage a return to the fold. So far, however, there are few signs of this shift; instead, the Orbitals have continued to cite the membership of the democratic Maritime league on Earth as proof that democratic states can contribute to the collective CEGA cause. The military arm of CEGA, however, has sought to increase its presence on individual colonies that are perceived to be potentially disloyal, and CEGA's intelligence services have been conducting programs of covert influence on key members of the Orbital Representative Council to drive an anti-democratic agenda.

Overt incidents involving military force to quell potential dissidence threaten to become a disturbing new trend, as in the recent "New London" incident of 2210, where control of the colony was seized by CEGA military personnel in apparent pursuit of a STRIKE terrorist cell. Privately, however, Earth is relieved to once again have access to its former colonies. Access to superior technologies and services initially lost during the Fall have allowed CEGA to rise to its collective feet and is seen by more moderate CEGA strategists as part of an overall scheme of Unification.

MOON-ORBITAL RELATIONSHIPS ▼

The relationship between the Moon and the Orbitals has traditionally been an association based upon necessity and mutual understanding paired with acknowledgement of past failings before and during the Fall. This has not changed much in recent years.

The destruction of Copernicus Dome has helped to fuel anti-CEGA sentiment in both camps; the existence of Chang O resistance cells within the Orbital colonies has proved to be a bonding point for their relationship. Despite the fact that the Orbitals are themselves officially part of CEGA-based jurisdiction, individual Orbital colonies are privately known to be sympathetic to their cause. This support has risen in recent months from providing shelter for wanted Chang O terrorists to include monetary support and even rumored siphoning of CEGA military resources. Further evidence of STRIKE activities within some colonies and alleged liaising with Chang O cells serves only to complicate matters to a more dangerous level.

CEGA forces have made several attempts in the last few years to crack down on this assistance and in turn have created increased political tensions between CEGA and the Orbital Council and Selenite authorities. There is a genuine concern among some delegates of the CEGA Council that if the relationship between themselves and their spaceborne allies does deteriorate, there is a real possibility of a civil war none of the parties can afford. Behind the scenes there have been discussions held between delegates from the People's Representative Council and the Lunar Cooperative as to a possible and collective economic and political future, but as yet no members of either organization have yet to make a public statement for fear of forcing CEGA's hand.

RELATIONSHIPS WITH REST OF SOLAR SYSTEM ▼

The long years of silence after the Fall have taken their toll on the collective opinions of Orbital colonies toward the other Solar nations. Feelings of general kinship and openness to other spaceborne colonies are further complicated by their more recent reunification with the Mother planet and acceptance of CEGA sovereignty. A typical Orbital citizen, however, seems to take matters of politics in stride, seeking instead direct relationships with Solar citizens as individuals.

Despite the possibility of future military conflict, Orbital citizens feel a special kinship toward the people of Jupiter. Both societies share much in common in being entirely spaceborne, embracing similar forms of government and facing similar economic and technological issues. There is, however, a significant kernel of resentment in the average Orbital citizen, who views Jovian reluctance to assist with rebuilding efforts on Earth as both selfish and irresponsible.

There is an overall distrust of Venusian citizens and corporations; public revelation of the events of the Odyssey serves only to fuel anti-Venusian sentiments amongst the general populace. Mercurian relations are friendly and important; most colonial administrators welcome the wealth and trade that the Merchants of Mercury generate, although there is some healthy rivalry in sports events such as the Solar Cup Sailing Challenge.

The events surrounding and resulting from the Martian Orbital elevator collapse alarm and frighten the average citizen, who see the potential for conflict spreading from beyond the atmosphere of Mars to engulf the entire Solar System in the grip of a war in which they would find themselves unwilling participants. Being largely pacifistic by dint of the nature of the surroundings, the average Orbital citizen views the situation on Mars with a great deal of dismay. There was a considerable amount of trade before the fall of the Elevator, mostly in raw materials and volatiles that the Moon couldn't provide in sufficient quantity. Relations were never very friendly, however, as the Martians' hostility toward one another puzzled and alarmed the Orbitals. The Nomads seldom received any attention from the Orbitals prior to the rise of CEGA, but recently there have been growing ties, especially for water and volatiles, which the Nomads trade for manufactured goods and parts.

E.S.E

H.S.E

ADVENTURE SEED: OUR COUNCILOR IS MISSING

Councilor Chih-Hao Tsai from L3, Cluster 11 *Serenity* has gone missing. So far the identity of his kidnappers remains a secret, as do their demands and motive for the kidnapping. Possibilities and motives for the kidnappers include a former criminal boss looking for a major ransom or political concession, members of the Chang O movement seeking some form of gain in exchange for his release, or STRIKE operatives meeting with him secretly (i.e. it's not a kidnapping at all, and Tsai is in cahoots with STRIKE). The caper could even be a CEGA or SolaPol undercover sting posing as any of the other possibilities.

Player Characters may come into this story from many angles, ranging from playing Solapol, CEGA or private investigators put in charge of finding Tsai's location and rescuing him, ZONet or other investigative reporters covering the story or even hired guns employed to perform the kidnap themselves! Tsai is not without his allies; the colony's own organized crime syndicate will organize a small team of their own to form either a rescue party or to exact revenge, depending on circumstances.

CEGA FLEET FACILITIES

The CEGA Fourth Fleet is assigned to Orbital operations, and serves to protect and police the hundreds of stations near Earth.. Fleet facilities include Fort Gibraltar and the CEGA Naval Academy at Goliath Station, as well as an unknown number of battlestations, hundreds of autofacs and eight major drydocks.

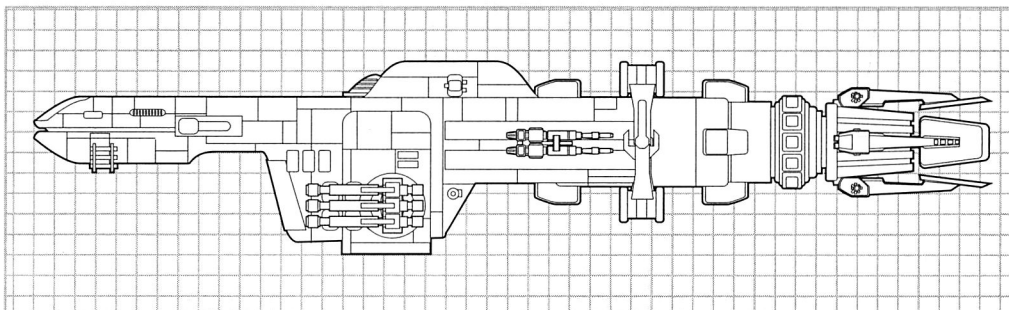
The drydocks are used for repairing and overhauling capital ships, which are built in the yards at Fort Gibraltar, and at contracted civilian yards throughout Orbital space. A dozen or more ships head out of the civilian yards every year, though most of them are either Tengu-class patrol carriers or Bricriu-class corvettes, the mainstay of the CEGA fleet. The production of Bricrius is maintained to keep the capability in the civilian yards, and accounts for the many variants of the class. There are only two major civilian yards that produce other capital-class vessels for the CEGA, Newport News Orbital, and Hampton Roads Orbital. These two yards account for much of the production of the Uller drone carrier, the Hammerhead dreadnought, the Narwhal bombard, and the new Birmingham assault carrier.

CEGA fleet vessels have right-of-docking at all Orbital colonies and stations, with the exception of Pyrea Station. For the most part, naval commanders choose not to abuse this sketchy diplomatic privilege, instead preferring to use fleet facilities; the potential for problems when mixing crews with civilians is just too high. There are a few stations, however, that have made the decision to actually cater to the needs of a warship's crew. The most notable of these is High Orleans, with operates as a popular refit/shore leave facility under CEGA military control rather than a civilian governor and council.

THE BRICRIU-CLASS CORVETTE.

The Bricriu-class corvette was developed by Halstead Orbital Defense Group in 2134 as a defensive vessel for the Orbitals, should the spiraling conflicts on Earth break out into space. Over the decades, the ships have undergone extensive refits, and before the advent of CEGA in 2184, numerous examples of the vessel were sold to other Solar Nations, often with production rights. The Bricriu's design can still be seen in ships like the Venusian Imperator-class patrol cruiser and the Mercurian Erel Sword.

The Bricriu is so numerous that there exist dozens of variants, including an area-defense gunboat, a missile carrier, a drone carrier and a high-speed courier. The IGS even has a limited-production variant, the Endeavour, that has a tethered pod for exploring the atmospheres of gas giants and other scientific projects. Other common variants usually involve changes in the corvette's weapons loadout.



FORT GIBRALTAR ▼

Fort Gibraltar is the primary CEGA fleet facility in Earth orbit. Most administrative tasks are still carried out on Earth, but the Fort is the primary base for close defense vehicles like boats, fighters and exos. The Rock also coordinates all CEGA orbital activity, including all the defense satellites and weapons platforms. Not only is it the primary military space traffic control point, but it is also the central node for the civilian traffic control net.

Fort Gibraltar is also the location of the Navy's main construction yards, including the slips that produce the Poseidon-class battleship, the Hachiman-class destroyer, and the Constantinople-class Marine assault carrier, along with a few others. Construction is underway on new slips, so as to move the production of the Birmingham-class attack carrier from a civilian yard to a navy-controlled one.

Fort Gibraltar is a small closed-type colony cylinder, about three kilometers in diameter and six kilometers long. Surrounding this cylinder are two industrial spines along with two large, non-rotating rings about seven kilometers in diameter that contain the yards and construction slips. A third ring is under construction nearby and will be moved into place when finished. Around all of this is a large constellation of weapons platforms, sensor arrays and drone tenders to provide defense for the station. Fort Gibraltar is arguably the best-defended station in the Solar System, even more so than its Jovian counterpart, Khannan Station.

VITAL STATISTICS □

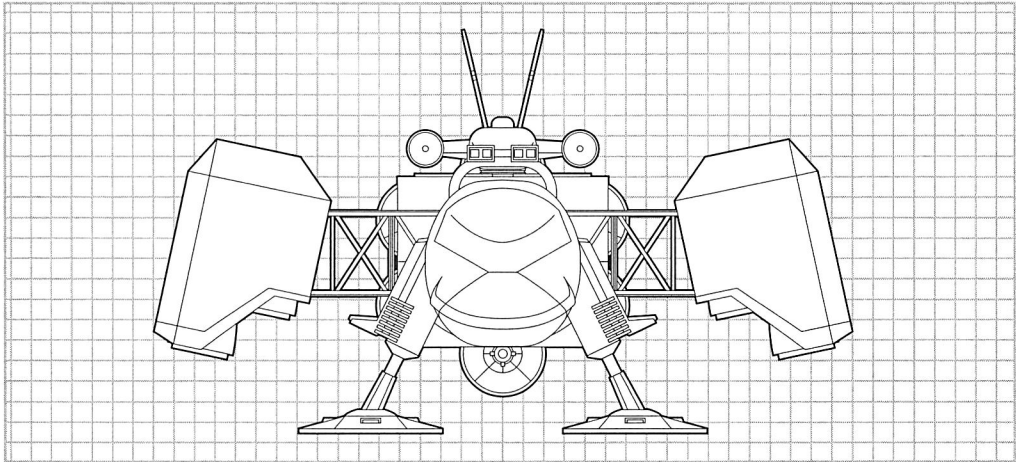
Name:	Fort Gibraltar
Affiliation:	CEGA Military
Location:	Geosynchronous orbit above Gaia City
Population:	23,5000
Principal Economic Resources:	Ship construction, military base

ADVENTURE SEED: THE ADMIRAL'S DAUGHTER ▣

The life of a new recruit in the CEGA Navy is hard and often brutal. Superior officers and NCOs are constantly testing the "newbies," and hazing in barracks is a fact of life. But murder isn't.

The Player Characters are military police, sent in to investigate a death in the barracks on Fort Gibraltar. They will get no cooperation from anyone they deal with, from commanding officers on down, all of whom want the incident to be labeled an "accidental death." Everyone, that is, except the Chief Operations Officer of Fort Gibraltar, Vice Admiral Hiram Blake, the fourth-highest ranking officer on the entire station. The dead recruit is his daughter, Jessica, and he wants justice, and perhaps vengeance as well. The players can thus also play independent investigators or even mercenaries hired by Blake to circumvent the often slow wheels of justice.

Jessica's fellow recruits are too scared to talk, and her barracks-mates say that they just found her dead when they returned to the barracks-block. The medical officer's report say it looks like she fell down a flight of stairs, but anyone who sees her injuries will know the truth. Some of the bruises are old, as well, telling of further abuse. Someone knows what's been happening, and the players have to find that someone.





"The triumph over this vast, hostile space was only possible through the hard work of our people, the actions they underwent to survive, and the equipment they created in this harshest of all places."

— Lois B'Holt, president of the People's Representative Council,
2202

CHARACTERS AND ARCHETYPES ◀

This is a selection of typical character types to be found on the Moon, or in Orbital space. These can be used as NPCs as written, or they can be used as guidelines for character development.

When generating Selenite and Orbital characters, a few guidelines have to be kept in mind. Lunar Characters are almost always considered to be Light-Worlders (**Jovian Chronicles rulebook**, p. 63), with the appropriate modifiers to their stats. Orbital characters, however, are almost always from normal-gravity environments, with the occasional zeegee from one of the more unusual stations.

LUNAR PROSPECTOR ▼

Concentrated lodes of minerals are rare on the Moon. Most useful ores seem to be diffused throughout the lunar regolith. However, there are occasional exceptions. Prospectors search for these concentrations of valuable minerals, and, on a very rare occasions, find fossil ice in the permanent shadow at the bottom of a deep crater.

The prospector has to be self-reliant, often being out alone with their crawler, or more rarely, a Prospector-class exo-armor. They have to be skilled in both Earth Sciences and the operation of their equipment. On the other hand, they have a reputation for a party-hard sort of lifestyle that is at odds with the typical Selenite mold.

ATTRIBUTES ▢

AGI	1	APP	0	BLD	1	CRE	-1	FIT	2
INF	1	KNO	0	PER	1	PSY	0	WIL	0

SKILLS ▢

Skill	Level	Attr.	Skill	Level	Attr.	Skill	Level	Attr.	Skill	Level	Attr.
Business	1	0	Electronics	1	0	Haggling	1	1	Notice	2	1
Demolitions	1	0	Exo-Pilot	2	1	Mechanics	1	0	Survival	2	-1
Drive	2	1	First Aid	1	0	Navigation (Moon)	2	0	Tinker	1	-1
Earth Sciences	2	0	Gambling	1	1						

Equipment: Skinsuit, datalink, 1d6x500 Credits / **Similar Archetypes:** Lunar Miner, Harvester driver

LUNAR ACADEMIC ▼

Members of the Academic staff of the Farside Universities consider themselves a cut above the common Selenite. They either come from an Academic family or are off-worlders who earned their place through hard work and connections. It is almost unheard of for an Academic to have come up from the Lunar Technician and Support castes.

All Academics have a specialty, usually Physical Science, Earth Science or Social Science. The Physical Sciences are the most respected of the disciplines, and competition is fierce; many “lesser” Academics choose or are forced into the other disciplines.

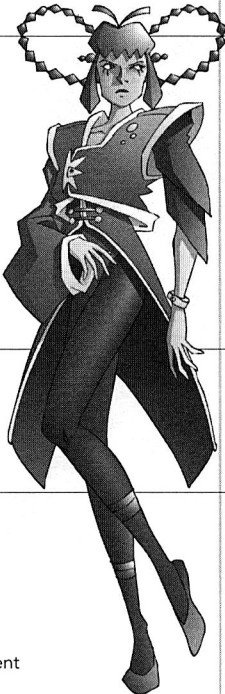
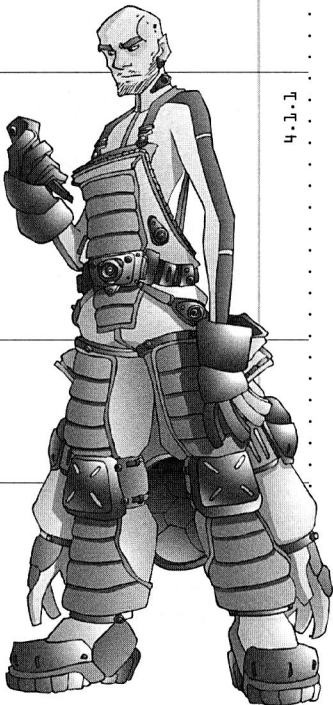
ATTRIBUTES ▢

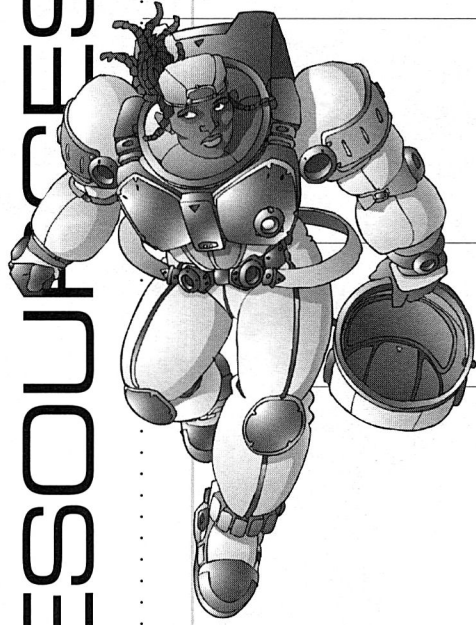
AGI	0	APP	0	BLD	-1	CRE	1	FIT	0
INF	1	KNO	2	PER	1	PSY	-1	WIL	0

SKILLS ▢

Skill	Level	Attr.	Skill	Level	Attr.	Skill	Level	Attr.	Skill	Level	Attr.
Athletics	1	0	Drive	1	0	F.Lang:	1	2	/Sci. Specialty 1/	3	2
Bureaucracy	1	2	Etiquette	1	1	Grooming	1	0	/Sci. Specialty 2/	2	2
Computer	1	2	F.Lang:	1	2	Notice	1	1	Teaching	1	1

Equipment: Personal computer, datalink, heads-up display, 1d6x100 credits / **Similar Archetypes:** University Student





► ORBITAL TUG PILOT

The backbone of the orbital construction and shipping projects, the tugs and their pilots are extremely common. Tug pilots are no-nonsense, straightforward people. Appearance matters off the job, but only skill matters on the job. Tug pilots tend to work for one of the large construction conglomerates, but many are private contractors who own their own ships. Even the military uses contract tugs to maneuver their massive ships around civilian or foreign docks.

▣ ATTRIBUTES

AGI	0	APP	0	BLD	1	CRE	1	FIT	1
INF	0	KNO	0	PER	1	PSY	0	WIL	0

▣ SKILLS

Skill	Level	Attr.	Skill	Level	Attr.	Skill	Level	Attr.	Skill	Level	Attr.
F.Lang:	1	0	Hand-to-Hand	1	0	Space Pilot	2	1	Tinker	1	1
First Aid	1	0	Mechanics	1	0	Survival	1	1	Zero-G Movement	2	0
G-Handling	2	1	Notice	1	1						

Equipment: Hercules worksuit, datalink, hand-held maneuvering unit, 1d6x200 credits

Similar Archetypes: OTV pilot, lunar hopper pilot



► CHANG O SOCIETY ACTIVIST

CEGA labels the Chang O Society protesters as terrorists, and the Lunar Cooperative had to follow suit. However, there is a great deal of sympathy for the Chang O “terrorists” in the tunnels and domes of the Moon, and that sympathy only grows each time CEGA cracks down on a group of student protesters, jails a graffiti artist or engages in some other form of repression.

Chang O activists follow the activities of CEGA occupation forces and strike in politically-sensitive areas that will garner public support. They know that their little group can only accomplish change by drawing the notice of the population at large, and that sacrifices are necessary; a beating or jail term is merely the price of freedom, paid on behalf of those who have not yet risen up to fight.

▣ ATTRIBUTES

AGI	0	APP	0	BLD	0	CRE	1	FIT	0
INF	1	KNO	1	PER	0	PSY	0	WIL	1

▣ SKILLS

Skill	Level	Attr.	Skill	Level	Attr.	Skill	Level	Attr.	Skill	Level	Attr.
Bureaucracy	1	1	Etiquette	1	1	Law	1	1	Streetwise	1	1
Camouflage	1	1	Grooming	1	0	Notice	1	0	Tactics	1	1
Disguise	1	1	Hand-to-Hand	1	0	Small Arms	1	0	Teaching	1	1
Dodge	1	0	Human Perception	1	0	Social Sciences	1	1	Throwing	1	0

Other possible skills: Demolitions, Computer (hacking), Security

Equipment: Datalink, laser pistol or gauss needler, datapad, light composite armor, 1d6x1000 credits

Similar Archetypes: student protester, political terrorist

CEGA MILITARY POLICE (OCCUPATION FORCES) ▼

CEGA calls them Military Police, in place to help the Lunar and Orbital governments maintain order and security. Protesters and samizdat call them Occupation Forces. Both names are appropriate. The average Military Police officer is truly there to protect and serve the population. It is the goals of the military high command that are suspect, however.

A CEGA MP's first duty is to enforce the laws of CEGA; the local colony laws are secondary. When in doubt, CEGA rules come first. There is little room for free action and discretion; errors in judgment are meticulously recorded and can affect one's career even years later.

