

GURPS® Space

TERRADYNE™

The Conquest of the Solar System



By Russell Brown and Mark Waltz

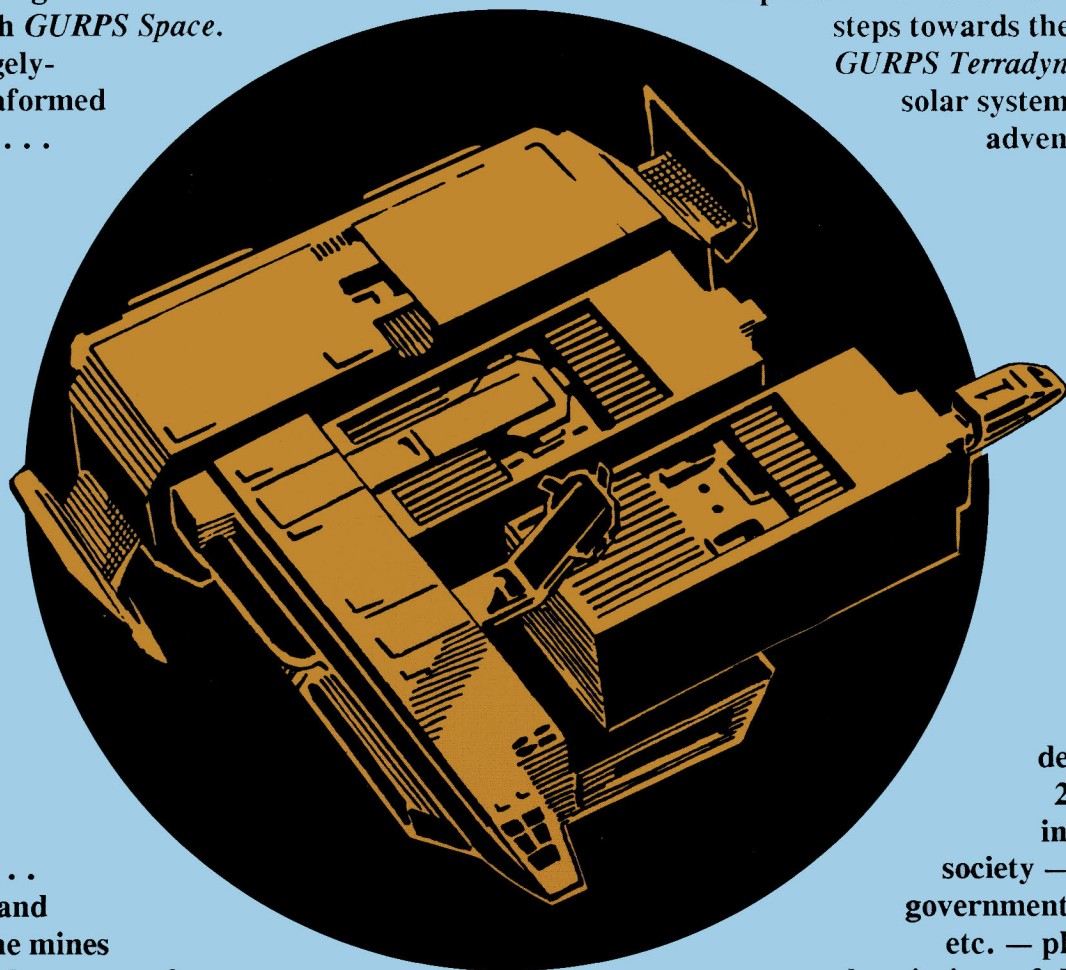
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WHO OWNS THE FUTURE?

Terradyne! In the 22nd century, the mighty interplanetary conglomerate is the unchallenged ruler of extraterrestrial space. Its only rival for control of the solar system is the UPOE, the global government of the teeming and environmentally-threatened Earth. Will Terradyne use its economic and technological superiority to save Earth, or destroy it?

GURPS Terradyne is a detailed and realistic setting for exciting near-future roleplaying with *GURPS Space*. Tame the savagely-awakened terraformed planet of Mars . . .

more crowded and desperate Earth . . . or help mankind make his first tottering steps towards the stars! With *GURPS Terradyne*, the whole solar system becomes an adventure setting!