ATTRIBUTES □

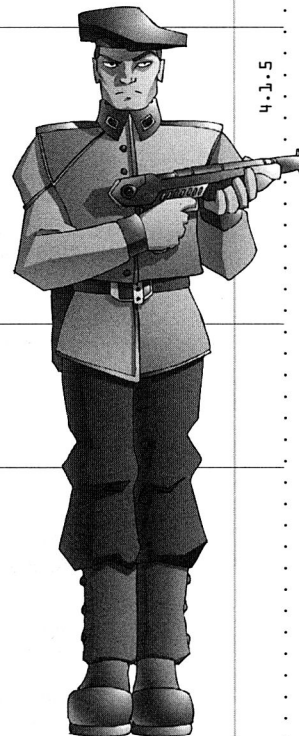
AGI	1	APP	0	BLD	1	CRE	-1	FIT	2
INF	1	KNO	0	PER	1	PSY	0	WIL	0

SKILLS □

Skill	Level	Attr.	Skill	Level	Attr.	Skill	Level	Attr.	Skill	Level	Attr.
Athletics	1	2	Exo-pilot	1	1	Interrogation	1	-1	Small Arms	2	1
Combat Sense	1	1	Hand-to-Hand	2	1	Intimidate	2	1	Streetwise	1	1
Dodge	2	1	Heavy Weapons	1	1	Melee	2	1	Tactics	1	-1
Etiquette	1	1	Human Perception	1	0	Notice	2	1	Throwing	1	1

Equipment: Duraplast mail, helmet w/communicator, stunner carbine, handcuffs, 9mm pistol (backup gun), 1d6x50 credits

Similar Archetypes: Police Officer, Security Officer



ORBITAL FARMER ▼

The Orbital farms provide food not only for the Orbitals themselves, but also the Lunar colonies and, to an increasing extent, the planet below as well. The people who manage and maintain these farms are extremely important in Orbital society, yet they don't get a great deal of recognition. They work in the many smaller satellite stations that ring the great orbital habitats, producing food and agricultural goods.

Orbital farmers are not particularly concerned about the lack of recognition, however. For most, it's enough to be growing things, and they take considerable satisfaction in what they do. Contrary to popular opinion, they are not dirty or scruffy. The orbital farms are high-tech affairs, combining hydroponics and small-animal husbandry. Much of the actual dirty work is done by robots.

ATTRIBUTES □

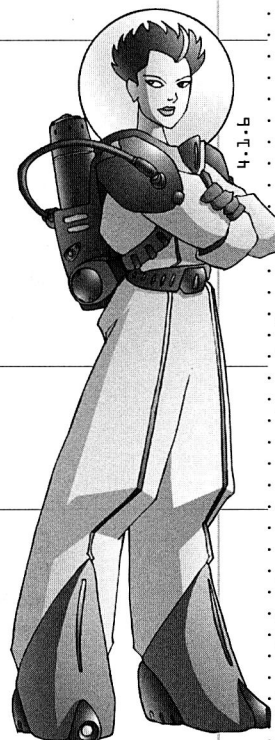
AGI	0	APP	0	BLD	0	CRE	1	FIT	1
INF	0	KNO	1	PER	1	PSY	0	WIL	1

SKILLS □

Skill	Level	Attr.	Skill	Level	Attr.	Skill	Level	Attr.	Skill	Level	Attr.
Animal Handling	1	1	Earth Sciences	1	1	Life Sciences	2	1	Survival	2	1
Business	1	1	First Aid	1	1	Notice	2	1	Teaching	1	1
Drive	1	0	Foreign Lang:	1	1	Mechanics	2	1	Tinker	1	1

Equipment: Datapad, utility knife (machete), environment suit, mechanical toolkit, datalink, 1d6x100 credits

Similar Archetypes: Lunar Farmer, environmental engineer



4.2

► ELLEN HARTABOIS, LUNAR COOPERATIVE REPRESENTATIVE

Ellen Hartabois is a slight, older woman in her late fifties whose gray hair still carries a few flecks of its original reddish-brown. Her steel gray eyes frame her tiny face, which is typically masked with a gentle expression. While not physically intimidating, years of practiced control lend her an aura of confidence and authority. She prefers loose-fitting clothes that already accentuate her rather fluid style of movement.

Ellen has worked hard to stay in shape, despite her advancing age. She feels that if she allows nature to take its course, age along with the moon's microgravity will cause her to lose some of her poise and grace, both traits she relies upon heavily in her career. Her love of exercise comes from her lunacrosse playing in her youth, a sport she still likes to watch when she has the time. Ellen's demeanor is that of a shrewd business-woman, and she conducts herself very properly in most any situation. She is accommodating, but also very determined to do what she thinks is best for the people of the Moon.

4.2.1

▼ DESCRIPTION

Ellen has led a life that was destined from almost day one to be one of civil servitude. Her father was the Lunar Cooperative representative from Tycho City and her mother was a top administrator in the local bureaucracy. She was raised on the principles of Lunar democracy and an assurance of thought that only Selenites truly know what is best for other Selenites. She received a very proper education, including a year spent studying astronomy on the Farside, which gave her a bit more understanding of the outer worlds than the average Selenite. She was especially interested in learning about the Jovians, and developed some contacts with them during that period.

Her initial forays into government led her to take an assignment as liaison to the Orbitals. She stayed with that post for three years, and spent much of her free time getting to know the workings of the Orbital community, especially the people she saw walking the streets. Even then, it was if she was campaigning for higher office. From there, she worked her way up through the bureaucracy and by her early thirties, she had been elected to her father's old seat in the Cooperative. By her mid-fifties, she was elected to head the Cooperative and to this day is seen as one of the most capable diplomats in the Earth-Moon system.

Ellen can most commonly be found in the halls of government. Her schedule keeps her very busy, and leaves little time for social activities, beyond those mandated by her position. She has spent so much of her life focusing on her career that she rarely has time for serious relationships. As such, even at her current age, a date with her to one of the many events mandated by her position is a coveted occurrence. Ellen finds herself in the unenviable position of old England's Queen Elizabeth, wanting to finally have something serious, but without the time or truth to know if that will come. The demands on her time are many, but she tries to be available for whatever groups have a grievance that needs to be addressed. She also still likes to catch the opening of the lunacrosse season in person whenever possible, and she watches recorded vids of sporting events at night to relax.

The recent events of the Odyssey, notably the destruction of Copernicus dome, have chilled her thoughts regarding further integration with CEGA. She is firmly convinced that the Moon should stay independent and in charge of its own interests, even as she realizes she must deal with the Earth for the needs of her people.

4.2.2

▼ STATS AND REPUTATION

Ellen is based off the Official template (**Jovian Chronicles rulebook**, p. 105) with the addition of APP +1 and PSY +1. She is a Light Worlder. She also has the additional skills Foreign Language: German 2 and French 1, and Streetwise 1 and Athletics 1. Ellen is known throughout the Moon-Orbital system and is well loved. She has a personal Reputation of +3.

NOTES AND HOOKS ▼

Meeting Hartabois would be an unusual and extraordinary occurrence. She is almost always found somewhere in Luna City with a fantastically large entourage and when in public is usually involved in a society event or public tour of some facility. Player Characters with reputations as security specialists could be hired to act as temporary additional security or to clear and sweep an area before her arrival. They could also be part of the crew of a facility that she's visiting or part of a diplomatic corps that hopes to mingle with her at a social function.

The more one-on-one chances to meet Hartabois are somewhat more limited, but people of high reputation or with diplomatic business regarding Lunar relations with another solar entity might very well be granted an audience with her. She tries to receive as many visitors as she can and make herself accessible to, however her responsibilities keep that to a minimum. She is most eager to speak to people from the Orbitals, her youthful stomping grounds, but lately has taken an interest in diplomats from the Jovian moons that might want to improve diplomatic ties. Her thoughts to that are that she will not make the first move, for fear of upsetting CEGA relations with the Moon.

TROY RIVERS, CEGA LUNAR AMBASSADOR ◀

Troy Rivers is a dashing, refined gentleman who has aged gracefully for his 47 years. His ash-blond hair and soft blue eyes set off his chiseled features, which are starting to wear a little with age. The first crease lines are becoming evident underneath his eyes and around the corners of his mouth, but his body shows signs of doing its best to stave off the inevitable. He could best be described as the grown-up version of the All-American boy. His skin still remains a deep bronze even after years spent in artificial light; a relic of his boyhood days in the sun on Earth.

Troy carries himself with a casual, almost flippant attitude. His walk shows nothing of any major burden he might have had to carry through his life. His conversation style is equally casual, as if the subjects of politics and economics are being bantered around the country club instead of the halls of government. Still, his style provides him with some degree of self-assurance that sets others at ease, and this is how he does business. In public, he might come across as a bit phony to the practiced eye, but to the unwashed masses, he is the consummate politician, and does all he can to keep them enamored with the thought of him in their life. That's what has gotten him this far.

DESCRIPTION ▼

Troy began his life on the coasts of the Green States of California. His early years were fairly carefree, even in the troubled times Earth was seeing. His family was quite wealthy and politically protected from much of the despair and toil of the average citizenry due to their high place in the government in Sacramento. Troy lived a privileged life in the arcologies, living in a luxury that many on Earth only dreamed of. He received a fine education, learning more about the world and the Solar System than most children his age could even dream about. It is safe to say that from an early age, Troy was groomed to be a diplomat.

Sadly for him, Troy did not have the natural talents for oratory or compromise and discussion that make the best of diplomats. He did possess an easygoing style, though, coupled with the fact that he was a very handsome man. His boyish good looks allowed him to coast through much of his early education, and his ability to make friends and work angles helped him through much of the rest of it. He did retain enough to play the part of the intellectual, however. His lack of common sense, though, made him seem a little dense at times, a trait he has never been able to fully hide. Still, he possessed enough charm and family influence to work his way up the ladder of the CEGA Diplomatic Corps to the position he attained today.

Being raised on the ideals of CEGA his entire life have made Troy a loyal cog in the machine of Earth, and as such, he was seen as a natural to take over the position of chief ambassador to the Lunar Cooperative. Here, he sees himself as the guarantor of what he sees as CEGA's natural rights in this system. The Moon and Orbital colonies are naturally a part of the Earth system, and their destiny can never fully be separated. Earth, as the parent in this relationship, should be the one to guide the fate of the whole body. To date, he has not found as receptive an audience as he would like in the domes of Luna City, but he is confident that in time, their leaders will see the wisdom in returning to the fold.

4.2.3

4.3

end of section 4.2 personality: ellen hartabois, lunar cooperative representative

4.3.1



4.3.2

▼ STATS AND REPUTATION

Troy is based off the Official template (**Jovian Chronicles rulebook**, p. 105) with additions of APP +2, plus the following Skills: Hagglng 2, Grooming 2 and Seduction 2. Troy has a minor personal Reputation of +1 based on his charisma alone and the way he spreads himself around.

4.3.3

▼ NOTES AND HOOKS

Troy is quite accessible as the CEGA liaison to the Lunar Cooperative. He can often be found sitting in council sessions or privately meeting with Cooperative representatives regarding matters of the Earth-Moon alliance. He spends much of his time pressing for concessions and the extended influence of Earth in matters of the Moon, with special regard to expanding the rights of CEGA citizens on the Moon to have the vote, especially the occupying military force.

He spends much of his free time enjoying all the hedonistic delights that he can squeeze out of a world as dour as the Moon. It is during this time that he entertains meetings with less than savory elements and contacts that he would rather others not know about. Characters could be employed by him for a number of missions, from diplomatic couriers of items he would rather not see go through diplomatic channels, to enforcers, to a security escort in an unsafe area.

4.4

► INING CHAO, CHANG O LEADER

Ining Chao is small demure bit of a woman whose look is a practiced shell. Her face is always very serene, even when it hides boiling rage just under the surface, and carries a look that is much younger than her 41 years would indicate. Her facial features are small and not very pronounced, but are capped off by a determined little chin. Her jet-black hair is showing the slightest gray, and is kept pulled back into a tight bun at all times. There is a stylus that seems eternally jammed through the bun, should she ever need to take notes for any reason on her data pad. She has almond-shaped brown eyes that are always inspecting and examining their surroundings. She rarely can keep them set on any one thing for long.

Ining walks with a bit of a stooped posture, a remnant of the hard labor that she endured in her youth. Her manner is very proper and respectful, regardless of what she is thinking, but she has a habit of acting very fast and very brutally once she's set her mind to something. Respect is only real if someone deserves it, and she reserves the right to decide who those people are. Her statements are often cutting and filled with vitriol for CEGA but she masks them in a sea of subtlety. The time for rash words and public action is not yet at hand, no matter how much she would like it to be, and she must couch her statements to appear more of the intellectual or armchair protester.

4.4.1

▼ DESCRIPTION

Ining grew up in one of the Lunar tunnel cities, the descendant of displaced refugees from Earth. Her family was rather poor, living and working in the shadows of the Mass Drivers, but managed to start a series of small businesses catering to the needs of the workers that earned them more money and prestige. Ining spent most of her young years toting around crates of specialty goods and other basic luxuries that the workers at the Mass Drivers normally couldn't expect in their utilitarian existence. Her education was limited during that period, but her father wanted her to have some sense of who she was and where her family came from. He spent the time during family meals or before bed regaling her with stories that his father had told him of Earth and of the lands in Asia where they came from.

Rather than leave a longing for the Earth and renewed ties as it did with her siblings, it left in her a feeling of abandonment that the Earth had done this to itself, and had selfishly left the refugees and the Moon to their own devices. When Earth returned to the Moon, she was not one of those who welcomed them with open arms. Their presence set in her a resentment that grew and festered. Her father had become prosperous enough from his many business endeavors to give his children a university education and Ining jumped at the chance. She became a sponge, absorbing all she could of history and economics.

After graduation, she was accepted to a position with the Hong Kong Bank of the Moon in Tanaka Dome and quickly rose to the position of junior executive. Her success in finance and business, though, was always secondary to her political motivations. She had first made contact with the Chang O society during her college years, and had retained those ties after obtaining a position at the bank. Her education and natural skills at organization allowed her to advance rapidly to a leadership position in that group. Her shrewd judgment and knowledge of history (she specialized in revolutionary leaders like Mao and Guevara) helped her to better organize and hide the activities of the Society and as the years progressed, she found herself being asked to coordinate more and more cells.

Currently, she finds herself the central figure of the Chang O Society, the one whom all other cell leaders look to for guidance and support. In her youth, she was on the side of those cells dedicated to a more proactive removal of Earth forces from the Moon, but her age has tempered her once fiery instincts. She is just as eager to remove the CEGA presence from her home, but has decided that the CEGA presence is more than making its own case for removal among the rest of the Lunar population. Her preferred form of attack these days is her highly advanced propaganda machine. Events like the destruction of the Copernicus dome have swelled the membership and persuaded many that the time is near when the Moon must declare its independence. It has also convinced Ining that there is a place for the more violent response to their occupation, but that time is not yet. When that time comes, it is certain that Ining will be in the center of the maelstrom.

STATS AND REPUTATION ▼

Ining is based off the Executive template (**Jovian Chronicles Companion**, p. 40) with PSY +1 and CRE +2, with the additional Skills of History 2, Demolitions 1, Forgery 1 and Streetwise 2. Ining has no personal reputation bonus outside of the Chang O society, where she has a reputation bonus of +2.

NOTES AND HOOKS ▼

Ining has become a sort of mythical figure in the ranks of the Chang O Society, partly as a result of her true talent with this work and partly due to her own propaganda. She sees herself as a modern day Mao or Lenin, ready to free the oppressed peoples of the Moon from the chains of CEGA occupation. She still maintains her executive position with the Hong Kong bank, partly as a cover and partly to keep financing her initiatives. Ining will rarely be encountered directly but might hire characters through third parties for a variety of subterfuge missions against the Earth forces. These missions will usually be nonviolent, and might involve theft or data retrieval more than demolition and sabotage.

As time progresses and things heat up on the Moon, though, her hope is to increase these “hot” activities and add pressure to the tension that already exists. At that time, she will need more military-oriented groups and mercenaries to carry out more direct sabotage and assault missions. She might not be above sending out some groups as *agents provocateur* to stir up even more sentiment if the CEGA forces aren’t aggressive enough to accommodate her needs.

KONRAD VAN OOSTEN, CHAIRMAN OF THE PEOPLE’S REPRESENTATIVE COUNCIL ◀

Konrad Van Oosten is a withering old man who is very slight of stature. His dark skin only seems to get darker with age, even in the artificial lights of the Orbitals and carries its fair share of wrinkles. A very pronounced and pointed nose dominates his face and is only matched by the age lines that share real estate with it. He is rarely without his small, square spectacles that rest over his dark, tiny eyes. His face seems to fall off into a rather weak chin.

Konrad is the quintessential worrier. He is a man who was raised to worry about everything. Beginning with where his next meal was coming from, and followed up by whether there would be enough oxygen or water, these worries consumed him. Konrad is a product of his environment. A survivor of a period of life in the Orbitals when things weren’t so certain and life was a bit more precarious, Konrad knows all too well how delicate his people’s position is in the scheme of Earth-Moon politics and does not wish to see that situation deteriorate. If it does, his people will be the first to suffer, before anyone else. With that in mind, he has also become the master of compromise, and seeks peace often to the exclusion of intelligence in some instances.

4.4.2

4.4.3

end of section 4.4 personality: ining, chaos, chang o leader

4.5

4.5.1

4.5.2

4.5.3



▼ DESCRIPTION

Konrad was born to wealthy parents who controlled some of the biggest agricultural production operations around Takoda station. He spent his early years in a relatively carefree existence, being educated by the best of tutors and enjoying the rare trip to the Moon with his parents to negotiate sales of foodstuffs. He often spent time playing among the food vats and "swimming" in zero-G with his friends. He showed a bit of a talent for developing homemade concoctions of vat proteins into highly palatable meals and had the makings of a fine chef, a pastime that he still indulges in. He also participated for several years in the running of the Verne Challenge, coming in second against the Mercurian champion on three separate occasions. Those losses remained a sore spot with him throughout his life and still contribute towards his prejudice against dealing with Mercurian traders.

When Konrad was in his thirties, he took over his parents' company and expanded their operations. Demand for his company's foodstuffs was great and he became even more wealthy and prominent in the Orbital colonies. His knowledge of trade and the politics of that trade got him elected as the representative of the population of Takoda Station to the People's Representative Council, which resided there. He discovered that politics wasn't all that different from trading, and excelled in his new profession. Through all this, he was content to just be a cog in the machine and had no aspirations of ever leading the Council. His biggest concern was the PRC's dealings with CEGA. His company had contracted several large food shipments to Earth and thus he was intimately familiar just how precarious the relationship between the Earth and the Orbitals was. What most concerned him was the Earth's aggressive attitude and resentment at having to pay so much for food that came from the very stations that they had once created (in their eyes).

Becoming head of the Council happened quite by accident. The previous Chairman had taken ill quite suddenly and retired from service just as abruptly to try and save his failing health. The members were left in disarray and unsure where to turn. The CEGA representative, who had been quietly fomenting dissension among the delegates for years, assisted in this confusion. The one delegate that everyone could agree upon to be the new Chairman, and the one who had the previous Chairman's blessing was none other than Konrad. His lack of ambition made him the most desirable choice for all involved. A more sinister man might have used this occurrence to increase his power, but not Konrad. He merely took control as Chairman and continued business as usual, afraid to rock the boat. He now walks a fine line between the needs of the Orbitals and the demands of CEGA.

▼ STATS AND REPUTATION

Konrad is based on the Merchant template (**Jovian Chronicles Companion**, p. 38) with the addition of PER +1, and the Skills Law 2, Leadership 1 and Cooking 2. Konrad has a personal reputation of +1; even as head of the PRC, he is not well known.

▼ NOTES AND HOOKS

Konrad is by his nature not very approachable. While a good businessman and a decent politician, he remains fairly insulated in his wealthy lifestyle. Those of wealth might know him or of him, or those who wish to do business with him might be able to arrange a meeting. He still manages some of the aspects of his food companies, even after selling partial interest to a cabal of Venusian investors. Characters might be hired to negotiate a trade deal with him or for him. They might also be hired as troubleshooters by the Venusians to investigate an aspect of his business with them.

Politically, Konrad can be an influential, if not too aggressive diplomatic contact. He will be reluctant to help in anything risky or that might involve some negative effect to the CEGA presence in orbit. After the Copernicus Dome incident and the attack on Elysee, he has developed a growing fear that such conflicts might spread to Earth orbit and jeopardize the lives of his people, and he will not allow that if at all possible. More likely, he can be a contact in cases of diplomacy trying to soothe over relations with different groups or eliminate potential threats to the Orbitals.

KARLA VOORHIES, CEGA ORBITAL AMBASSADOR ◀

Karla Voorhies is an aging beauty of a woman, but still quite muscular and strong. Her shoulder-length blonde hair with long bangs reaching almost to her eyes is the first thing most men notice about her. Her face is a little on the plain side, with wide-set eyes, pronounced cheek bones, and a strong jaw line, making her look somewhat masculine. Her long neck over-accentuates her head movements, and she strongly telegraphs her emotions through her body language. Karla keeps herself extremely physically fit, first from her time serving in the military and then in her training for space duty, and is very well proportioned. Although a smile is rarely seen on her lips, enough cajoling can usually bring forth a smirk, especially from those she holds in respect.

Karla carries herself like a military woman to this day. Her training is not easily forgotten. She is somewhat direct and ruthless in the pursuit of her agenda, which is CEGA's agenda; her current main goals are to get increased CEGA rights in the Orbital and Lunar governments. She sees it as the best course of action for the continued survival of the Earth-Moon region, and for the recovery and peaceful resolution of the conflicts on Earth. A mistake must not be made in assuming that Karla wants war, however. She has seen enough blood in her lifetime to know that war solves nothing. Her direct approach does, however, often help her get things done, and most assuredly intimidates the head of the Orbital People's Representative Council, Van Oosten, with whom she has regular contact.

DESCRIPTION ▼

Karla was raised on the cold and rainy coasts of the Maritime League. Of course, much of that time was spent in the vast arcology of Gaia City. Karla was raised on stories of the traditions of the old United States and its dominance in the early eras of space exploration. As a child, she always dreamed of being one of those early astronauts and sharing in their adventures in orbit. Her most prized possession as a child was an old relic toy of the one of the original U.S. space shuttles, Columbia.

As a teenager, she gravitated naturally toward military service and became a fighter pilot. She was a veteran of many battles with the NAS and became an aerial combat ace. She was a natural for CEGA's space program and was a test pilot for some of their newer space fighter designs. As a test pilot, she was expected to have more of an education than most, and focused on structural engineering. Her aptitude tests showed a strong set of communication skills, which garnered her the first of her diplomacy training courses. As much as she loved being a space pilot, she longed to actually explore and investigate all the habitats that she could see gleaming in the distance from her home base at Fort Gibraltar. She decided to expand on her diplomatic training and applied for the CEGA Diplomatic Corps. She was accepted and advanced rapidly, securing an assignment onboard Takoda Station as an attaché, and then as liaison to the Orbital PRC.

Voorhies can most currently be seen aggressively lobbying for CEGA rights among the Orbitals. Much of her time is spent visiting the individual stations and dealing directly with their elected governments. The Orbitals, much to their own chagrin, have started to like her for her desire to deal with them on a more local level. She does this because she knows it's the best way to motivate and come to terms with these disparate colonies, but she also does it to feed her insatiable desire to explore the varied colonies and all the cultures that have developed. The remainder of her time is spent aboard Takoda Station, where she is often in direct negotiations with Chairman van Oosten. He considers her a tad over-exuberant and a bit too eager at times, but finds her easier to deal with than the previous liaison. Despite her love of the time she spends in the Orbital communities, she is still first and foremost an officer of CEGA and will always stand for its needs first before the needs of her new home in the stars.

STATS AND REPUTATION ▼

Karla is based off the Space Fighter pilot template (**Jovian Chronicles Companion**, p. 44) with the addition of AGI +2 and KNO +1, with the additional Skills of Etiquette 1, Leadership 1, Law 2, Bureaucracy 2, and Mechanical Design 1. She has no particular reputation bonus.

4.6.3

▼ NOTES AND HOOKS

Karla can be encountered just about anywhere in the Orbital Communities, or more rarely on Fort Gibraltar filing out her reports. Her main posting is Takoda Station, so she will most often be found attending the meetings of the PRC or in conference with one or more of its representatives. She still holds the rank of Lt. Commander in the CEGA navy and takes flights out on occasion, just to keep her skills up, so she might even be encountered on patrol. While she rarely employs additional help (since she can call on the resources of CEGA for whatever she needs), she does occasionally need to utilize more discreet resources (like Player Characters) to undertake more sensitive missions that cannot be entrusted to normal diplomatic channels. She also makes a good foil or contact for those who have regular dealings in the Earth-Moon orbital region.

Karla believes in a sort of “Manifest Destiny,” a lesson she learned from old 20th century history. She strongly feels that CEGA is the answer to a unified government first in the Earth-Moon area, and then throughout the rest of the Solar System. She believes that her way is the superior way and that others are just misguided by the shortsightedness of their own little spheres of influence. This makes her come across as a bit of an elitist in discussions of CEGA politics, where normally she would be quite amiable and charismatic.

► SAMUEL BRECKENRIDGE, BASE COMMANDER, FORT GIBRALTAR

4.7

Commander Samuel Breckenridge is 51 years of age, tall, muscular and imposing. His short black hair is always kept high and tight, despite the small bald spot forming on his crown. His piercing blue eyes always seem to be focused through whatever object at which he’s looking and carry the look of a predator, and his expression is always one of sizing up the person he’s speaking to. His presence tends to command respect and he gives off a strong aura of competence. He is always encountered in his neatly pressed and starched CEGA uniform.

Breckenridge is not one to lose his cool. A lifetime of combat on Earth has taught him to be extremely focused and centered. He possesses an economy of movement and moves like a bull through a china shop, fast and directly. He does his best to stay in shape, especially now that he’s out in space. Although he is not as graceful in space as those who have lived their entire lives there, he has done his best to at least be competent in his new environment. He sees it as no more different than learning survival in any other climate, be it desert, jungle, or the cold depths of space.

▼ DESCRIPTION

4.7.1

Samuel was raised in the United Kingdom, on the coast of old Scotland, in the little hamlet of Musselburgh. As a child, military history was always his passion, from the old Roman stone bridge that crossed a river near his home to the reconstructed museum in Edinburgh with its completely restored Viking longship. While trying to survive the harsh, toxic conditions of his environment, he would dream of the great heroes of his nation’s past and hoped one day to have his own epic adventures. He got his chance when he enlisted in the military and became an officer candidate.

He excelled as a small-unit commander and spent some years fighting wars in various parts of the world for the USE. After the United Kingdom became an independent state, he chose to join the CEGA space navy and received a transfer to the new exo corps. He proved quite adept at piloting the new armors and was assigned to fleet duty with ships headed to Mars. He distinguished himself time and again in small-unit actions and upon his return to Earth, received a promotion as a flight instructor for new recruits. He spent several years as an instructor and administrator before being promoted again to be the executive officer at Fort Gibraltar. From there, he would routinely take out exo patrols to keep his skills fresh. He gained a reputation as a hard-nosed, but honorable and fair officer. When the previous base commander retired, Breckenridge was a natural choice to assume command and was promoted to command of Fort Gibraltar and all near-Earth operations.

Breckinridge has held command of this post for a little over six years now, and his famous “Welcome to the Rock” speech has become legendary among recruits who come to cut their teeth on what are typically their first assignments in space. He allows his subordinates to handle normal diplomatic ties with the other Orbital colonies and mostly concerns himself with military training and operations schedules for his area of operations. That does not mean he’s above dealing with diplomatic situations when the need arises. If called upon, he attends to all matters of relations with the Orbitals or the Moon with the utmost professionalism and height of military precision. He is also big on ceremony, and any dignitaries who visit his station will be greeted by an honor guard in full military dress.

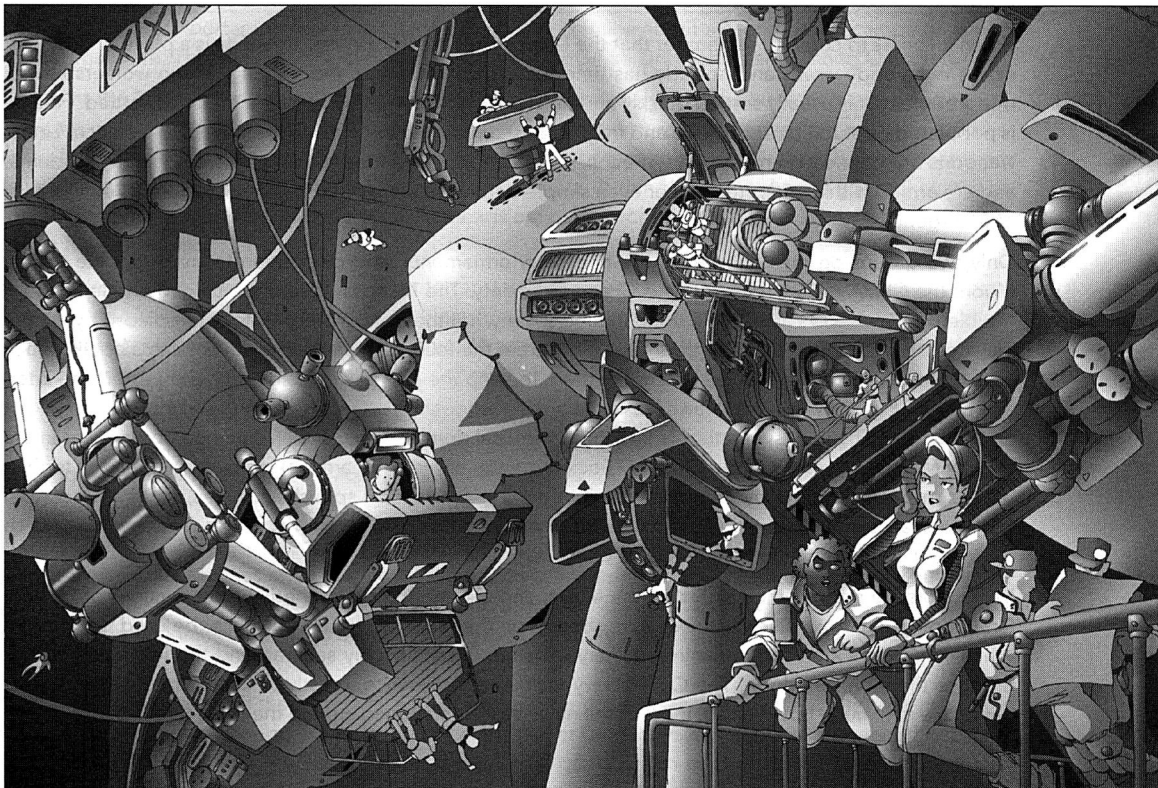
STATS AND REPUTATION ▼

Samuel is based off the exo-pilot template (**Jovian Chronicles Companion**, p. 36) with the addition of INF +1 and BUI +1, and with the additional Skills of Leadership 2, Bureaucracy 2, Law 1, and Intimidate 2. He has a personal Reputation bonus of +1.

NOTES AND HOOKS ▼

Samuel Breckinridge can be found almost exclusively on the Rock. He rarely leaves Fort Gibraltar except for the occasional trip back to Earth to meet with his superiors. He spends much of his free time working out and reading everything from the Bible to Caesar’s Commentaries to Patton’s “War As I Knew It.” He considers himself a soldier cut from very old cloth and strives to maintain tradition and honor in his command.

Any contact with him will likely be on Fort Gibraltar either as newly assigned pilots or trainees, or even as soldiers ferrying back and forth between the Earth and high orbit. He likes to keep tabs on all soldiers that come through his station. Although he has a reputation as a gruff, blood-and-guts style of commander, he is actually quite personable with the soldiers under his command when the mood is light. When it is serious, he is every bit hard-as-nails officer his troops have learned to fear and respect. Visiting diplomats will even find him quite educated and well-spoken, given his background, and he entertains any foreign dignitaries with a manner bordering on the extravagant, especially if he feels they have something that he or CEGA needs.



4.7.2

4.7.3

end of section 4.7 Personality: samuel breckenridge, base commander, fort gibraltar

4.8

► ADVENTURING IN CISLUNAR SPACE

As there is already a large amount of material already available on styles of gamemastering, campaign construction, and storytelling in the **Jovian Chronicles Companion** and the **Jovian Chronicles Gamemaster Screen**, this section will deal mostly with the details specific to Lunar adventures. As noted in the **Jovian Chronicles Rulebook**, the Reality Distortion Level (RDL) controls both game mechanics and the atmosphere of the game and environment. The default RDL of this game manual is Adventurous. Suggestions for Gritty or Cinematic games are outlined below.

4.8.1

▼ GAME STYLES

Gritty: Life on the Moon is risky. The relative safety of the domes is fleeting, and threats like moonquakes, solar flares and meteor strikes wait to kill the unwary. Life on Luna is not romantic; it's a constant gamble. The holos make life on the Moon look like a breeze, but with plastic shields and glass roofs being all that separates most of the Moon's inhabitants from hard vacuum, living on the Moon is not for the faint of heart.

This RDL is for math/physics majors who like to keep their calculators in shape, or fans of the movie "Outland." Stats should be provided for every aspect of lunar life and travel, including space suits, oxygen volumes, and dome structural information. The Player Characters are expected to be mindful of their own safety at all times; if someone forgets to bring an extra flashlight or rope, tough. Rules for gravity, as well as radiation and other hazards of life in space are to be found in the **Jovian Chronicles Companion**, pp. 78-83.

Cinematic: With the Moon being an open market, there is plenty of room for adventure. With its open markets, commerce with Earth, the Guild and the Orbitals, along with the large number of incoming ships, the cities of the Moon have a feel like the bazaars and trade ports of Old Earth. Information, contraband, even people and lives are bought, sold, traded, smuggled, pirated and stolen day in and day out; think "Casablanca." Life on the Moon is glamorously risky rather than potentially lethal. Player Characters and NPC's alike are the rugged capitalists of popular pulp fiction, capable in survival, skilled in trade and diplomacy, and always ready for action. No rules adjustments are required for this style of play, apart from the basic RDL rules (**Jovian Chronicles Rulebook**, pp. 223-224).

4.8.2

▼ ACTION

When it comes to combat, remember that the Moon is not the Wild West. Nearside is a place of business, where everybody works and nobody has time for a lot of shooting and fighting. If two workers have a disagreement, it is usually settled quickly and efficiently in a short brawl, and the matter is settled. Farside is populated by studious academics and fragile telescopes, neither of which reacts well to violence. Lethal weapons are banned on most parts of Luna. Police on the Moon are looking to avoid violent incidents, and are armed with tasers, stunners or even simple batons, hauling out the heavy armaments only in case of emergency.

Only two groups on the Moon have the necessary armaments, and disposition to make trouble on the Moon; the CEGA military garrison and Chang O Society. The Marines are armed, trained and looking for trouble. The Chang O's are so far just a debating society, but the day that fiery rhetoric is replaced by gunfire may not be too far off. Naturally, these two groups are the focus of many of the adventures that take place on the Moon. CEGA Marines are ostensibly there to keep the peace, maintain order and protect the interests of the CEGA government. However, "accidentally" shooting protestors, chasing security risks, breaking up hotbeds of Chang O sympathizers and the occasional drunken brawl are all common occurrences in the life of a Marine. Members of the Chang O Society, on the other hand, are looking to draw attention to their issues. This can be done by pamphlet distribution, stirring political speeches, strikes, and in the case of some radical cells, ambushing CEGA garrisons or even bombings and terrorist strikes. The severity of each cell's actions is determined by the resolve of its members.

Exo-armors are not common sights on the Moon, and are completely banned in most sections of Farside. On the other hand, small civilian exo-suits abound on the Moon and can, in a pinch, be used for combat. While some exos are used in mining, military exos are generally only seen around the few factories that produce them on the Moon. The CEGA Navy maintains a presence, mostly to keep pirate and smuggler traffic to a minimum, but even so, most of the naval vessels stationed around the Moon are picket craft and small cruisers.

The thing to remember when running combat in populated section of the Moon is that there is usually no money or gratitude in it. Workers and Miners see violence as a delay at best, and as a threat to the community at worst. Farsiders take an even dimmer view of combat in their domains. Even a minor scuffle is enough to get one banned from a University facility in short order and likely blacklisted from the rest as well.

MOONIES AND LUNATICS ▼

Characters are likely to encounter two types of notable denizens while on the Moon, nicknamed "Moonies" and "Lunatics" by early foreign visitors. **Moonies** are the residents of the Moon who are the survivors, the workers, the backbone of Lunar society. Their work ethic is famous and they take their responsibilities to their job, their neighbors, and their society very seriously. Barring special occasions like the Sanctuary Festival at Ellesworth Station, Moonies are stable, somber and, by the standards of most Earthers, a bit dull. The Moonie is the stereotypical view most foreigners have of Selenites.

Lunatics are another matter; they are people who have lived on the Moon and for some reason become unhinged, be it a result of stress, culture shock, or the boredom endemic in the hardworking Lunar population. "Lunatics" or "Lunies" are blamed for every kind of problem or misfortune. A dome collapses; some Lunie must have caused it. A fight breaks out in a mining complex; no doubt a Lunie started it. When CEGA Marines engage a group of Chang O revolutionaries in a blazing gun duel, both groups will describe the other as having "turned Lunie."

Even the most stable and even keeled individuals sometimes do the most insane things on the Moon, for no good reason; the prevalent theory involves heretofore-undetected mental disorders brought on by long-term living under low gravity, but there is no solid proof, since there have been no reliable studies performed. The waters are further muddled by the fact that while the average Lunar citizen is noted for his dullness, the few citizens that do get drawn into exciting pursuits tend to be somewhat extreme in their natures. This includes such interesting pastimes as Solar Sailing, Lunacrosse, and of course political activism. The result is that all Moonies who undertake any extreme course of action, even once, earn the label "Lunatic."

CHOOSE YOUR ENEMIES CAREFULLY ▼

One of the most important things for a Gamemaster to determine about a Moon-based campaign is who the bad guys are. The two most likely candidates are the CEGA security forces and Chang O Society.

Played as the "good guys," the Chang O's should be portrayed like the founding fathers of a great nation. They are ordinary men and women who have been placed in extraordinary circumstances by the oppression of the CEGA government. They are trying to resolve the situation peacefully, but their arguments are falling on deaf ears and times are growing more desperate. If things do not change soon, they will be forced into armed rebellion. Already some hotheads are calling for this last drastic step, but so far cooler heads have prevailed.

As the enemies, the Chang O's are a sinister terrorist cell group, with faction members hidden everywhere. Their rhetoric is inflammatory and in a way reflects the ideas or attitudes of the general populace. In recent months they have gone from making outrageous demands of the CEGA to posing dire threats. The situation is a powder keg and the Chang O's may set it off at any moment.

If the Chang O's are the bad guys, CEGA may well be the good guys. Seen more as a police force or a defensive garrison than an occupying force, the CEGA Marines walk the streets in their sharp uniforms drawing admiring looks from the Moonies, while the mighty CEGA navy cruises silently overhead giving everyone a sense of security.

As bad guys, the CEGA are seen by the Moonies as an occupying army, forced on them by a distant imperial power. The CEGA Marines swagger through the streets like conquerors, and are constantly bullying or intimidating the local populace. Sweeps are made to scoop up "dissidents" and the Marines are above local laws. Anyone who thinks of striking back need only look up at the might of the CEGA navy to see the futility of such an action.

Of course, these views are the extremes, and a Gamemaster can settle his or her campaign at any point in between based on his players. The more apolitical the Player Characters are, the less important this distinction becomes. But, should the Player Characters spend a good length of time on the Moon, they should encounter both factions and have a chance to draw their own conclusions.

4-B-5

▼ ADVENTURE SEED: SMUGGLER'S BLUES

Jovian-sympathizing characters are recruited to contact the Chang O Society and make arrangements to supply them with Jovian arms and equipment. The characters will accompany a small shipment, given in good faith, and oversee the distribution of arms, basic training, and payment collection. This is very dangerous, as the CEGA Navy is looking for exactly this kind of smuggling. Once on the ground, the characters and the Chang O's must be very discreet, or end up in direct confrontation with the CEGA Marines before they are ready.

This scenario is open to most any career. Military, criminal and technical backgrounds can all be of use to the Chang O. Characters should be discreetly armed, and must have access to some kind of vessel for carrying the weapons. If they have no transport of their own, transport will be supplied by the Jovians, but will depart as soon as the cargo is unloaded.

◇ EVENTS

After passing inspection and being allowed to land on the Moon, the characters will oversee the unloading of the weapons, stored in twenty 1x2x1meter crates marked "Duvall Mining Supplies," into a private holding facility. Then they will go to a safe house, a pre-arranged hotel room in Luna City to await their contact.

Eventually they will be contacted by Phillip Carver, a member of the Chang O Society, through secure channels. He will meet with the characters in a safe location and inquire about the weapons. Arrangements must be made to move the weapons out of Luna City and into a remote location outside the dome. Carver can arrange for transport from the airlock to the Chang O's work shack, but the character must acquire transport inside Luna City. At least one member of the team must accompany the weapons if they are to be paid for them and arrangements are to be made for the next shipment.

◇ COMPLICATIONS

- 1) The Chang O society is not really ready for open rebellion. It will take a great deal of convincing and training to bring them to that point of view. Why is this a problem? Well, until the Chang O's are ready to take up arms, they are not ready to pay for arms, especially if a moderate faction takes control of the Society between the time the Player Characters are hired and the time they expect payment. This complication could lead to a long series of debates, committee meetings and perhaps a staged "incident" or two.
- 2) One of the Chang O's is an undercover member of the Solar Police. So far his mission has been pretty dull, but now things are looking like the bust of his career is about to occur. He will arrange to be one of the Chang O's at the air lock for pick up. Shortly after transfer of the crates begins SolaPol agents will swoop down on the smugglers and rebels alike and attempt to arrest everyone. The SolaPol mole will try to get close to the characters and arrest them personally, since that will look best to his superiors.
- 3) While in transit from the storage facility to the air lock, the rental vehicle will break down in the middle of a busy intersection. Local authorities must be put off while repairs are effected or other transport is secured. Remember that 20 crates will be difficult to move without a forklift, work exo, or other mechanical assistance.
- 4) Upon arrival at the Chang O secret base, the characters discover that the workshack has been seized by enemy forces. These forces may be the local authorities, SolaPol agents, CEGA Marines, or even another more radical faction of the Chang O keen on taking the weapons for themselves. Perhaps the approaching characters are tipped off by unfriendly vehicles parked outside, the failure if the work shack to respond properly to hails, or because of guards stationed outside the facility. Where will the characters go now? How will they deliver their goods? More importantly, how will they get paid?