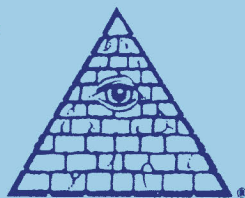


engage in high-powered industrial espionage in Terradyne's sub-lunar headquarters . . . foil smugglers and saboteurs on the mines of Mercury or the moons of Saturn . . . try to survive on an ever

GURPS Terradyne includes detailed descriptions of 22nd-century interplanetary society — technology, government, economics, etc. — plus maps and descriptions of the important planets and moons of the solar system.

From the Martian frontier to the edge of interstellar space, *GURPS Terradyne* is your guide to man's greatest adventure.

Written by Russell Brown and Mark Waltz
Edited by Creede Lambard
Cover by Alan Gutierrez
Illustrated by Ruth Thompson



STEVE JACKSON GAMES



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GURPS®

TERRADYNE™

Mankind's Expansion Through the Solar System

By Russell Brown and Mark Waltz

Edited by Creede Lambard

Cover by Alan Gutierrez

Illustrated by Ruth Thompson

**Additional Illustrations by Michael Barrett, Angela Bostick, Steve Crompton,
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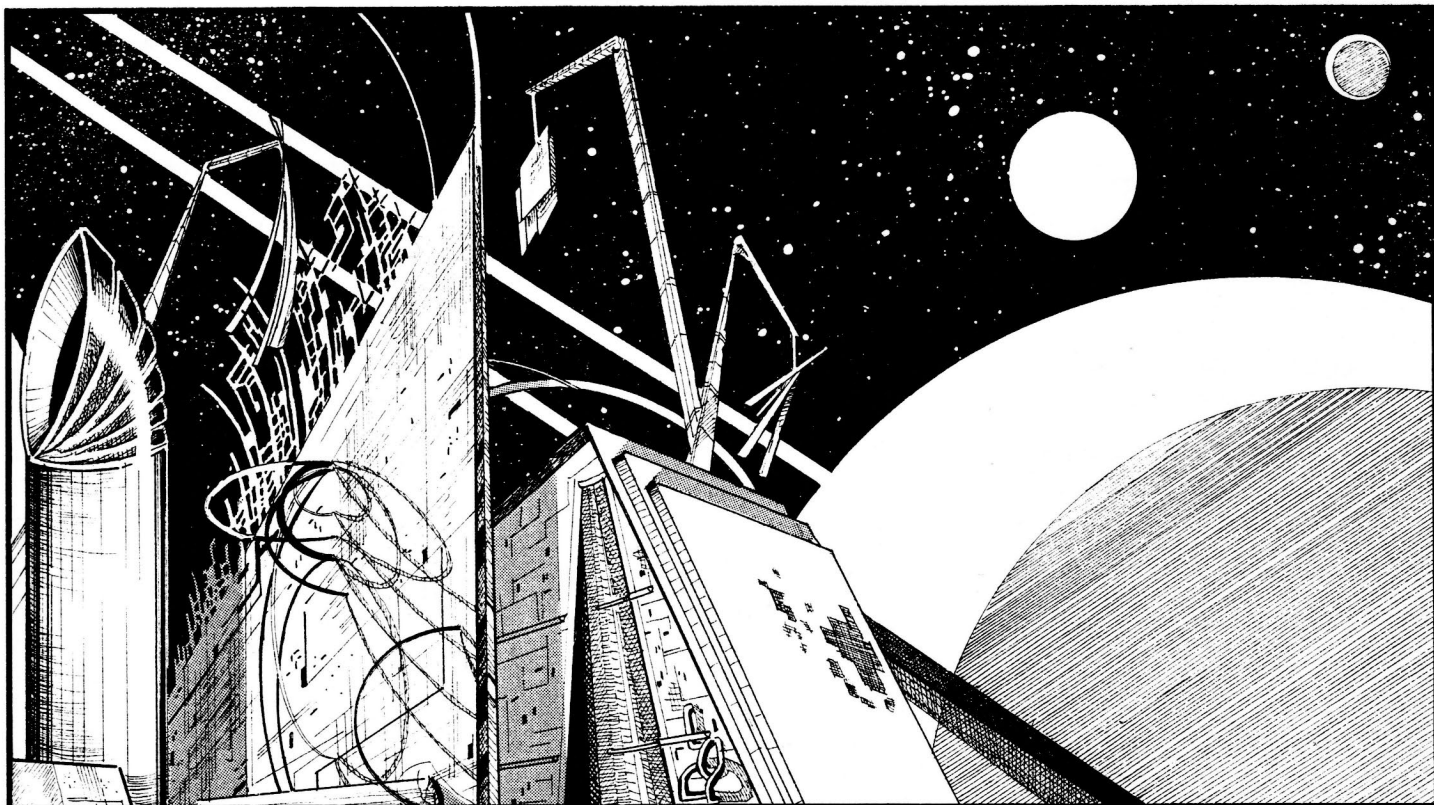
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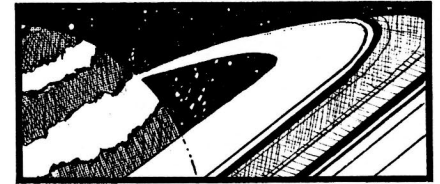
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INTRODUCTION

About GURPS

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

Roleplayer. This bimonthly newsletter includes new rules, variants, new races, beasts, information on upcoming releases, scenario ideas and more. Ask your game retailer, or write for subscription information.

New supplements and adventures. We're always working on new material, and we'll be happy to let you know what's available. A current catalog is available for an SASE.

Errata. Everyone makes mistakes, including us — but we do our best to fix our errors. Up-to-date errata sheets for all *GURPS* releases, including this book, are always available from SJ Games; be sure to include an SASE with your request.

Q&A. We do our best to answer any game question accompanied by an SASE.

Gamer input. We value your comments. We will consider them, not only for new products, but also when we update this book on later printings!

BBS. For those of you who have computers, SJ Games operates a BBS with discussion areas for several games, including *GURPS*. Much of the playtest feedback for new products comes from the BBS. It's up 24 hours a day at 512-447-4449, at 300, 1200 or 2400 baud. Give us a call!

Many science fiction authors, like Ben Bova, Gregory Benford and William Gibson, have based their work in the near future. Their worlds are socially and scientifically plausible. They anchor their stories in the real world by using real places, familiar objects, and well-known institutions. We can relate to their characters easily because they could be *us*, or our children, or maybe our grandchildren.

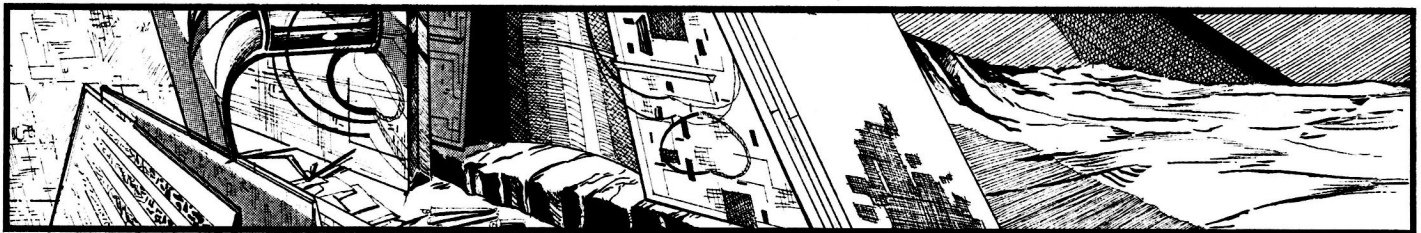
GURPS Terradyne is a sourcebook for such a near future. It's hard science fiction — there are no known alien races, no dogfights in space, and only a handful of humans have ventured outside of the Solar system. Interplanetary travel is inconvenient at best, and the speed of light is as formidable a barrier as ever.

Contemporary adventure themes like espionage, organized crime, mercenary missions and murder mysteries work well in *Terradyne*. The setting makes these adventures more exciting — picture them on a partially terraformed Mars, or the Moon, or an orbital station with the deadly vacuum of space just on the other side of the airlock. Now add wonder drugs, genetic engineering, worldwide data networks, video displays worn like contact lenses, and powerful computers so small they can be surgically implanted in the brain.

It is the dawn of the 22nd century. The human race has begun to populate the Solar system. There are more people on the Moon than in some nations back on Earth. Mars is a partially terraformed frontier world with strange similarities to the early days of the American West. There are mining operations on the moons of Saturn and a solar observatory on Mercury.

On Earth, most people struggle to survive, and the environmental damage of past centuries seems irreversible. As Mars blooms with new life, humanity's mother world is withering.

The heavens are controlled by Terradyne, a corporate state with monopolies on most technology, including interplanetary travel. The Earth is governed by the United Peoples of Earth, a powerful federation of nations which is more authoritarian than it needs to be. Like other periods in Earth history when two great powers reigned, there is conflict — a conflict ready to be exploited for fame, glory, money and adventure.