◇ THE OPPOSITION

If handled well this mission should have little opposition. A group of Player Characters who acts with restraint and discretion should be able to get away without any official interest being shown in their "mining supplies." Should the characters decide to play it rough, though, they will end up with all manner of enemies dogging them. They can be hunted by ocal police, SolaPol, the CEGA Military, the Chang O's, and even their Jovian employers if the Player Characters decide to run with the guns or the money.

NOTES ◇

A sketched map of the routes between the safe house, storage facility, airlock and work shack should be prepared. Also, vehicle stats will be useful in case a chase ensues. Gamemasters are encouraged to do their best to keep the weapons out of the hands of the Player Characters and in the crates they came in. Should this kind of firepower be unleashed against the lightly armed police or Chang O's a bloodbath will ensue, which will quickly escalate as CEGA Marines respond as they did at Copernicus Dome.

ADVENTURE SEED: DANGEROUS PROSPECTS ▼

The Player Characters are part of a prospecting team on the Moon, using a rover and a pair of leased or rented Prospector Exo's to explore a remote area. They will take their gear and move well beyond the range of standard communications and current work claims in search of rich mineral deposits. As they get further into the Lunar mountains the terrain gets rougher and the possibility of a mishap more likely.

Miners can come from a variety of backgrounds. Laborers, technicians, and geologists all are needed to find and mine for ore. Pilots and drivers can easily find work transporting equipment and workers, and military types can be hired as security, or doing odd jobs. Even one-time hotshot Exo pilots might have left the life of an ace fighter pilot behind and be working driving a clunky old prospecting Exo these days just to make ends meet while they try to forget their troubles.

EVENTS ◇

The trip to the hinterlands in search of minerals should be quite a trip in and of itself. The terrain is rugged, with no roads and no travel accommodations. Moonquakes, rockslides, meteor strikes, solar flares, radiation storms, the constant threat of vacuum and the ever-present possibility of mechanical failure all can be used to keep characters on their toes. In the end there should not be any real body count, but a few close shaves can make the trip the more exciting.

In the highlands the characters will eventually come across a rich vein of lunar uranium, more than they can possibly mine on their own. Claim markers will be dropped and the characters will set out to get back to Tycho, so they can make their stake official. They team will find an easier slope down the plateau than the one they ascended on. Along the way, however, they will stumble across a facility that should not be there.

COMPLICATIONS ◇

- 1) The facility is a hidden Chang O Society training site. A radical cell is using the base to train in weapons and demolitions. If the characters are discovered, and do not immediately espouse their pro-Lunar politics, they will be captured or killed to keep them from giving the location of the base away.
- 2) The characters happened upon a CEGA military base. A violation of the Lunar Treaties, the base is a staging area for a large CEGA military force and includes infantry, armor and support units. The Player Characters are discovered, and must either talk fast or face imprisonment without trial.
- 3) Wildcat miners have set up an illegal mining operation. Smuggling Helium-3 and uranium to pirates and other criminal groups, the wildcatters will be very interested in the characters and any ore deposits they may know of in the area. Though they are lightly armed they are numerous and quite vicious; their offers to pay the characters handsomely may or may not be lies.
- 4) Nestled in a hidden crater valley, the small facility is a Jovian military listening post eavesdropping on CEGA naval communications. The small but crack team of Jovian commandos will do everything they can to keep their whereabouts a secret.
- 5) The hidden base is a secret Corporate Exo proving ground, where the latest stage of Exo development is being tested. Once the characters' presence is discovered, a corporate bigwig will no doubt see this attempt at "corporate espionage and sabotage" as a good excuse to put the new Exos through their paces. The characters must run for their lives while they are hounded by swift, deadly, well armed combat Exo prototypes. For a real challenge, let the character discover that the Exos are equipped with a top secret cloaking device, and that they cannot even see the noose tightening around them as the bad guys close in. The characters' only hope is to use ingenuity and their knowledge of the terrain to set traps for the relatively inexperienced test pilots, although it might also be possible to double back, enter the base and hold the corporate executive hostage.

◇ THE OPPOSITION

The opposition is of course highly variable, ranging from rough miners armed with shotguns and carbines all the way up to invisible corporate prototype combat exos. Keep in mind, though, that the opposition should not be both overwhelming and inescapable. Let the characters either run or stand and fight. And make sure to keep the numbers in scale with the power of the enemies. One cloaked, cannon-toting, missile-armed, plasma-lance wielding exo should be plenty for a half dozen miners in a glorified dune buggy and a couple of beat up yellow mining exo-suits.

◇ NOTES

A large area map will be useful for players in this scenario. Not only can they pore over it as they look for the uranium to begin with, they will want to try and find the fastest escape route once the bad guys are out after them. The map should also be labeled with at least a few interesting (or unstable) terrain features, in case the players need to find a spot to create an ambush, pit trap or rockslide. Stats for the work exos will likely be needed as no doubt some character will want to try and match them against whatever comes chasing after them.

▼ ADVENTURE SEED: THE OUTPOST

The characters are members of a municipal, corporate, or freelance rescue team, perhaps associated with SolaPol. A mining station some distance away from the main city dome has gone silent. Perhaps the communications equipment is broken or perhaps there has been some kind of pirate attack or accident. The Player Characters are ordered / hired to go and investigate the situation.

The team should be fairly well balanced to prepare for any possible outcome. Techs, military types, medics, drivers and pilots all have a place in the rescue squad. As mentioned above the team will have access to an appropriate vehicle. Environment suits, tool kits, medical supplies and communications equipment is also standard, as are light weapons. Heavy weapons, explosives, or combat vehicles are not available, however.

◇ EVENTS

Given a rover or hopper and some vac-suits, the team must cover the ground as quickly as possible. Upon approach the work shack appears normal, with no damage or signs of trouble. However, there are no signs of life and no response to any attempts at communication. Entering the work shack is the only way to determine what has gone wrong.

The most important point in the mission comes when the Player Characters actually enter the workstation. This moment should be played for drama, and the players' preparations or initial approach can make all the difference in the outcome of the adventure depending on what is waiting for them inside the station.

◇ COMPLICATIONS

1) The work shack has been seized by terrorists. These anti-CEGA terrorists, (not likely to be Chang O Society members) have come into the work shack, killed the miners and seized the Lunar uranium. They have set up a small fission device that will have its blast magnified by the ore, theoretically causing a massive quake that will be blamed on the Earth-based mining company. The Player Characters can try to warn the authorities, defuse the bomb or go after the terrorists themselves.

2) A rival corporation has sent a security team disguised as terrorists to the station. They have captured the entire staff, and have them bound and under guard. Even as the characters arrive they are busy loading a computer virus into the facility's network outlet. They will attempt to stall or capture the characters, but once their mission is over, they will withdraw. Should they succeed in downloading the program, their virus will lead to the economic ruin of the corporation that owns the work shack.

3) The Edicts Enforcement Bureau of the Solar Police have raided the station, capturing the crew and putting an end to the illegal gene-drug manufacturing and smuggling that was occurring here. While the characters are no doubt innocent of any connection to the drugs, they will still wander into the ambush laid by the SolaPol agents who are attempting to net the rest of the drug gang. If the Player Characters react poorly or inappropriately, they may get dragged in by SolaPol, at which point one of the Player Characters' sordid pasts (real or imagined) comes to light.

4) The mining facility is not what it seems. It is a secret viral weapons research center, with chambers that extend deep underground. An accident has occurred and a viral agent has been released. The few surviving workers have been contaminated, and are driven mad by the effects of the disease. They will try to convince the characters to return them to the dome for medical treatment. If refused, they will do their best to escape or steal a transport. Characters exposed to the facility's atmosphere will contract the disease as well. Should any infected character or NPC make it back to the dome an epidemic will break out in a matter of days. Details of the disease and possible cures are left to the Gamemaster.

THE OPPOSITION ◇

Try to match the number of opponents to the number of skilled combatants in the player group. Keep heavy weapons to a minimum if possible. After all, nobody needs to be firing off large-caliber weapons inside a civilian mining shack on the surface of the Moon.

NOTES ◇

A simple map of the mining facility will be needed, and possibly a map of the surrounding area. The facility is small, perhaps the size of a gas station, unless, of course, it's a secret underground research lab.

ADVENTURE SEED: THE FESTIVAL ▼

The Player Characters are in town just in time for the Sanctuary Festival at Ellesworth Station. The dome is crowded with Moonies all looking for a good time. The streets are crowded, lodging prices have tripled, and everywhere they go there are revelers in masks or costumes. What could possibly go wrong during the Sanctuary Festival?

Any character can be played during the Festival. No restrictions whatsoever. Equipment should be light at best, nothing that cannot be easily carried or worn. Weapons will draw a lot of unfriendly attention, as will armor or anything that might be construed as non-celebratory.

EVENTS ◇

Any number of events can be set up for the Festival. Parades in the streets, sporting events, open air concerts, costume balls and drunken revels are all on the city's itinerary. Characters can wander alone among the crowds or stick together and move from party to party for the weeklong celebration.

COMPLICATIONS ◇

- 1) The characters end up in bar frequented by the local CEGA Marine garrison. The Marines arrive shortly after the characters do, and waste no time getting drunk and belligerent. Should a brawl break out, local authorities will break it up quickly and arrest all participants. The Marines will be turned over to their officers and returned to duty. Characters will be imprisoned at least until the end of the festival, and then fined for disturbing the peace.
 - 2) Characters come across a Chang O Society rally, with speeches and shouting and general political dissent. Perhaps the characters can even get involved. It is not long, however, before the local authorities arrive to place the organizers of this gathering under arrest for demonstrating without a license. At this point the crowd gets ugly and a riot begins. Can the characters find / fight their way out of the mob before they are arrested?
 - 3) One of the masked characters is approached by another masked man. That man will speak to the character in a familiar fashion, leave a small case next to the player then leaves quickly. The case contains a large amount of money and a picture of Miller Tan, a noted member of the Chang O Society, and keynote speaker at a rally to be held during the Festival.
- The money is payment being made for the assassination of Tan, and it has been paid to the character by mistake. The real assassin, a man named Forbes, will come looking for the character some 30 minutes after the first man has given the money to the character. How difficult it is for Forbes' to recover his money is up to the character. Forbes will try to ask for the money or steal it, but if confronted or stymied, he will attempt to kill the character, take the money and do the job he was hired to do.

4) The characters are approached by a woman and offered a job. She is trailing her husband, whom she is trying to divorce, and he has entered a very exclusive bordello. Will they follow him and get photographic evidence of his infidelity? She has a small holo-cam, with a picture of her husband already on the screen. To gain entrance to the bordello, membership must be faked or a doorman bribed. Once inside, discretion must be used in observing the husband as he enjoys his night out, and in following him upstairs for his private party. Any open attempts to confront or photograph the man will result in security destroying the camera and throwing the character out.

◇ THE OPPOSITION

Be flexible when creating opponents for players in this scenario. Outside of Forbes, the opposition in this scenario should not be lethal, more of an annoyance than anything else. This scenario is a roleplaying opportunity rather than a combat outing.

◇ NOTES

Be ready with lots of generic maps, names of NPC's and seemingly random action. Draw up a bar, a city street, a park, and anywhere you think your players might get themselves into trouble. This is also a great time to introduce your own NPCs into the campaign; the Player Characters can meet future contacts, employers or enemies in this seemingly harmless environment.

▼ ADVENTURE SEED: THE GREAT RACE

Sponsored by the Lunar Aerospace Consortium, the 15th annual Sea of Tranquility Exo-Race is one of the high points of the Lunar year. A combination of foot race, target shoot and flight completion, the race draws all manner of competitor, from older exo-veterans to young hot dogs and thrill-seeking university students. Betting on the Exo-Race is always heavy, and all the action is televised across the entire Moon.

Each team that enters must enter their own exo-suit, crew and equip it, and have a single pilot complete the course. A combination of shooting accuracy and course completion time are used to determine the winner. Exos all start from basic military surplus or general purpose frame designs, but modification is extensive. Because no one should be shooting at the exos, armor is usually entirely removed to improve speed and performance. Boosters are necessary for the third portion of the event; some exos have extra boosters but suffer reduced ground maneuverability, while others sacrifice thrust power for a hopefully significant lead in the first leg of the race.

Obviously, a pilot is needed. Outside of that, any number of techs, trainers, crewmembers, corporate sponsor representatives, or gamblers can be attached to the group. Alternatively, the Player Characters can be hired bodyguards for a famous pilot or a team of mechanics.

◇ EVENTS

After a racing exo is secured, the team, pilot and exo must be registered. A registered exo will be checked for performance and weight, have its single laser set on a low-damage setting, and have a small transponder bolted to its hull. Racers will be put up two days before the race at a plush (by Lunar standards) hotel where they will meet the other racers. Tempers may flare and egos may run rampant, but outside of a few brawls, most racers will settle things on the course.

Finally the day of the race will come, add the racers will be off. A crown will gather at the airlock to watch the start of the race and a number of Lunar vehicles will line the course to watch the action. A pair of chase hoppers will follow the ground action as well. The race itself is a ground race over difficult terrain, with a winding path. Along the way there are four target zones for racers to shoot at as they pass. Each target is a set of three light sensors that will darken if hit. Racers are expected to shoot them on the move.

At the end of the footpath each exo is goes airborne. The event then proceeds to a race into low orbit to pass a small satellite that will register each transponder when it passes. Then comes the final burn back to the starting line. The winner is determined by time, with a deduction of two seconds from overall time for each sensor hit during the shooting portions of the course. The winner gets a small purse and the Tycho Cup, in addition to immediate sponsorship offers from any number of corporations looking for advertising boosts. For spectators, the real money for the race is made in gambling.

COMPLICATIONS ◇

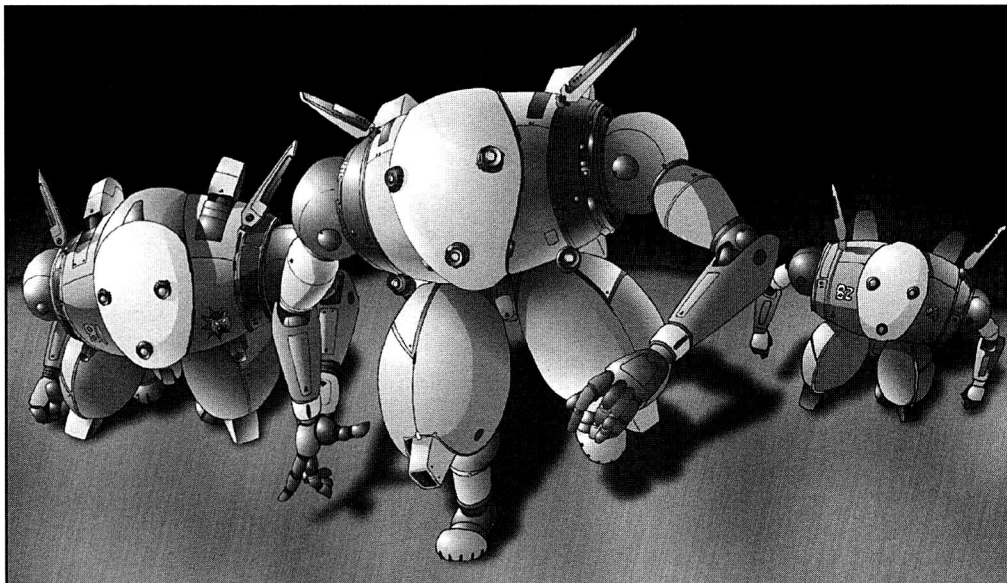
- 1) A sponsor must be secured, before the race can even be considered. This can lead to all kinds of adventures, as a corporation or interested party may need a hotshot exo pilot to perform "favors" in exchange for sponsorship.
- 2) On the day before the race, a fire breaks out in the team hanger, damaging the exo-suit. Can repairs be made in time? Who could have caused such an "accident?" What are the odds of the characters causing a similar accident to happen to somebody else's team? Any investigations or vengeance will have to be accomplished covertly, lest the Player Characters get discovered and disqualified.
- 3) A group of "race fans" come around and offer a large sum of cash to the pilot to throw the race. Should he refuse they will try members of the tech crew to see if a "mechanical failure" can be arranged. If anybody takes the payoff, then they had better come through with the loss. Any attempt at double cross will result in a hit being put on the offender by the "fans," who are members of a small-time racketeering gang trying to make it to the big leagues.
- 4) One of the other racers decides to play rough. He will tackle and shove this way through the course, jostling opponents as they are trying to shoot. If anyone gets too close for too long he will fire his targeting laser into the other racer's sensor plate, dazzling the pilot and blinding their video equipment. If beaten, he will charge into the Victor's Circle claiming he was cheated and start a brawl. The problem is that the racer is the son of a prominent CEGA diplomat; ejecting him from the race might have diplomatic consequences. CEGA Marines and members of other national militaries are all in the spectator crowd and will react if trouble occurs.
- 5) As the foot race nears a close, the racers come tearing over a rise and find a rover in the racetrack! This over-eager spectator has driven into the field by accident, and only a great piloting roll will keep the racers from crashing into the rover. The spectators must be avoided, possibly rescued if the rolls go bad. In the ensuing confusion, the race is delayed, machines break down, and any covert plans (as suggested above) the players might have concocted will likely need to be reworked on the fly.

THE OPPOSITION ◇

Five or six racers are needed to compete. A generic pit crew may be needed if any brawls break out.

NOTES ◇

A map of the course is needed, and stats for reach other racer's exo. Start with a basic military or civilian exo-suit, like a Hector or Minotaur, and then make modifications to suit the personality and needs of each racer.





"In space, technology defines us. We have no business being here without our tools, our suits, and our habitats. Without technology, there is no life in space, and thus technology is, in our age, as integral a component of life as food and shelter."

— David Millar, technician, SPS 3 construction, 2032

CISLUNAR EQUIPMENT ◀

The Lunar and Orbital environments are highly dependent on advanced technology in almost all aspects of life. There is very little on the Moon or in Earth orbit aside from rock and vacuum. Yet, from these resources, two cultures created the space they live in, the tools they use, and even the air they breathe.

Should this technology fail, then the colonies will fail as well. It should thus be no wonder that those who can repair and maintain technology are viewed with a certain amount of awe and respect. Even in the Lunar Farside complexes, outsiders have noted that the repression of the technician class may have more to do with the Academics' sense of helplessness and their refusal to come to terms with it (since most of them have few, if any survival skills) than any true superiority over the supposedly less intelligent and "worthwhile" technicians.

5.1.1

MAIN INDUSTRIES ▼

On the Moon, the main industry is mining, with the Lunar resources going to build the Orbital colonies, and increasingly to rebuild Earth. The Artemisia Mining Corporation is currently the largest mining company on the Moon, with over 100,000 employees. The other large corporation on the Moon is the Lunar Aerospace Corporation, maker of hoppers, OTVs, space stations, and the mightiest exo-armors in the Solar System. LAC employs another 75,000, mostly in their civilian divisions.

In the Orbitals, the corporations aren't so monolithic. Most of the large ones are construction firms, involved in the ongoing expansion and new construction in the Orbitals. Titan Engineering is one of the largest of these companies, employing about 12,000 people from its offices on L5-62 New Montreal. Aside from construction, there is a great deal of manufacturing in orbit, with automated factories producing everything from running shoes to massive luxury liners. Waldsen-Nishiyama, a Venusian corporation, is also very active in the Earth sphere in ship manufacturing, including the fabulous new liner *City of Dreams*, the biggest, most luxurious liner in the Solar System.

5.1.1

MICROSCOPIC CRIMES □

"I work for Titan Engineering, and we build colony cylinders. We can complete a new one in just under three years. Before the EEB, though, they could build an Island-3 in less than a year. Nanotech assemblers could stitch together mooncrete into shapes that could just be bolted on, preformed. And the windows were nano-extruded slabs of poly-diamond. They had it made. You can still see that stuff on the older stations.

"We do OK, and I do understand the need for the Edicts. But the way they go on, you'd think all nano was bad. Now all we can use them for is building material sheets, no larger than 50 x 50 meters."

— Alejandro Njarka, engineer, Titan Engineering, two days before his arrest by the EEB, 2207.

5.1.1

PERSONAL EQUIPMENT ◀

The Lunar and Orbital environments are, to an extent, defined by the technology humankind has brought to bear upon them. Both require the application of high technology in order to support life, technology that must be both sophisticated and reliable. Planned obsolescence is not a feature of Orbital and Lunar products, and the very concept strikes most of them as being either monumentally stupid or dangerously insane. For this reason, all non-luxury items are of extremely high quality, tough and durable.

Luxury goods, on the other hand, don't become technically obsolete, but rather are victims of relentless fashion. These items change form, rather than function, every 2-4 years, as the market dictates, which is still a long ways away from the one-month product cycle common on Earth before the Fall.

5.2

DATALINK ▼

These small electronic devices are used by both Lunar and Orbital dwellers. They provide voice and video communications, data access and serve as emergency locators. All datalinks receive constant updates from the atomic clock on the Lunar Farside, and are often consulted by their users. They are not true computers, but more like data retrieval devices. They can be used to connect datapads to the lunar and orbital networks, but lack the features and virtual-reality immersion of less portable devices.

Mass: 0.2 kg **Cost:** 75 Cr

5.2.1

end of section 5.1 introduction

E-2.5

▼ PARA-4 ULTRALIGHT

The Para-4 is typical of several types of small, ultralight aircraft used for recreational purposes in colony cylinders and under Lunar domes. They come with a small electric motor, which powers the vehicle for climbs and then stops to let the aircraft glide down. The small charge on the battery can keep this up for most of a day, or even longer on the Moon. Once the day's sailing is over, the light but strong airframe compacts into a package small enough to fit in a sports bag. Care must be taken, as the airframe is too fragile to take much abuse.

▢ VEHICLE INFO

TV	1	OTV	0	DTV	2	MTV	0
Final Cost:	300	Prod. Type:	Mass	Pre-Prod. Cost:	516	Default. Cost:	516
► VEHICLE DATA							
Threat Value:	1 (300 credits)			Crew:	1		
Size:	1 (5 kg)			Armor:	1/2/3		
► MOVEMENT DATA							
Movement Mode	Combat Speed			Top Speed	Maneuver		
Flight	1			1 (50 kph)	1		
Deployment Range:	100			Reaction Mass:	N/A		
► ELECTRONICS DATA							
Sensors:	-/-			Communications:	-/-		
Fire Control:	-5						
► PERKS AND FLAWS DATA							
Name				Rating	Game Effect		
Glider				-	Can glide and use thermals		
Brittle Armor				-	Lose twice Armor per hit		
Exposed Crew				-	Crew hits one damage level higher		
Exposed Movement				-	Movement hits one damage level higher		
Fragile Chassis				-	Structure hits one damage level higher		
Maximum Ceiling				8	Cannot go higher than 4 km		
Maximum Climbing Angle				2	Must move 2 forward before climbing up 1		
No Communications				-	Cannot send/recieve messages		
No Sensors				-	Cannot perform sensor checks		
► OFFENSIVE & DEFENSIVE SYSTEMS DATA							
n/a							

▼ SPACESUITS

One of the most important pieces of equipment for anyone living and working in Orbit or on the Moon is the spacesuit. The thin fabric of the suits is all that stands between the user and an ugly death. Not only do spacesuits provide an artificial environment, they can also protect from other hazards, like impact, radiation and even attack. The suits in this section are typical of those in use on the Moon. Orbital worksuits and crew suits have been described elsewhere (**Space Equipment Handbook**, pages 12-18).

Mass is important in Lunar suits, but so is ease of use. Most Lunar and Orbital citizens will rarely, if ever, use a spacesuit. So for those rare times, the suits have to be lightweight and easy to use. Worksuits, on the other hand, have to be durable, while not sacrificing comfort too much. Though a comfortable suit may cost more, the increase in productivity makes it worthwhile.

◇ LUNAR SUIT

The Lunar suit has undergone many decades of development, starting from the first suits worn by the Apollo astronauts back in the 20th century. Designed for ease of use and maintenance, the Lunar suit is an armored soft suit, with a rigid torso, bubble helmet and lower legs. The torso is designed to be large enough that the operator can withdraw their arms into the torso, to operate controls or simply scratch an itch. The fixed bubble helmet offers a wide field of view, and has the inestimable value of allowing the operator to scratch their nose.

These suits are usually designed for multiple users, and include the means to custom-fit them, which workers do at the start of each shift, during buddy-checks and safety inspections. These suits can be fully custom-made for a particular user, at double the cost. This eliminates the encumbrance penalty.

SKINSUIT ◇

The skinsuit is a pressure-tight garment, that, along with an inflatable helmet and a miniature life support pack, can provide up to ten minutes of protection from vacuum exposure. It is similar to, but more advanced than, the suits commonly worn by Nomads. Crew on workshacks and those working in exposed facilities near or on the Lunar surface wear these suits as a matter of course, just in case of an emergency.

Lightweight and comfortable, the skinsuit becomes like a second-skin for many who have to wear them. They fit like a slightly thicker bodysuit, with ports for connectors concealed behind flaps. These suits have no sanitary fittings, as they are not designed for long-term use in vacuum. This is a safety concern, however, as one must be very careful to properly seal the suit after making use of sanitary facilities, or one could suffer a nasty (and embarrassing) accident.

NANO-SUIT ◇

The nano-suit is a piece of technology proscribed under the Edicts, but which still finds covert use on the Moon, especially with the advanced inhabitants of the Farside universities and observatories. In its inert form, the nanosuit is little more than a nodule that sits on the user's chest, with several sub-modules scattered over the body. Upon activation, or upon detecting a sudden drop in pressure, the various nodules thin out and spread to cover the entire body in an ultra-thin, but strong, pressure suit. The nodules even cover the neck and head. All that is required of the user is a small rebreather or a full-fledged life support system. The nano-suit can hold its shape for about fifteen minutes, less if exposed to hard radiation. The nano-suit uses a very specific set of simple nanotech assembler/disassemblers to convert the suit from its inert state to its flexible active state. The assembler/disassemblers are keyed to the signature embedded in the silicon plastic of the suit, making malfunctions rare and generally harmless (aside from the obvious disadvantages of a malfunctioning pressure suit). Nevertheless, possession is tightly controlled off the Moon, and nano-suits are very hard to come by.

Nano-suits are not designed for long-term exposure to vacuum, thus limiting their utility. One was recently used in a break-in at Joshua Station, in the Jovian Confederation. A supposed tourist, with the nano-suit hidden under normal clothing, broke away from a tour of the Jovian Armor Works facility and used his suit to exit the station, cross two hundred meters on the outside, and re-enter in the secure part of the facility, all within JAW's security perimeter. He was only caught because he hadn't counted on Jupiter's intense radiation belt causing his suit to break down after exiting the station a second time.

THE FOLLOWING STATISTICS USE INFORMATION FROM
THE SPACE EQUIPMENT HANDBOOK □

SUIT TYPE	EXPANDABILITY	ARMOR	ENC.	ENDURANCE	MASS	COST
Lunar Suit	1/2/2/1	22	-1	6 hrs+hookups	12	6000
Skinsuit	0/0/1/0	8	0	10 mins+hookups	4	4500
Nanosuit	0/0/1/0	2	0	15 minutes	1	10000

AVAILABILITY AND LEGALITY □

	M	V	E	Or	L	Mf	Mr	N	J	S
Lunar Suit	6-D1	7-D1	9-D1	6-D1	4-D1	7-D1	7-D1	7-D1	7-D1	7-D1
Skinsuit	5-D1	7-D1	9-D1	5-D1	5-D1	7-D1	7-D1	6-D1	7-D1	8-D1
Nanosuit	8-A3	8-A3	8-B2	8-D1	7-C2	8-A4	8-A4	8-D1	8-A3	8-A3

MINING EQUIPMENT ▼

The major industry of the Moon is mining, be it the strip-harvesting of the maria or the new deep-core mining of the masscons. There are also many freelance and corporate prospectors prowling the Moon in search of valuable placer deposits, in particular iron, uranium, platinum and other industrial metals. The following tools are designed to assist them in their search and retrieval operations.

1-2-5

5.2.5

Mass: 2 kg **Cost:** 120 Cr

Mass: 4 kg **Cost:** 350 Cr

Mass: 1.5 tons **Cost:** 24000 Cr

Mass: 10 kg **Cost:** 1200 Cr

E-BEACON ◇

The E-Beacon is an intense visual/radio flare, running off a small battery. There is enough power in the battery to run the E-Beacon continuously for 8-100 hours, depending on the desired signal strength. The E-Beacon provides +2 to Notice checks for searchers using visual equipment (including eyes) or radar.

Mass: 1 kg **Cost:** 80 CR

PORTABLE RADIATION SCREEN ◇

The rad screen is a large, fine metallic mesh with enough area to cover an emergency shelter, or six people in suits. It includes a solar power generator, which will power it indefinitely (in sunlight) The portable rad screen is a Rating 2 Screen.

Mass: 8 kg **Cost:** 350 Cr

WALKING BUBBLE ◇

Developed as an alternative to a spacesuit or shelter for emergencies, the walking bubble is a 2-meter diameter bubble of extremely tough, transparent plastic. It is stored in a four-liter volume packet when not in use. The user opens the packet, crawls in, seals the entrance, and then uses the included life-support/inflator to inflate the bubble. Afterwards, the life-support module can be slung over the user's shoulder, and provides 16 hours of life support for one person. In a pinch, two people can fit in the ball, but movement is very awkward. The user can walk around in the bubble much like a hamster in an exercise ball; in this way, the user can try to get to a safe place without having to wait helplessly for rescue.

Mass: 1 kg **Cost:** 200 Cr

WORKSHACKS ◀

Workshacks are small space stations, usually without any sort of internal gravity. They are used for short-duration missions, or are attached to factories and other unmanned facilities. Most workshacks look like one or more cans, joined together by connection modules. Most of these stations will have a laboratory space, one or two habitation modules, and likely a power module and a docking/airlock module.

More information on the modules can be found in the next section. These are all standard modules, available from a variety of manufacturers, including Orbital Edge, LAC and Waldsen-Nishiyama.

In appearance, a workshack is a collection of nearly identical cylindrical modules, each 20 meters long by 8 meters in diameter. Typically they are painted white, though some privately owned stations have murals and wild paint schemes to differentiate them from others.

Inside, each module is organized in similar fashion, with three decks of triangular-gridded aluminum. The walls are covered with lunar silicate fabric, to help insulate and to deaden the noises and vibrations typical in such small structures. Each module type has color-coded wall, with light green for hab modules, blue for command, orange for power, purple for storage, and red for the lab/production areas. Any of the connector modules can be used for docking, and smaller vehicles can dock inside the garage, if one is available.

All crew wear special shoes with a triangular tab under the toes, to lock them into the floor grid when they need it. All recreational, eating and hygienic facilities are confined to the habitation modules. On stations with multiple hab modules, the crew assigned to each module tend to jealously guard their territory, and trouble often ensues for someone who unwisely uses the wrong toilet.

These stations are usually defenseless if attacked, though some do elect to install high-powered "communications" lasers in their command modules. However, workshacks only have enough structural integrity to keep them together in one piece, certainly not enough to withstand any sort of attack.

There are computer terminals scattered throughout the modules, all linking back to the mainframe in the command module. Without the mainframe, these terminals are little more than datapads. The terminals can be used to access controls, monitor equipment, or play games and other forms of entertainment. Each personal cubicle in the hab modules has a terminal, though these tend to have command functions locked out.

5.5
end of section 5.2 personal equipment

◇ WORKSHACKS (CONT.)

All consumables for the crew are stored either in storage modules, or else in the small storage compartments in the hab modules. All wastes are recycled by equipment in each hab module.

All the modules can operate independently for short periods of time, as all life-support functions are integral to each module. Power is the primary drawback, as the backup batteries on a module typically have only a 24-hour duration.

◇ CEGA BATTLESATS

Though the Articles of Reunion disapprove of orbital artillery, CEGA is still rumored to have constructed battlesats capable of attacking ground targets or assisting fleet units in defense of Earth. The problem is that they are often disguised as civilian workshacks, making all workshacks potential targets in the event of a war. Every few months, the Orbital representatives bring the issue up in the CEGA parliament, but the military always vetoes any discussion of the issue. CEGA battlesats are usually heavily armored, with concealed PDS and KKC batteries, as well as a heavy massdriver or laser for anti-ship combat or bombardment.

▼ O-G MANUFACTURING STATION

These are large workshack complexes, almost the size of space stations, but with little or no accommodation for any staff. Most of the station is given over to the automated factories and power and support modules. They may have accommodations, or visiting staff may be expected to stay on their OTV while conducting maintenance operations. These stations typically have 10-20 operations modules (factory modules), another 10-20 storage modules, 5-10 power modules, 1-2 garages, a command/communications module, and may have 1-2 habitation modules, along with the requisite connector modules.

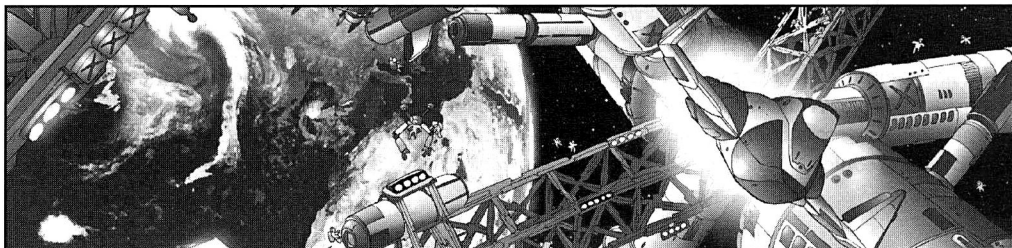
These automated stations produce much of the Orbitals' manufactured goods, in particular electronics and small consumer goods. Security on these stations is very tight, with many external connections welded up tight with extra reinforcement. Products are warehoused in the many storage modules. Typically, a tug with bring a new set of storage modules along with raw materials, and simply haul off the empty storage module for recycling.

These tugs will typically bring a small maintenance crew as well, who check everything out and perform whatever minor repairs are necessary. The micro-assemblers are always under careful scrutiny, and The Edicts Enforcement Bureau of the Solar Police often stages surprise visits to these stations to make sure things haven't crossed over the line.

▼ SMALL O-G LAB FACILITY

These small laboratories are used for conducting experiments or small-scale, specialty manufacturing. This is the most common variety of workshack, and small constellations of these can be found around the O'Neill stations. These small facilities are usually owned by a corporation or a university. They typically consist of 1-2 habitation modules, 1-2 operations modules, 1-2 storage modules, a command/communication module, a garage, and 1-2 power modules, along with the requisite connector modules.

One feature common in these lab stations are emergency explosive bolts for the lab modules, to blow them clear of the station in case of a dangerous lab accident. These types of stations are often used for hazardous experiments that wouldn't be allowed in a cylinder. Many of these experiments carefully tread the fine line established by the Edicts, as they investigate biotech and nanotech. This sort of research is carefully licensed and monitored by the EEB.



ORBITAL OPTICAL TELESCOPE ▼

These large optical telescopes are part of a synthetic aperture system, developed by lunar Farside scientists. Though ostensibly for astronomical observation, the CEGA Navy reserves about 60% of the time on the array. The telescopes are on precisely defined orbits and are linked up with one another by a high-speed, high-bandwidth computer network. This network is further attached to the Lunar Farside network, as well as the CEGA orbital headquarters at Fort Gibraltar. These typically consist of the specialized telescope array, two command/communication modules and an operations module. These stations almost never have habitation modules, due to the risk of miniscule vibrations from the crew affecting the telescope.

There are fifty-six telescopes in the orbital array, each sporting a 12-meter mirror. When used together, these telescopes can resolve a man-sized object at Jupiter's orbit, and could, potentially, map a planet in another solar system. Only the Long-Baseline Array, under construction past Neptune, is larger. The only trouble is, they haven't found any Earth-sized planets in range. The search for Earth-like planets is the main task of the University-funded time on the array. All nearby stars have been examined, and now the search is moving further afield.

The military / security potential for this array is obvious, which is why the CEGA Navy makes such heavy use of it. Protests in the USN by Jupiter and Mercury have led to USN and SolaPol investigations, but nothing has yet been done.

The University Consortium, which built the satellites, is known to have concerns about military usage. They feel that it makes the array a legitimate target, and may lead to sabotage or other terrorist acts. However, since CEGA funded the completion of the array in 2210, no formal protests have occurred. CEGA, for its part, appears to be concerned at the security ramifications of allowing scientists to access the array, especially the Farside scientists, whose outlook has always been too freethinking for the military's comfort.

HABITATION MODULE ▼

The habitation module is a crew quarters and recreation module. Each module has space for five people, along with their associated sanitary, culinary and recreation needs. Though cramped, the space in the modules is more than adequate, especially to those used to the tight quarters of orbital living.

HAB MODULE □

Type:	Station module	TV:	910 (455,000 credits)	Crew:	2	Size:	10 (28,500 kg)
Armor:	10/20/30	Combat Speed:	N/A	Top Speed::	N/A	Maneuver	-5
Deployment Range:	1000 hrs	Reaction Mass:	N/A	Sensors:	-/-	Communications:	-3/1 km
Fire Control:	-5						
► PERKS AND FLAWS							
Rating	Name	Effects	AUX	Rating	Name	Effects	AUX
-	Backup Life support	-	-	6	Life Support (full)	-	-
10	Cargo Bay	10m³	-	40	Passenger accom.	40m³	-
-	Easy to Modify	Well-established design	-	-	Exposed AUX systems	-	-
3	HEP: Radiation	Radiation Screen	-	-	External Power	-	-
-	HEP: Vacuum	Space Protection	-	1	Large Sensor Profile	-	-
1	Laboratory	Kitchen	-	-	No Sensors	-	-
► OFFENSIVE & DEFENSIVE SYSTEM DATA							
N/A							

OGL STAT BLOCK □

Type:	Vehicle	Size:	Huge (Long, 20 m)	Hit Points:	25 (MP: 10)	Occupancy:	Ten pass. (MP:40)
Cargo:	1 ton cargo (MP: 10)	Armor Hardness:	10 (MP: 50)	Defense:	8	Strength:	n/a
Speed:Realistic Space Flight (Thrust 0.001g, G-Round 1000) (MP: 1)		Tactical Speed:	n/a	Initiative:	-5 (MP: -15)		
Maneuver:	-5 (MP: -15)	Total MP Cost:	43	Total Money Cost:	430,000cr		
► SPECIAL ABILITIES: Tactical Radio (MP: 2), Laser Com (MP: 2), Life Support (MP: 12), Kitchen (MP: 1)							
► EXOTIC ABILITIES: n/a							
► MECHA DEFECTS: Reduced Endurance [5 weeks, MP: -5], Restricted Path (must be docked for power, etc., MP: -50)							

h-E-5

▼ COMMAND MODULE

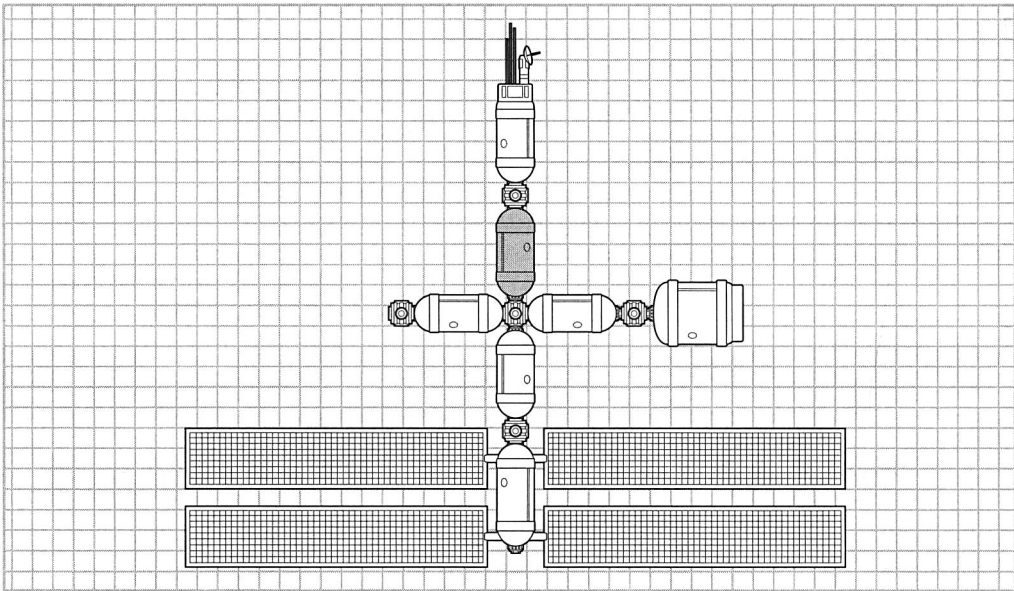
The command and communications module contains a station's computers, as well as the communications equipment and a space to operate and maintain this equipment. It also has office facilities for administration work

▣ NAME: COMMAND

Type:	Station module	TV:	1250 (690,000 credits)	Crew:	2	Size:	10 (28,500 kg)
Armor:	10/20/30	Combat Speed:	N/A	Top Speed:	N/A	Maneuver	-5
Deployment Range:	1000 hours	Reaction Mass:	0	Sensors:	0/2 km	Communications:	0/10 km
Fire Control:	0						
► PERKS AND FLAWS DATA							
Rating	Name	Effects	AUX	Rating	Name	Effects	AUX
-	Backup Communications	-	-	1	Laboratory	Control center	-
-	Backup Life support	-	-	4	Life Support (Full)	-	-
1	Computer	(CRED +1 KNO +1) 1 PP	-	-	Satellite uplink	Long range communications	-
-	Easy to Modify	Well-established design	-	-	Exposed AUX systems	-	-
3	HEP: Radiation	Radiation Screen	-	-	External Power	-	-
-	HEP: Vacuum	Space Protection	-	1	Large Sensor Profile	-	-
► OFFENSIVE & DEFENSIVE SYSTEM DATA							
N/A							

▣ OGL STAT BLOCK

Type:	Vehicle	Size:	Huge (Long, 20 m)
Hit Points:	25 (MP: 10)	Occupancy:	Two operators, Five passengers, no cargo (MP: 40)
Armor Hardness:	10 (MP: 50)	Defense:	8
Strength:	n/a	Speed:	Realistic Space Flight (Thrust 0.001g, G-Round 1000) (MP: 1)
Tactical Speed:	n/a	Initiative:	-5 (MP: -15)
Maneuver:	-5 (MP: -15)	Total MP Cost:	???
Total Money Cost:	??? credits		
► SPECIAL ABILITIES:			
Tactical Radio (Secure, MP: 4), Laser Com (Secure Interplanetary, MP: 14), Life Support (MP: 12), Science Lab (Comm equipment, MP: 5)			
► EXOTIC ABILITIES: n/a			
► MECHA DEFECTS:			
Reduced Endurance (5 weeks, MP: -5), Restricted Path (must be docked for power, etc., MP: -50)			



POWER MODULE

The power modules are large solar arrays, providing five megawatts of power per module. All stations need at least one, and one is also needed for every two production modules.