Page References

Rules and statistics in this book are specifically for the *GURPS Basic Set*, Third Edition. Any page reference that begins with a B refers to a page in the *Basic Set* — e.g., p. B102 means p. 102 of the *Basic Set*, Third Edition.

Page references beginning with an S refer to pages in *GURPS Space*, Second Edition.

About the Authors

Russ Brown is a software engineer at GE Medical Systems in Milwaukee. He has also worked on flight simulators as an Air Force officer. He helps his wife, Pam, raise their two sons, Andy and Alex, and their cat, Bob. Most of his writing occurs when he should be sleeping.

Mark Waltz is a systems analyst with Andersen Consulting's practice in Milwaukee, where he lives with his beautiful wife and daughter. In his spare time (which there is precious little of), he tries to lead a normal family life, feed his news-junkie habit and stay abreast of current activities in science and technology. Mark's brain is overcrowded with trivia, which he relentlessly shares with his co-workers and friends.

Regulatory Monitoring Agency

As the world government's power increased after the Collapse, the prime minister decided UPOE could no longer rely only on the tidbits of intelligence provided by its member nations. He proposed the formation of an agency which could gather information and take action to insure UPOE laws were followed around the world. The assemblies approved the RMA's formation in 2098. It became UPOE's secret service.

Activities

The RMA operates much like any other intelligence organization of the 22nd century. It has an extensive network of agents and informants throughout the world's national governments and in Terradyne (though the RMA denies any presence in the colonies). Communication channels from field operatives to RMA analysts are often convoluted and sometimes primitive (dead letter boxes and marked newspapers), but they still manage to supply valuable information.

The most valuable source of UPOE's intelligence in the coming decades will be the thousands of AI analysts and expert systems which monitor the data nets and international communication channels. Using these systems, the RMA can find out about the activities of any group or person, even without a serious invasion of privacy. The latest AI systems can combine large amounts of apparently trivial public information and construct an accurate model of underlying events. (Of course, the RMA usually doesn't think twice about invading privacy.)

Not all of the RMA is dedicated to intelligence gathering. There are also a few groups of well-trained, well-equipped (TL8+) agents who carry out paramilitary operations which are too sensitive for conscripted forces. Some of these groups pose as mercenary units and carry out covert operations like sabotage and extrication of criminals from protective nations. These groups are sometimes supported by genuinely independent mercenary units who find themselves temporarily on the UPOE payroll.

Control of the RMA

The RMA is under the control of the Prime Minister, but it is very difficult to control. Many of the RMA's operations are kept secret, even from the Assemblies, and the Prime Minister doesn't have the time (or the courage) to keep track of everything. Agents already in the field and assigned to an operation are difficult to contact, so they usually can't be recalled on short notice. In addition, loose control over the regional directors gives Herr Oberlehrer a handy excuse when the Prime Minister's requests are carried out too slowly.

Terradyne

Terradyne was formed in 2028 as a parent company for U.S. space technology firms. Tax incentives and other support from Congress encouraged investors, who provided the money to buy aerospace corporations. By the '50s, Terradyne controlled all of the major U.S. space companies and had moved its headquarters to the Moon.

Today Terradyne employs nine out of ten adult colonists and has abandoned most of its operations on Earth. It has a monopoly on interplanetary travel and handles 80% of the traffic from Earth to LEO and the Moon. Its solar power satellites provide a third of the world's energy (primarily in less developed nations). Its orbital manufacturing stations are the primary source of superconductors and the only source of some medications. And the ultra-pure silicon circuitry it produces on the Moon and at L4 drives the most powerful computers.



Original Subsidiaries

Before its corporate "rebirth," Terradyne was made up of a number of independent space firms. They worked well together, each concentrating on a specific area of space technology. Their names are known to very few people on Earth, but Terradyne children study them as part of their history and are proud to have ancestors who worked for them.

National Space Systems: This giant produced the world's most efficient heavy-lift boosters and interplanetary transfer vehicles. NSS developed the "Bunyan" payload booster (which performed well despite jokes about its name) and Reusable Lunar Transfer Vehicle for the early stages of lunar colonization. It was also involved in the construction of the Mars VISITORS, especially the shuttles used to reach the transfer orbit for rendezvous.