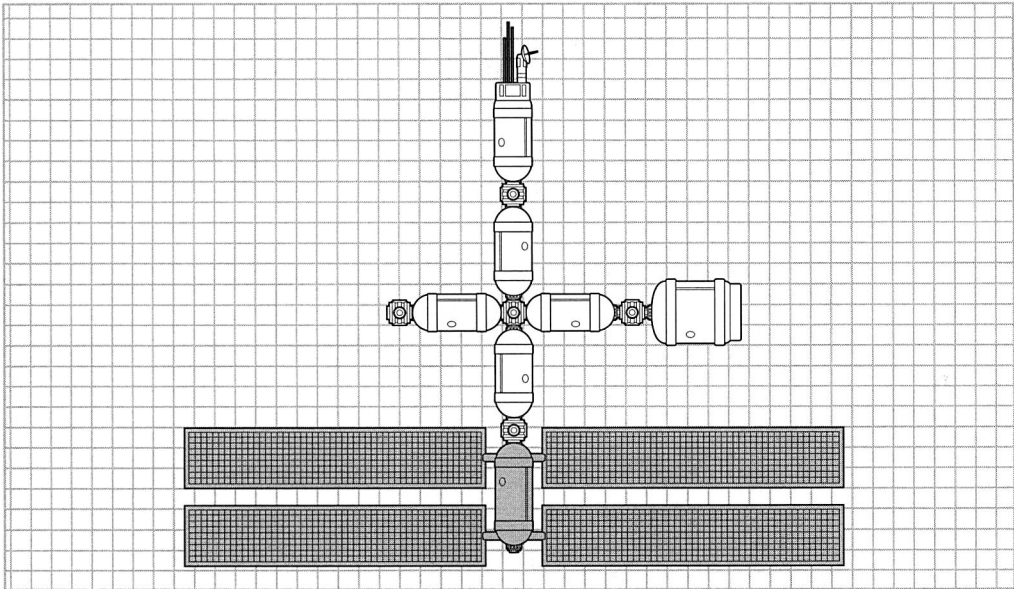
5.E.5

NAME: POWER

Type:	Station module	TV:	910 (455,000 credits)	Crew:	1	Size:	10 (28,500 kg)
Armor:	10/20/30	Combat Speed:	N/A	Top Speed:	N/A	Maneuver	-5
Deployment Range:	1000 hours	Reaction Mass:	0	Sensors:	-/-	Communications:	-3/1 km
Fire Control:	-5						
► PERKS AND FLAWS DATA							
Rating	Name	Effects	AUX	Rating	Name	Effects	AUX
-	Backup Life support	-	-	2	Life Support (Full)	-	-
1	Computer	(CRED +1 KNO +1) 1 PP	-	-	No Fuel Required	Solar Panels (Can be cut off)	-
-	Easy to Modify	Well-established design	-	-	Exposed AUX systems	-	-
3	HEP: Radiation	Radiation Screen	-	-	External Power	-	-
-	HEP: Vacuum	Space Protection	-	2	Large Sensor Profile	-	-
2	Laboratory	Power Converters	-	-	No Sensors	-	-
► OFFENSIVE & DEFENSIVE SYSTEM DATA							
N/A							

OGL STAT BLOCK

Type:	Vehicle	Size:	Huge (Long, 20 m)
Hit Points:	25 (MP: 10)	Occupancy:	One operator, no cargo (MP: 10)
Armor Hardness:	10 (MP: 50)	Defense:	8
Strength:	n/a	Speed:Realistic Space Flight (Thrust 0.001g, G-Round 1000) (MP: 1)	
Tactical Speed:	n/a	Initiative:	-5 (MP: -15)
Maneuver:	-5 (MP: -15)	Total MP Cost:	???
Total Money Cost:	??? credits		
► SPECIAL ABILITIES:			
Tactical Radio (MP: 2), Life Support (MP: 12), Workshop (power equipment, MP: 5)			
► EXOTIC ABILITIES: n/a			
► MECHA DEFECTS: n/a			



▼ PRODUCTION MODULE

5.3.7

NAME: PRODUCTION

Type:	Station module	TV: 1520 (836,000 credits)	Crew:	1	Size:	10 (28,500 kg)	
Armor:	10/20/30	Combat Speed:	N/A	Top Speed:	N/A	Maneuver -5	
Dep. Range:	1000 hours	Reaction Mass:	0	Sensors:	-/-	Communications: -3/1 km	
Fire Control:	-5						
► PERKS AND FLAWS DATA							
Rating	Name	Effects	AUX	Rating	Name	Effects	AUX
-	Backup Life support	-	-	2	Life Support (Full)	-	-
1	Computer	(CRED +1 KNO +1) 1 PP	-	-	Exposed AUX systems	-	-
-	Easy to Modify	Well-established design	-	-	External Power	-	-
3	HEP: Radiation	Radiation Screen	-	1	Large Sensor Profile	-	-
-	HEP: Vacuum	Space Protection	-	-	No Sensors	-	-
3	Laboratory	Factory/Lab Space	-				
► OFFENSIVE & DEFENSIVE SYSTEM DATA							
N/A							

OGL STAT BLOCK

Type:	Vehicle	Size:	Huge (Long, 20 m)
Hit Points:	25 (MP: 10)	Occupancy:	One operator, no cargo (MP: 40)
Armor Hardness:	10 (MP: 50)	Defense:	8
Strength:	n/a	Speed:	Realistic Space Flight (Thrust 0.001g, G-Round 1000) (MP: 1)
Tactical Speed:	n/a	Initiative:	-5 (MP: -15)
Maneuver:	-5 (MP: -15)	Total MP Cost:	???
Total Money Cost:	??? credits		
► SPECIAL ABILITIES:			
Tactical Radio (MP: 2), Life Support (MP: 12), Workshop (production equipment, MP: 5)			
► EXOTIC ABILITIES: n/a			
► MECHA DEFECTS:			
Reduced Endurance (5 weeks, MP: -5), Restricted Path (must be docked for power, etc., MP: -50)			



5.3.9

▼ GARAGE MODULE

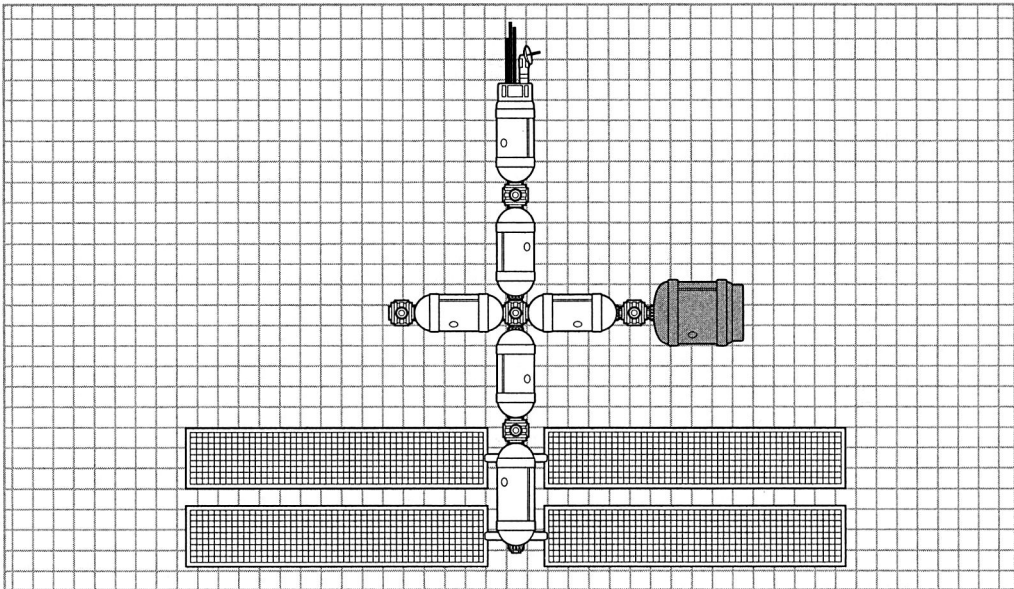
The garage is a service bay dedicated to servicing small satellites and vehicles. Most stations that aren't involved in satellite support use the bay as storage, or keep a small OTV.

▢ NAME: GARAGE

Type:	Station module	TV:	910 (455,000 credits)	Crew:	2	Size:	12 (41,500 kg)
Armor:	10/20/30	Combat Speed:	N/A	Top Speed:	N/A	Maneuver	-5
Dep. Range:	1000 hours	Reaction Mass:	0	Sensors:	-/-	Communications:	-3/1 km
Fire Control:	-5						
► PERKS AND FLAWS DATA							
Rating	Name	Effects	AUX	Rating	Name	Effects	AUX
-	Backup Life support	-	-	-	Large Doors	Vehicle Bay Entrance	-
200	Cargo Bay	Vehicle Bay	-	4	Life Support (Full)	-	-
1	Computer	(CRED +1 KNO +1) 1 PP	-	4	Manipulator Arm	Maintenance arm	-
-	Easy to Modify	Well-established design	-	-	Exposed AUX systems	-	-
3	HEP: Radiation	Radiation Screen	-	-	External Power	-	-
-	HEP: Vacuum	Space Protection	-	2	Large Sensor Profile	-	-
1	Laboratory	Maintenance shop	-	-	No Sensors	-	-
► OFFENSIVE & DEFENSIVE SYSTEM DATA							
N/A							

▢ OGL STAT BLOCK

Type:	Vehicle	Size:	Huge (Long, 20 m)
Hit Points:	25 (MP: 10)	Occupancy:	One operator, 5 ton cargo (MP: 54)
Armor Hardness:	10 (MP: 50)	Defense:	8
Strength:	n/a	Speed:	Realistic Space Flight (Thrust 0.001g, G-Round 1000) (MP: 1)
Tactical Speed:	n/a	Initiative:	-5 (MP: -15)
Maneuver:	-5 (MP: -15)	Total MP Cost:	???
Total Money Cost:	??? credits		
► SPECIAL ABILITIES:			
Tactical Radio (MP: 2), Life Support (MP: 12), Hangar (Large, MP: 20)			
► EXOTIC ABILITIES: n/a			
► MECHA DEFECTS:			
Reduced Endurance (5 weeks, MP: -5), Restricted Path (must be docked for power, etc., MP: -50)			



TT-E-5

▼ CONNECTOR MODULE

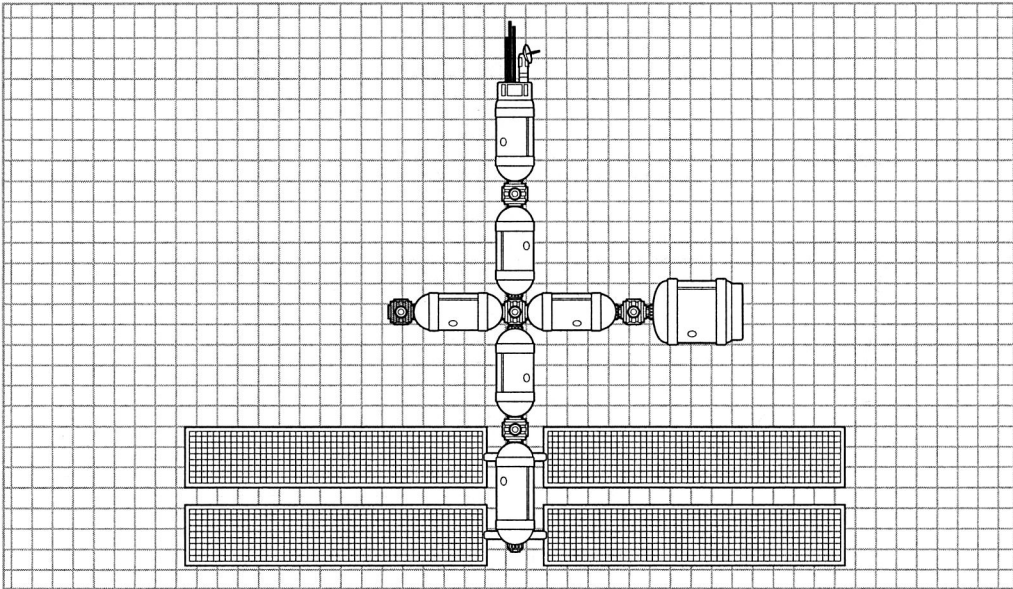
The connector module is a small component that connects each of the modules, and has power and data feeds. It also serves as an airlock, and a docking module for spacecraft too large to fit in the docking bay. A connector module is required to join other modules together.

▣ NAME: CONNECTOR MODULE

Type:	Station module	TV:	10 (5,100 credits)	Crew:	1	Size:	2 (240 kg)
Armor:	10/20/30	Combat Speed:	N/A	Top Speed:	N/A	Maneuver:	-5
Deployment Range:	500 hours	Reaction Mass:	0	Sensors:	-/-	Communications:	-3/1 km
Fire Control:	-5						
► PERKS AND FLAWS DATA							
Rating	Name	Effects	AUX	Rating	Name	Effects	AUX
-	Easy to Modify	Well-established design	-	-	Exposed AUX systems	-	-
3	HEP: Radiation	Radiation Screen	-	-	External Power	-	-
-	HEP: Vacuum	Space Protection	-	-	No Sensors	-	-
2	Life Support (Full)	-	-				
► OFFENSIVE & DEFENSIVE SYSTEM DATA							
N/A							

▣ OGL STAT BLOCK

Type:	Vehicle	Size:	Medium (Long, 3 m)
Hit Points:	15 (MP: 10)	Occupancy:	One operator, no cargo (MP: 10)
Armor Hardness:	10 (MP: 50)	Defense:	8
Strength:	n/a	Speed:	n/a
Tactical Speed:	n/a	Initiative:	-10 (MP: -50)
Maneuver:	-10 (MP: -50)	Total MP Cost:	???
Total Money Cost:	??? credits		
► SPECIAL ABILITIES:			
Tactical Radio (MP: 2), Life Support (MP: 4), Accessories (One-man airlock, MP: 1)			
► EXOTIC ABILITIES: n/a			
► MECHA DEFECTS:			
Reduced Endurance (5 weeks, MP: -5), Restricted Path (must be docked for power, etc., MP: -50)			



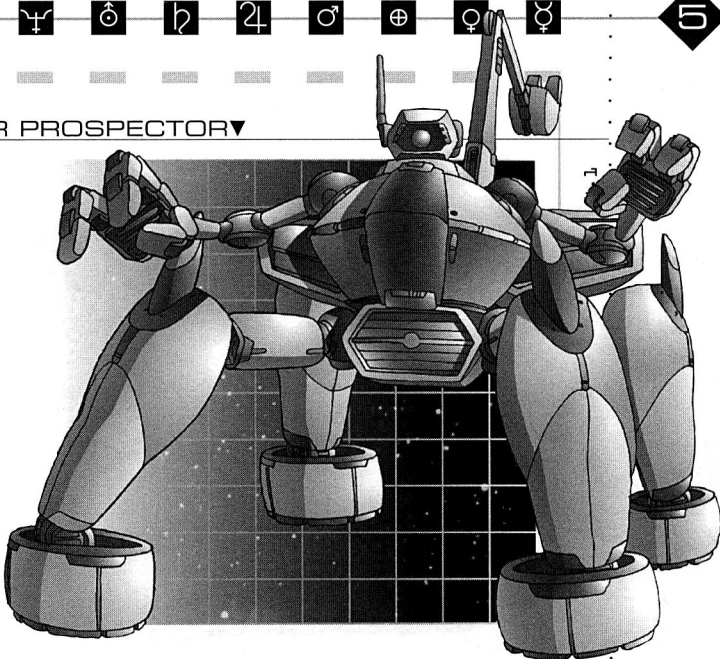
LUNAR PROSPECTOR▼

The Prospector is a recent design from LAC, which is trying to break into the civilian exo market. The Prospector has been very well received, being more suitable for Lunar operations than its competitor, the Vulcan exo-armor.

The Prospector is fairly unique in that it uses a four-legged exo-driven suspension to improve its rough-terrain capability. Coupled with the rear-mounted hoe and the upright torso in front with its manipulator arms, many have taken to calling this distinctly nonaggressive machine the Scorpion. Another unique feature of this machine is the minimal crew quarters, including a bunk and a small galley for the pilot. This helps enormously on the long-range missions this exo-vehicle is designed to perform.

However, in their rush to get the Prospector to market, LAC made too many shortcuts in the design, and it tends to develop more problems than other commercial vehicles over time.

Though the Prospector is not designed for combat, there are persistent rumors that the Chang O Group is considering using them in guerilla operations and hit-and-run actions. While the Society hasn't done this sort of thing in the past, continued rumblings over Copernicus Dome and other CEGA outrages may soon spark more direct action on their part.



PROSPECTOR □

Type:	Mining exo-armor	TV:	770 (433,000 credits)	Crew:	1	Size:	8 (12,000 kg)
Armor:	12/24/36	Movement	Walker (20 kph)	Combat Speed	3	Top Speed	6
Maneuver	-1	Deployment Range:	750 km	Reaction Mass:	0	Sensors:	0/2 km
Communications:	-1/20 km	Fire Control:	0				
► PERKS AND FLAWS DATA							
Rating	Name	Effects	AUX	Rating	Name	Effects	AUX
1	Computer	(CRE -1 KNO 0) PP1	7	2	Manipulator Arms	(Can Punch)	-
3	HEP: Radiation	Rad screen	-	12	Passenger accom.	12 m³	-
-	HEP: Vacuum	Space Protection	-	-	Exposed Movement Sys.	-	-
-	Improved Off-road	-	-	-	Problem Prone	-	-
-	Life-Support (Limited)	-	-	-	Weak Underbelly	-	-
-	Light Mining equipment	-	-				
► OFFENSIVE & DEFENSIVE SYSTEM DATA							
N/A							

OGL STAT BLOCK □

Type:	Giant Robot	Size:	Huge (Tall, 10 m)
Hit Points:	25 (MP: 10)	Occupancy:	1 operator, no cargo (MP: 10)
Armor Hardness:	12 (MP: 60)	Defense:	8
Strength:	40 (+15) (MP: 90)	Speed:	Land 60 kph
Tactical Speed:	Land 100 m	Initiative:	-2 (MP: 10)
Maneuver:	-2 (MP: 10)	Total MP Cost:	190
Total Money Cost:	1.9M credits		
► SPECIAL ABILITIES:			
Accessories (backhoe, light mining equipment, MP: 2), Tactical Radio (Secure, MP: 2), Life Support (MP: 12), Searchlights (MP: 2), GPS (MP: 2), Radar (2 km, MP: 4), Magnetic Sensor (1 km, MP: 6), Infrared (1 km, MP: 2)			
► EXOTIC ABILITIES:			
Limited A.I. (Dex3, Wis3, Cha1, MP: 35)			
► MECHA DEFECTS:			
Hangar Queen (MP: -10), Noisy (MP: -5), Reduced End. (1 day, MP: -20), Start Up Time (1 minute, MP: -20), Weak Point (underbelly, MP: -12)			

LUNAR HOPPER SHUTTLE

Built by the Lunar Aerospace Corporation, the Hopper is still their best-selling non-military product. This design dates back to the early years of the company, just before the Fall, and various examples of it can be seen on any low-gravity body in the Solar System, from the larger asteroids to the Jovian moons and beyond. A reliable workhorse, capable of carrying passengers or externally slung cargo, the Hopper is the helicopter of the Moon, used to ferry supplies, build bases and perform search-and-rescue operations.

LAC-UH 8 MOON HOPPER

Type:	Sub-orbital transporter	TV:	970 (485,000 credits)	Crew:	2	Size:	10 (24,000 kg)
Armor:	20/40/60	Movement:	Space (.6 Gs)	Combat Speed:	6	Top Speed:	12
Maneuver:	-1	Deployment Range:	200 hours	Reaction Mass:	600 burn points	Sensors:	-1/2 km
Communications:	-1/10 km	Fire Control:	-5				
► PERKS AND FLAWS DATA							
Rating	Name	Effects	AUX	Rating	Name	Effects	AUX
2	Airlift Winch	External Cargo Sling	-	30	Passenger accommodations		-
-	Autopilot	Acts as level 1 pilot	-	-	Satellite Uplink	-	-
-	Backup Life Support		-	4	Searchlight	Landing Lights	-
1	Computer	(CRE -1 KNO 1) PP1	-	-	Brittle Armor	Armor takes 2x damage	-
3	HEP: Radiation	Rad screen	-	-	Exposed Movement system		-
-	HEP: Vacuum	Space Protection	-	-	Problem Prone	-	-
-	Life-Support (Limited)		-	-	Weak Underbelly	-	-
-	NOE Flyer		-				
► OFFENSIVE & DEFENSIVE SYSTEM DATA							
N/A							

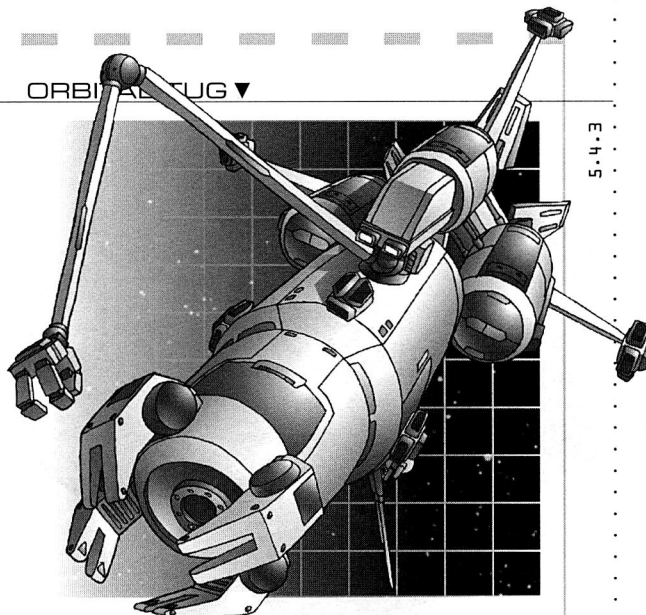
OGL STAT BLOCK

Type:	Vehicle	Size:	Gargantuan (Long, 14 m)
Hit Points:	40 (MP: 0)	Occupancy:	2 operators, 18 passengers, no cargo (MP: 92)
Armor Hardness:	12 (MP: 60)	Defense:	8
Strength:	n/a	Speed:	Realistic Space Flight (Thrust 1.2g, G-Round 300) (MP: 432)
Tactical Speed:	n/a	Initiative:	-3 (MP: -5)
Maneuver:	-3 (MP: -5)	Total MP Cost:	893
Total Money Cost:	8.9M credits		
► SPECIAL ABILITIES:			
Accessories (airlift winch, MP: 1), Booster (Space, 2.4g, G-Round 100, MP: 288), Tactical Radio (MP: 2), Laser Com (Interplanetary, MP: 12), Life Support (MP: 12), Searchlights (MP: 2), GPS (MP: 2), Radar (Global, 2 km, MP: 8), Optics (2 km, MP: 2)			
► EXOTIC ABILITIES:			
Limited A.I. (Dex3, Wis3, Cha1, MP: 35)			
► MECHA DEFECTS:			
Noisy (MP: -5), Reduced Endurance (1 day, MP: -20), Start Up Time (1 minute, MP: -20)			

The tug is a small, yet powerful, vessel, designed to maneuver large vehicles around in crowded conditions, or to give a boost to small vehicles to give them added delta-v. The orbital tug is an extremely common vessel in Earth orbit, and practically anywhere else in the Solar System. These sturdy craft are used in a wide variety of roles, including moving station components, moving large vessels out of dock, boosting small vessels into different orbits or even sending them on their way to another planet. At the tug's heart is an extremely powerful PCC motor, capable of running at 6 Gs flat out, though usually throttled far back. The engine is used at full power to move large loads or for boosting.

Game Notes: To work out towing, add the mass of the tug to the mass of the towed vehicle, and then divide 500 by the total to arrive at the acceleration of the two joined vehicles.

So, a Tiberian mining ship, at 9500 tons loaded, plus the 83 tons of the tug, is 9583. Divide 500 by 9583 to get the acceleration of the tug and the Tiberian, for an acceleration of 0.05 G. A 5-ton Thoth probe, however, could be boosted at 5.7 G by the tug.



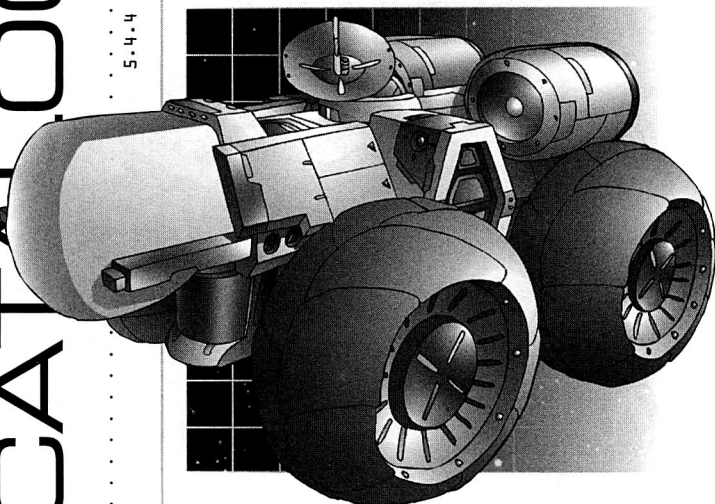
ORBITAL TUG □

Type:	Orbital Tug	TV:	3770	OTV:	6	DTV:	6340
MTV:	4770	Final Cost:	1.9 million	Prod. Type:	Mass	Pre-Prod. Cost:	3.71 million
Default. Cost:	3.71 million	Size:	15	Def. Size:	15	Mass:	83.25 tons
Crew:	2	Actions:	3	Maneuver:	+1	Armor:	25/50/75
Sensors:	+1/2 km	Commo:	0/10 km	FiCon:	-5	Deploy:	250 hours
BP:	1000	ReMass:	Light Gas	Space (Gs):	6 G	Top:	60
Combat:	30						
► PERKS DATA							
Rating	Name	Effects	AUX	Rating	Name	Effects	AUX
-	Autopilot	-	y	-	Life Support (Limited)	-	y
-	BU Life Support	-	-	12	Manipulator Arm	Work Arm (Can Punch)	-
1	Computer	-	-	1	Reinforced Chassis	-	-
-	Easy to Modify	-	-	-	Reinforced Crew Comp.	-	-
-	Ejection System	-	y	-	Satellite Uplink	-	y
3	HEP: Radiation	-	-	-	Searchlight	-	y
-	HEP: Vacuum	-	-	12	Tool Arms (x4)	Ship Grapple	-
► FLAWS DATA							
Rating	Name	Effects	AUX	Rating	Name	Effects	AUX
-	Brittle Armor	-	-	-	Exposed Movement Sys.	-	-
-	Exposed Aux. Systems	-	-	p	Large Sensor Profile	-	-
► OFFENSIVE & DEFENSIVE SYSTEM DATA							
N/A							

OGL STAT BLOCK □

Type:	Giant Robot	Size:	Gargantuan (Long, 20 m)
Hit Points:	40 (MP: 0)	Occupancy:	2 operators, no cargo (MP: 20)
Armor Hardness:	25 (MP: 125)	Defense:	6
Strength:	50 (+20) (MP: 120)	Speed:	Realistic Space Flight (Thrust 3g, G-Round 100) (MP: 750)
Tactical Speed:	n/a	Initiative:	-3 (MP: 5)
Maneuver:	-3 (MP: 5)	Total MP Cost:	1469
Total Money Cost:	14.6M credits		
► SPECIAL ABILITIES:			
Booster (Space, 6g, G-Round 25, MP: 375), Tactical Radio (MP: 2), Laser Com (Interplanetary, MP: 12), Life Support (MP: 16), Extra Arms (3, MP: 75), Searchlights (MP: 2), GPS (MP: 2), Radar (Global, 2 km, MP: 8), Optics (2 km, MP: 2)			
► EXOTIC ABILITIES: n/a			
► MECHA DEFECTS:			
Very Noisy (MP: -10), Reduced Endurance (1 day, MP: -20), Start Up Time (1 minute, MP: -20)			

▼ ROVER III



The Rover III is one of the most common ground vehicles to be found on the Moon. Variants in the basic design include mining vehicles, cargo transports, tour buses, and even an armed military version. Most surface work is done in one of these extremely versatile vehicles. In addition to the big balloon tires, the Rover III also has a set of jump verniers to allow it to cross obstacles such as rough terrain and deep crevasses. If pressed, a skilled pilot could even use them to achieve lunar orbit, though landing again could be very difficult.

□ ROVER III

Type:	Ground Vehicle	TV:	130	DTV:	0	DTV:	95
MTV:	270	Final Cost:	60000	Prod. Type:	Mass	Pre-Prod. Cost:	120000
Default. Cost:	120000	Size:	7	Default Size:	5	Mass:	12 tons
Crew:	1	Actions:	2	Maneuver:	-1	Armor:	10
Sensors:	-1/ 2km	Commo:	-1/10 km	FiCon:	-5	Ground Top:	13
Combat:	7 80 kph	Space (Gs)	0.3 G	Top:	3	Combat:	2
Deployment Range:	200	BP:	100	Reaction Mass:	Light Gas		
► PERKS DATA							
Rating	Name	Effects	AUX	Rating	Name	Effects	AUX
-	Backup Life Support	-	-	8	Passenger Seating	Seats for 8	-
3	HEP Radiation	Radiation Screen	-	-	Satellite Uplink	Long Range communications	Y
-	HEP Vacuum	Space Protection	-	2	Searchlight (forward)	Powerful headlights.	-
4	Limited Life Support		Y				
► FLAWS DATA							
Rating	Name	Effects	AUX	Rating	Name	Effects	AUX
-	Brittle Armor	Armor takes 2x dam.	-	-	Exposed AUX Systems	All hits on AUX systems are one step worse	-
► OFFENSIVE & DEFENSIVE SYSTEM DATA							
N/AS							

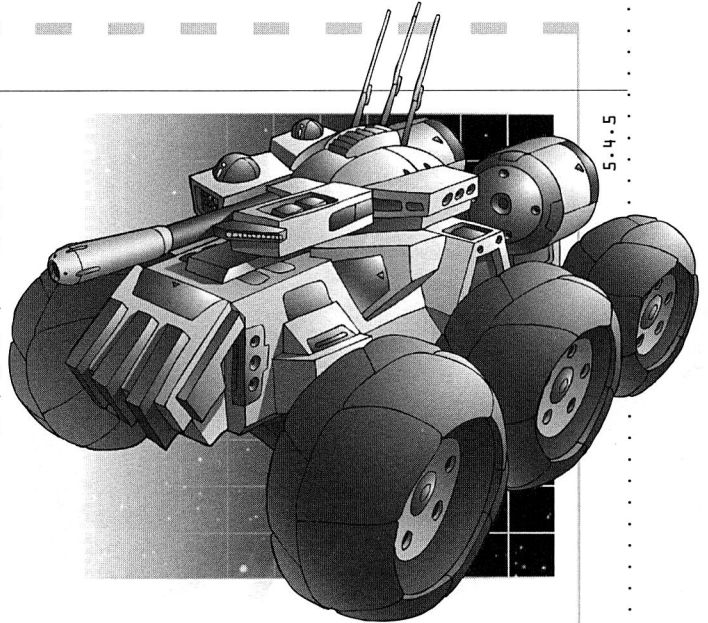
III OGL STAT BLOCK

Type:	Vehicle	Size:	Huge (Long, 8 m)
Hit Points:	20 (MP: 0)	Occupancy:	1 operator, 8 passengers, no cargo (MP: 34)
Armor Hardness:	10 (MP: 50)	Defense:	8
Strength:	n/a	Initiative:	-3 (MP: -5)
Speed:	Land 120 kph, Realistic Space Flight (Thrust 0.3g, G-Round 200) (MP: 80+60)		
Tactical Speed:	Land 200 m	Maneuver:	-3 (MP: -5)
Total MP Cost:	206	Total Money Cost:	2,060,000 credits
► SPECIAL ABILITIES:			
Accessories (one-man airlock, MP: 1), Tactical Radio (MP: 2), Laser Com (Interplanetary, MP: 12), Life Support (MP: 12), Searchlights (MP: 2), GPS (MP: 2), Radar (2 km, MP: 4), Optics (2 km, MP: 2)			
► EXOTIC ABILITIES: n/a			
► MECHA DEFECTS:			
Noisy (MP: -5), Reduced Endurance (1 day, MP: -20), Start Up Time (1 minute, MP: -20)			

▼ ROVER TANK

Then Rover tank is a recent vehicle, developed by the Lunar Armaments Groups for local defense. It is a common Rover-type chassis that has been reinforced and strengthened to support additional ceramic armor on its surface. The upper hull has been modified to accept a laser turret, with the capacitor banks taking up much of the original passenger capacity.

Most of the major surface settlements have a couple on hand for defense, though wargames have proven that they would fare poorly against exo-armors or dedicated spacecraft. They are excellent anti-insurgency weapons, however, and most of their commanders' assignments have been approved by the local CEGA authorities.



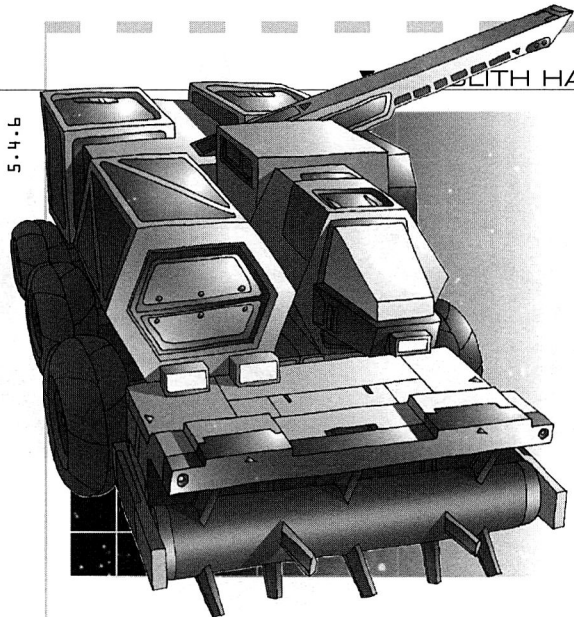
NAME: ROVER III □

Type:	Ground Vehicle	TV:	1050	DTV:	0	DTV:	95				
MTV:	270	Final Cost:	60000	Prod. Type:	Mass	Pre-Prod. Cost:	120000				
Default. Cost:	120000	Size:	7	Default Size:	5	Mass:	17 tons				
Crew:	3	Actions:	4	Manuever:	-1	Armor:	10				
Sensors:	1/ 2km	Commo:	1/10 km	FiCon:	0	Ground Top:	11				
Combat:	6 80 kph	Space (Gs)	0.3 G	Top:	3	Combat:	2				
Deployment Range:	200	BP:	100	Reaction Mass:	Light Gas						
► PERKS DATA											
Rating	Name	Effects	AUX	Rating	Name	Effects	AUX				
-	Backup Life Support	-	-	8	Reinforced Armor	Front	-				
3	HEP Radiation	Radiation Screen	-	-	Satellite Uplink	Long Range communications	Y				
-	HEP Vacuum	Space Protection	-	2	Searchlight {forward}	Powerful headlights.	-				
4	Limited Life Support		Y	-	Reinforced chassis	-	-				
► FLAWS DATA											
Rating	Name	Effects	AUX	Rating	Name	Effects	AUX				
	Annoyance	{whine in turret mechanism}	-	-	Laser Cannon in Turret	-	-				
► OFFENSIVE & DEFENSIVE SYSTEM DATA											
Qty	Name	Arc	DM	BR	Acc	ROF	Ammo	Special	MS	WC	AC
1	Laser cannon	T	x15	4	0	0	Inf	AP, HEAT	-	-	-

OGL STAT BLOCK □

Type:	Vehicle	Size:	Huge (Long, 8 m)				
Hit Points:	30 (MP: 0)	Occupancy:	3 operators, no cargo (MP: 30)				
Armor Hardness:	12 (MP: 50)	Defense:	8				
Strength:	n/a	Initiative:	-3 (MP: -5)				
Speed:	Land 100 kph, Realistic Space Flight (Thrust 0.3g, G-Round 200) (MP: 84+108)						
Tactical Speed:	Land 165 m	Maneuver:	-3 (MP: -5)				
Total MP Cost:	488	Total Money Cost:	4.8M credits				
► SPECIAL ABILITIES:							
Accessories (one-man airlock, MP: 1), Chobham Armor (MP: 12), Tactical Radio (Secure, MP: 4), Laser Com (Secure, Interplanetary, MP: 14), Life Support (MP: 12), Searchlights (MP: 2), GPS (MP: 2), High Resolution Radar (2 km, MP: 6), Optics (2 km, MP: 2), Infrared (2 km, MP: 6)							
► EXOTIC ABILITIES: n/a							
► MECHA DEFECTS:							
Noisy (MP: -5), Reduced Endurance (1 day, MP: -20), Start Up Time (1 minute, MP: -20)							
► WEAPONS:							
Name	Dam.	ROF	RI	Ammo	Qualities	Restrictions	MP Cost
Laser Cannon *	6d12	SS	240m	n/a	Long Range, Unlimited Shots	n/a	210
NOTE: *Energy Weapon							

5.4.6



REGOLITH HARVESTER

The lunar harvester is the most commonly encountered mining vehicle on the Moon. Using the large scoop and digging tines at the front of the vehicle, it moves slowly across the vast plains of the lunar maria, collecting the top 1-2 meters of regolith and processing it to separate out the volatiles from the dirt.

The processed dirt is either dumped out the back or loaded into an accompanying dump truck to be taken back to a processing plant and further refined.

The vehicle crews work for very long stretches of time, and the work is often described as excruciatingly boring. However, these vehicles are the backbone of the Lunar economy, and their operators get a great deal of respect from the other Lunar citizens.

REGOLITH HARVESTER

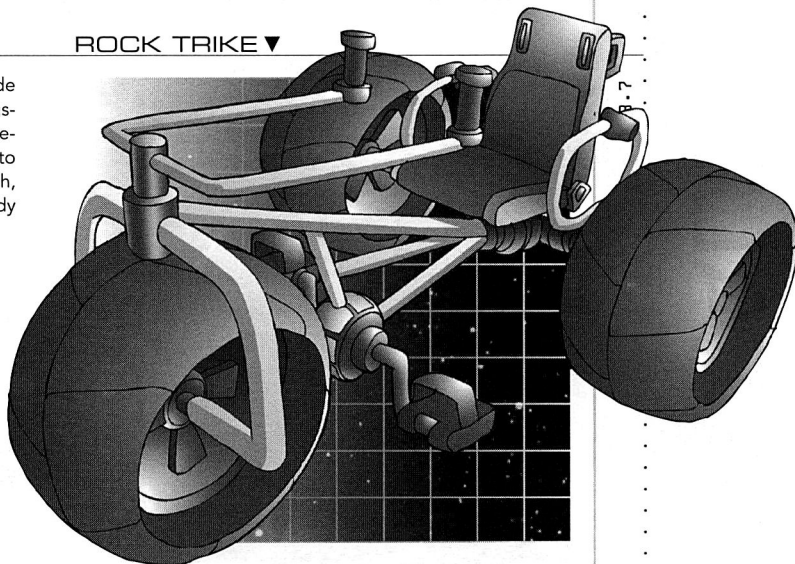
Type: Surface Collection Vehicle	TV: 470	OTV: 0	DTV: 50
MTV: 1360	Final Cost: 235000	Prod. Type: Mass	Pre-Prod. Cost: 470000
Default. Cost: 470000	Size: 9	Default Size: 8	Mass: 18.6 tons
Crew: 2	Actions: 3	Manuever: -2	Armor: 10/20/30
Sensors: -/-	Commo: -1/10 km	FiCon: -5	Deploy: 500 km
Ground 20km/h	Top: 3	Combat: 2	
► PERKS DATA			
Rating	Name	Effects	AUX
-	Backup Life Support		-
-	Cargo Bay (50m³)	Volatile Storage	-
2	HEP: Radiation	Radiation Screen	-
-	HEP: Vacuum	Space Protection	-
Rating	Name	Effects	AUX
1	Laboratories	Volatile Sep. Equipment	y
-	Life Support (Limited)		y
-	Mining Equip. (Heavy)	Harvesting Equipment	y
2	Searchlight	High-intensity Headlights	y
► FLAWS DATA			
Rating	Name	Effects	AUX
-	Brittle Armor		-
-	Exposed Aux Systems		-
-	No Sensors		-
► OFFENSIVE & DEFENSIVE SYSTEM DATA			
N/A			

OGL STAT BLOCK

Type: Vehicle	Size: Huge (Long, 8 m)
Hit Points: 20 (MP: 0)	Occupancy: 2 operators, twenty-five tons cargo (MP: 45)
Armor Hardness: 10 (MP: 50)	Defense: 8
Strength: n/a	Speed: Land 30 kph (MP: 20)
Tactical Speed: Land 50 m	Initiative: -3 (MP: -5)
Manuever: -4 (MP: -10)	Total MP Cost: 88
Total Money Cost: 880,000 credits	
► SPECIAL ABILITIES:	
Accessories (one-man airlock, heavy mining and processing equipment, MP: 3), Tactical Radio (MP: 2), Laser Com (Interplanetary, MP: 12), Life Support (MP: 12), Searchlights (MP: 2), GPS (MP: 2)	
► EXOTIC ABILITIES: n/a	
► MECHA DEFECTS:	
Noisy (MP: -5), Reduced Endurance (1 day, MP: -20), Start Up Time (1 minute, MP: -20)	

ROCK TRIKE ▼

The Rock Trike was originally developed shortly after the Fall to provide an inexpensive method of transportation for workers outside without using up scarce mechanical equipment. It quickly became an item for recreational pursuits as well, with more rugged models now being built able to handle the worst Lunar terrain. The Rock Trike has a low-slung seat which, along with the big balloon tires, helps keep the lightweight vehicle steady in low-gravity.

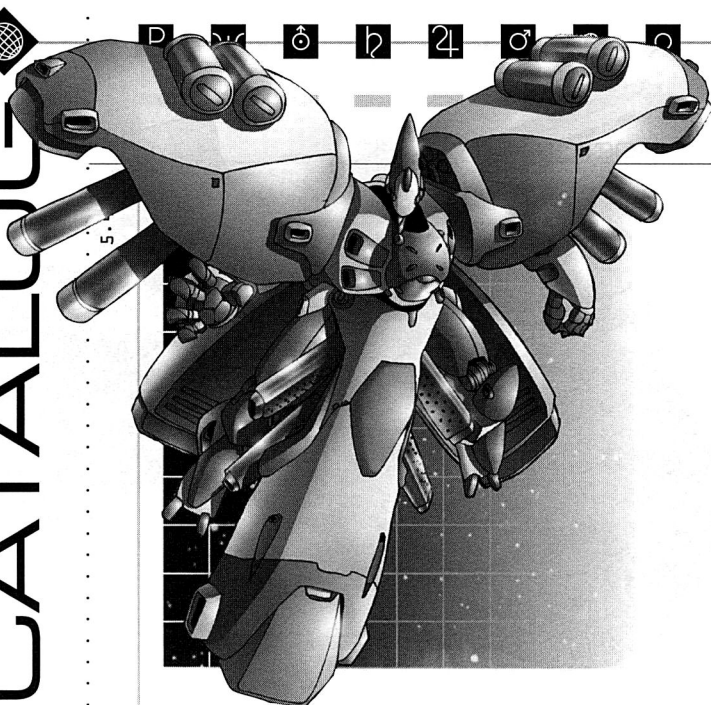


ROCK TRIKE □

Type:	All-terrain lunar trike	TV:	0	OTV:	0	DTV:	1
MTV:	0	Final Cost:	200	Prod. Type:	Mass	Pre-Prod. Cost:	300
Default. Cost:	222	Size:	0.5	Default Size	0.6	Mass:	6 kg
Crew:	1	Actions:	2	Manuever:	-1	Armor:	1
Sensors:	-/-	Commo:	-/-	FiCon:	-5		
Move:	STR+3 of the rider, divided by 0.16 (Lunar Gravity)			Deployment Range: STAx12 of the rider (Lunar Gravity)			
► PERKS DATA							
Rating	Name	Effects	AUX	Rating	Name	Effects	AUX
-	HEP:	Vacuum Built for airless conditions					
► FLAWS DATA							
Rating	Name	Effects	AUX	Rating	Name	Effects	AUX
-	Brittle Armor	-	-	-	Muscle Powered	-	-
-	Exposed Crew	-	-	-	No Communications	-	-
-	Exposed Movement	-	-	-	No Sensors	-	-
► OFFENSIVE & DEFENSIVE SYSTEM DATA							
N/A							

OGL STAT BLOCK □

Type:	Vehicle	Size:	Medium (Long, 2 m)
Hit Points:	10 (MP: 20)	Occupancy:	1 operator, no cargo (MP: 10)
Armor Hardness:	5 (MP: 25)	Defense:	10
Speed:	Land x 3 (MP: 30)	Strength:	n/a
Tactical Speed:	Land x 3	Initiative:	-1 (MP: -5)
Maneuver:	-2 (MP: -10)	Total MP Cost:	25
Total Money Cost:	25,000 credits		
► SPECIAL ABILITIES: n/a			
► EXOTIC ABILITIES: n/a			
► MECHA DEFECTS: Reduced Endurance (few hours, MP: -25), Start Up Time (1 minute, MP: -20)			



▼ DRAGONSTRIKER EXO-ARMOR

The Dragonstriker is the production version of the machine that nearly devastated the Jovian colony cylinder of Olympus in 2210. The production version of the Dragonstriker lacks the command armor of the prototype, as well as the CAT thought-control interface. The Dragonstriker was designed as a space fighter, and is slow and somewhat awkward on the ground. In space, however, it truly shines.

However, the Dragonstriker is still a fearsome machine, armed with heavy missiles, heavy Vulcan cannons, and a massive beam cannon cluster that can slice through a warship's hull in moments. If a target gets too close, the massive, claw-tipped hands can shred any lesser machine.

The Dragonstriker is the product of a decade-long research project attempting to surpass the Jovians in the area of exo-armor construction. At the forefront of this work has been the Lunar Aerospace Corporation, makers of the Wyvern, Cerebrus, Fury and Syreen, as well as other, less-public, weapons systems.

Though they didn't surpass the Jovians, LAC did manage to catch up, despite being 50 years behind. The Dragonstriker is easily a match for the Stormrider, the Jovian's latest design. There are no battlefield reports of the Dragonstriker as yet, but with war brewing over Mars, it may very well see action soon.

▣ CEA-020 DRAGONSTRIKER

Type:	Heavy Exo-armor	TV:	15370	OTV:	36290	DTV:	1590				
MTV:	8230	Final Cost:	23 million credits	Prod. Type:	Early Production	Pre-Prod. Cost:	23 million				
Default. Cost:	15 million	Size:	17	Default Size:	24	Mass:	122 tons				
Crew:	1	Actions:	2	Manuever:	-1 / -2 on ground	Armor:	40				
Sensors:	+1/10 km	Commo:	0/10 km	FiCon:	+1	Walker	40 km/h				
Top:	6	Combat:	3	Space (Gs)	2.8 g	Top:	28				
Combat:	14	Deployment Range:	500 hours	BP:	1200	Reaction Mass:	Light Gases				
► PERKS & FLAWS DATA											
Rating	Name	Effects	AUX	Rating	Name	Effects	AUX				
-	Autopilot	Pilot at +1	y	-	HEP: Vacuum	Space Protection	-				
-	Computer	CRE +2 KNO +2 PP2		17	2x Manipulator arms	Can punch					
-	Ejection System	Escape Pod	y	-	Satellite Uplink	Comm range x 1000	-				
10	HEAT-Resistant Armor	Add to base armor vs. Energy att.		2	Searchlights	100m range searchlight	-				
3	HEP: Radiation	-	-								
1	Decr. Manu. [ground]	-1 to maneuver on ground	2		Large sensor profile	Too large to hide					
► OFFENSIVE & DEFENSIVE SYSTEM DATA											
QTY	NAME	FIRE ARC	DM	BR	ACC	ROF	AMMO	SPECIAL	MS	WC	AC
4	Vulgans	T	x12	4	0	2	1000	AI	5	1150	0.68
1	Beam Cannon cluster	FF	x30	5	+1	0	100	AD2, HEAT, haywire	7	1400	50
8	Heavy Missiles	F	x25	7	-1	0	-	Mis, SD, AEO, HEAT	5	390	-
2	Claws	F	x18	M	0	-	-	AC,	6	810	-
1	Missile Defense	T	x2	1	+1	6	inf	AM, Defensive, HEAT	4	230	

▣ OGL STAT BLOCK

Type:	Giant Robot	Size:	Gargant. (Tall, 17.4 m)		Hit Points:	65 (MP: 50)	Occu.: 1 oper., no cargo (MP: 10)	
Armor Hard.:	30 (MP: 110)	Defense:	6		Strength:	55 (+22) (MP: 135)	Initiative:	-2 (MP: 10)
Speed:		Land 60 kph, Realistic Space Flight (Thrust 1.4g, G-Round 600) (MP: 120+2520)						
Tactical Speed:	Land 100 m	Maneuver:	-2 (MP: 10)		Total MP Cost:	5095	Money Cost:	50.9Mcredits
► SPECIAL ABILITIES: Booster (Space, 2.4g, G-Round 200, MP: 1440), Chobham Armor (MP: 22), Tactical Radio (Secure, MP: 12), Laser Com (Secure, Interplanetary, MP: 12), Laser and Radar Warning Receivers (MP: 4), Ejection Seat (MP: 3), Life Support (MP: 16), Searchlights (MP: 2), Jumping (x5, MP: 20), GPS (MP: 2), High Resolution Radar (Global, 5 km, MP: 30), Magnetic Sensor (2 km, MP: 6), Optics (2 km, MP: 4), Infrared (2km, MP: 6), Stabilization Gear (MP: 10), Targeting Device (+1 Beam Cannons, MP: 5)								
► EXOTIC ABILITIES:		Limited A.I. (Dex3, Wis3, Cha1, MP: 35)						
► MECHA DEFECTS:		Reduced Endurance (1 day, MP: -20), Start Up Time (1 minute, MP: -20)						
► WEAPONS:								
Name	Dam.	ROF	RI	Ammo	Qualities	Restrictions	MP Cost	
Beam Cluster*	10d12	SS	400m	n/a	Long Range, Hardpoint, Unlimited Shots, Increased Threat (19-20)	Arc of Fire (Fr), Space-Optimized	(455)	
HMJ-6 Missiles**	12d12	SS	960m	8	Armor Penetrating, Blast, Guided (IRH, ARH, LG), Indirect, 2x Long Range	Arc of Fire (Fr), Less Ammo, Space-Opt.	468	
Vulcan Gun Cluster***	5d12	A	50m	250	2x Automatic, 2 x Extra Ammo	Short Range	(174)	
Anti-Missile System*	3d6	A	54m	n/a	Cone, Long Range, Unlimited Shots	Low Penetration	(112)	
NOTE: *Energy Weapons; **Blast Weapons; ***Projectile Weapons								

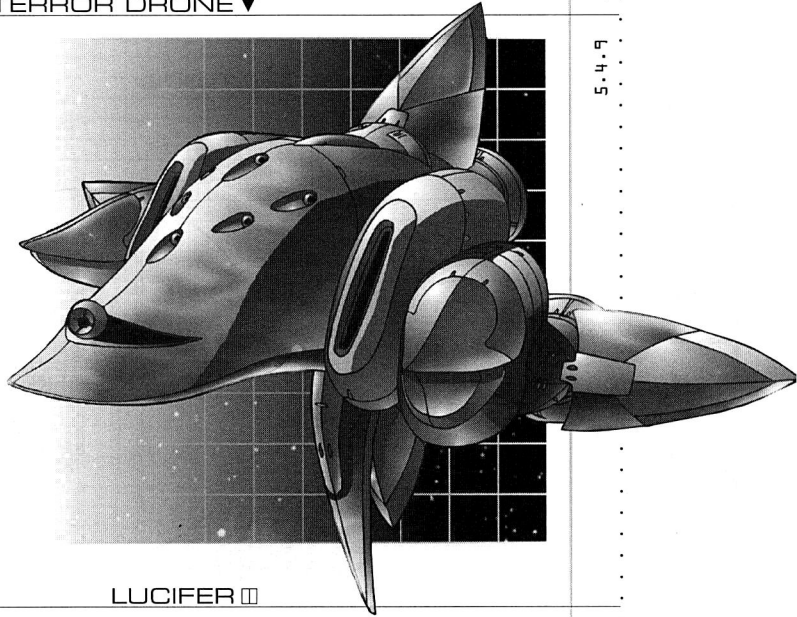
LUCIFER TERROR DRONE ▼

Certainly a technological triumph, the Lucifer terror drone is somewhat more problematic from an ethical standpoint. LAC's head of military development, Alnoor Gowa, resigned over the development of the Lucifer. He was found dead two days later, of an apparent suicide.

The Lucifer is a cloaked drone, and was used as a testbed vehicle to develop the newest line of holofield technology, which was later incorporated into the Typhon exo-armor. More than that, though, the Lucifer is a vehicle designed to disrupt shipping and attack lightly defended targets. Though powerfully armed, the Lucifer is not intended as a front-line combat vehicle. It was designed to appear from behind its cloak, open fire with all weapons (usually destroying its target on the first shot), and then fade away before being detected or tracked.

CEGA is currently testing one of these machines at a LAC station orbiting the Moon. Another one has been built, but officially, its whereabouts are unknown. Rumors abound that, should a war start, CEGA will start a production line of these incredibly expensive vehicles, and release them upon Jovian space as a sort of "scorched earth" measure.

The drone's weaponry consists of a 6-tube particle-cannon cluster, two heavy beam guns similar to warship-mounted weapons, and a set of claws on 150-meter cables. The claws each contain a light laser cannon.



LUCIFER □

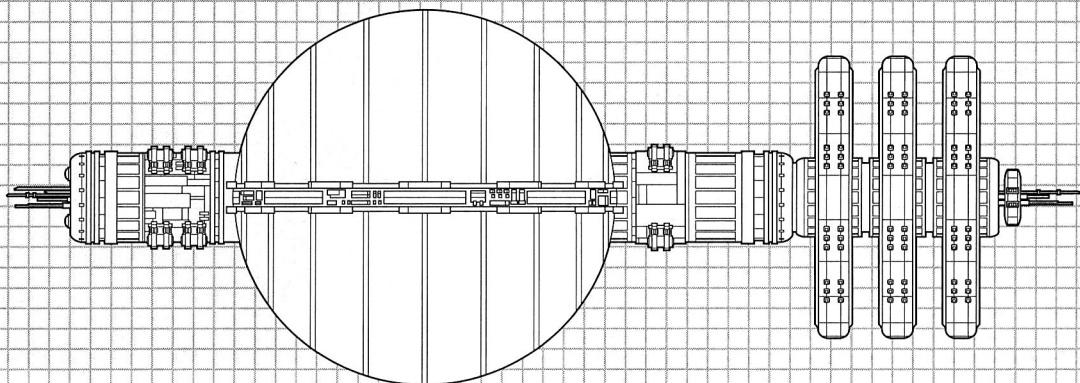
Type:	Terror Drone	TV:	126340	DTV:	323110	DTV:	2900				
MTV:	23010	Final Cost:	1.1 billion	Prod. Type:	Late Prototype	Pre-Prod. Cost:	228 million				
Default. Cost:	116 million	Size:	25	Default Size:	49	Mass:	400 tons				
Crew:	Drone	Actions:	2	Maneuver:	0	Armor:	36/72/108				
Sensors:	+1/2 km	Commo:	0/10km	FiCon:	+2	Space (Gs)	4 Gs				
Top:	40 Combat: 20	Deployment Range:	5000 hours	BP:	2000	Reaction Mass:	Light Gas				
►PERKS & FLAWS DATA											
Rating	Name	Effects	AUX	Rating	Name	Effects	AUX				
-	Autopilot	Drone controls	Y	-	HEP: Vacuum	-	-				
-	Backup systems	-	-	1	Lab	Gas refining for fuel	y				
-	Computer	CRE 2 KNO 2 PP2	-	4	Stealth	-	-				
2	ECM	-	y	1	Tool Arm	Fuel Scoops	-				
4	Holofield	Cloak	y	12	Tool Arm	2 Tethered claws (can punch)	-				
3	HEP: Radiation	-	-								
-	Difficult to Modify	-	-	-	Sensor Dependent	-	-				
-	Vulnerable to haywire	-	-								
► OFFENSIVE & DEFENSIVE SYSTEM DATA											
QTY	NAME	ARC	DM	BR	ACC	ROF	AMMO	SPECIAL	MS	WC	AC
2	Beam Cannon	FF	x30	7	-1	0	-	AD2, HEAT, Haywire	19	33160	-
1	Particle Gun Cluster	F	x15	5	-1	3	-	AD2, HEAT, Haywire	13	11500	-
2	Light Lasers	T	x8	4	+1	2	inf	AM, Defensive, HEAT	5	1200	-
2	Claw Arms (winch)	T	x12	1	0	-	-	-	-	-	-

OGL STAT BLOCK □

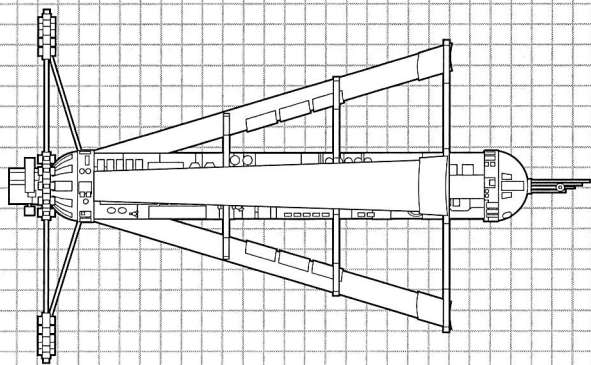
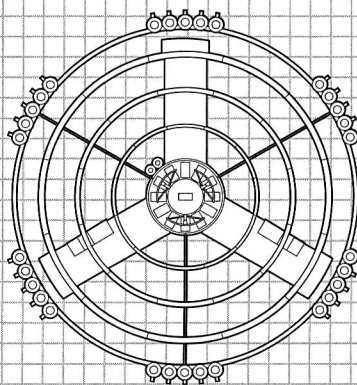
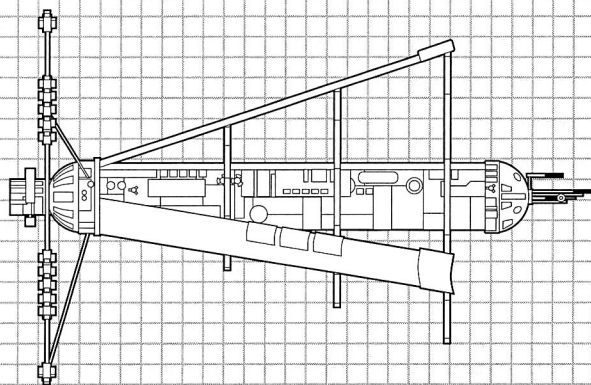
Type:	Giant Robot	Size:	Colossal (Long, 20 m)	Hit Points:	100 [MP: 0]	Occup.:No oper., no cargo [MP: 0]
Armor Hardness:30 [MP: 110]	Defense:	2	Strength:	55 (+22) [MP: 135]	Initiative:	-2 [MP: 30]
Speed: Realistic Space Flight (Thrust 2g, G-Round 100) [MP: 600]	Tactical Speed:	n/a	Maneuver:	-2 [MP: 30]		
Total MP Cost:	2516	Money Cost:	25.6M credits			
SPECIAL ABILITIES: Accessories (fuel scoops and refiner, MP: 1), Booster (Space, 4g, G-Round 25, MP: 300), Tactical Radio (Secure, MP: 12), Laser Com (Secure, Interplanetary, MP: 12), LWR/RWR (MP: 4), ECM (+2, all, MP:16), High Resolution Radar (Global, 2 km, MP: 12), Magnetic Sensor (2 km, MP: 6), Optics (2 km, MP: 4), Infrared (2 km, MP: 6), Stabilization Gear (MP: 10), Targeting Device (+2 Particle Guns, MP: 10)						
EXOTIC ABILITIES: Limited A.I. (Dex15, Wis15, Cha1, MP: 155), Invisibility (visual-only, MP: 500)						
MECHA DEFECTS: Start Up Time (1 minute, MP: -20)						
WEAPONS:						
Name	Dam.	ROF	RI	Ammo	Qualities	Restrictions MP Cost
Beam Cannons*	12d12 SS	80m	n/a		2 x Long Range, Unlimited Shots, Increased Threat (19-20)	Arc of Fire (Fr), Space-Optimized 546
P-Gun Cluster*	4d12 SS	40m	n/a		Long Range, Unlimited Shots, Increased Threat (19-20)	Space-Optimized (208)
Light Lasers*	4d12 S	40m	n/a		Semiauto, Unlimited Shots	Space-Optimized (174)
NOTE: *Energy Weapons.						



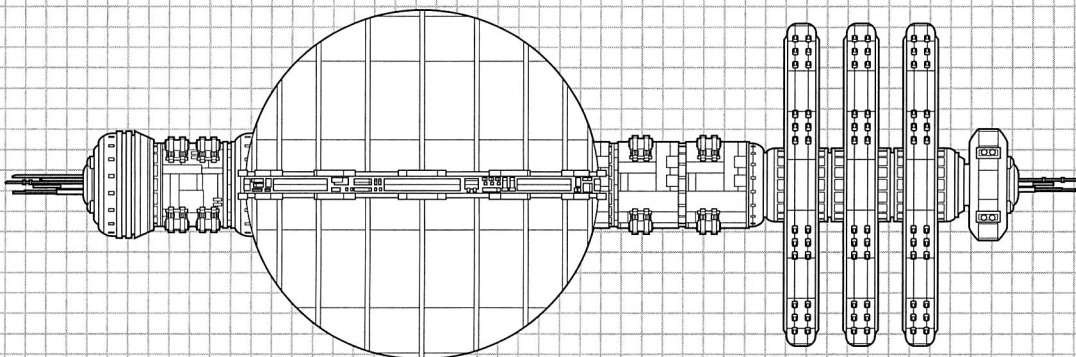
Bernal Sphere



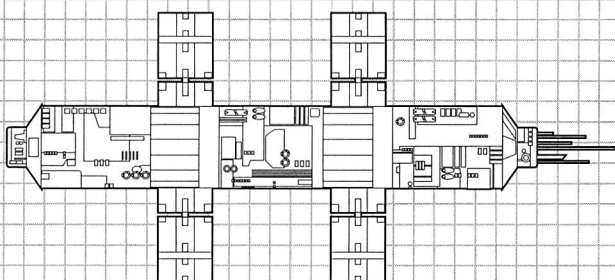
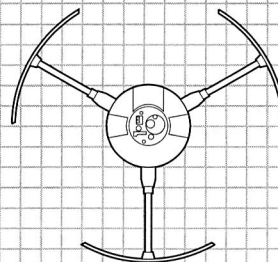
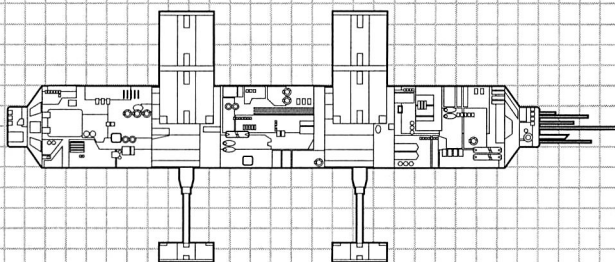
O'Neill Station



Government Bernal Sphere



Vivarium Station





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