Otomo-Goji Enterprises: This electronics materials company, based in Osaka, Japan, was very small when purchased by Terradyne, but it was making major breakthroughs in superconductivity. With funding from Terradyne, it grew to dominate the energy storage and electric motors markets. It also produced the huge electronic and photonic storage systems required for the solar power satellites and the solar collectors outside Luna City.

Continued on next page . . .

The oceans have now risen a total of nearly 30 feet, shrinking the continents and totally consuming a few small islands. Coastal cities everywhere have migrated inland as people became reluctant to build near the coast.

The Mall in Washington, D.C. is flooded and the government has moved to higher ground. Tourists can visit the Oval Office and the second floor of the old Capitol Building by boat.

New York City was also hit hard. About 20% of Manhattan is under the Atlantic, including the Upper West Side to Amsterdam Avenue, and nearly all of the East Village.

Other Effects

Global warming has also changed the Earth's weather patterns. Northern areas now receive more rain and equatorial regions get less. Less rain and scorching temperatures in the American Midwest have cut crop yields. Decreased rainfall has also brought drought to most of Central Africa; the Sahara has spread into the savannas of Ethiopia, Nigeria and the Ivory Coast nations.

Increased rainfall farther north has increased the severity and regularity of Indian monsoons. The rain and warmer temperatures have transformed millions of square miles in Siberia into productive farmland.

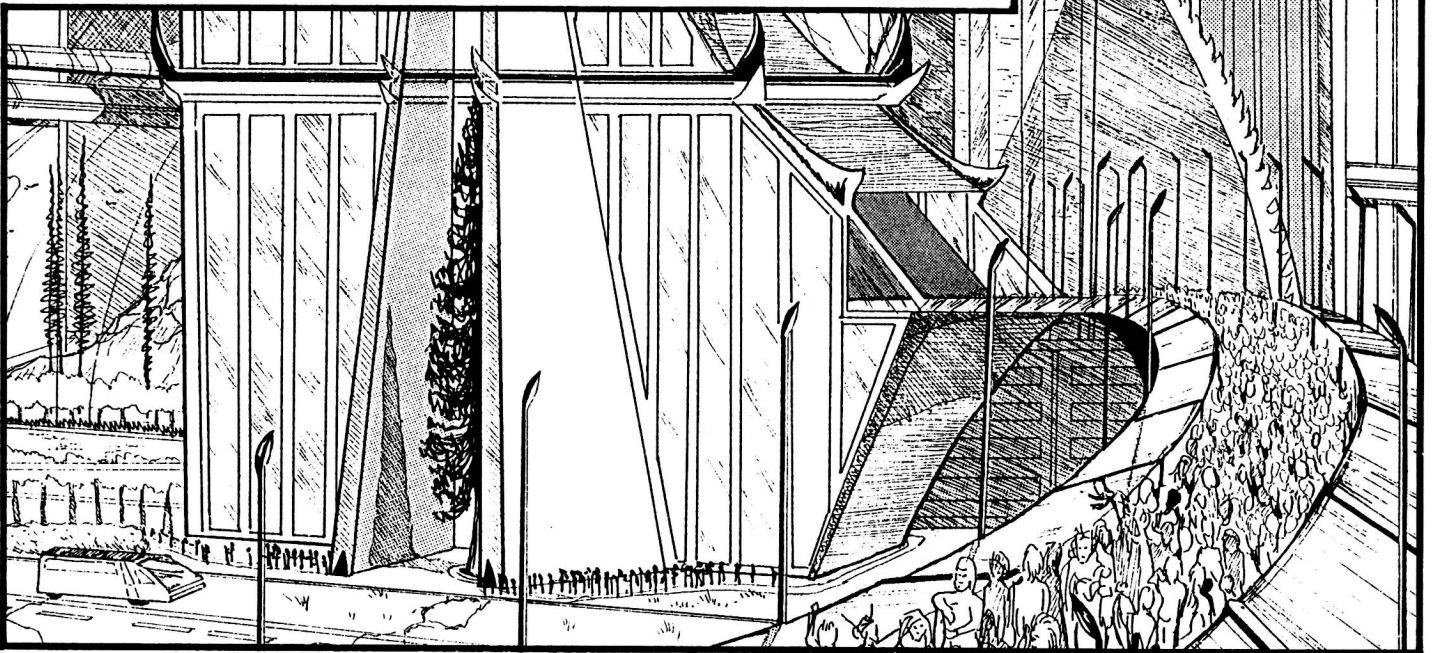
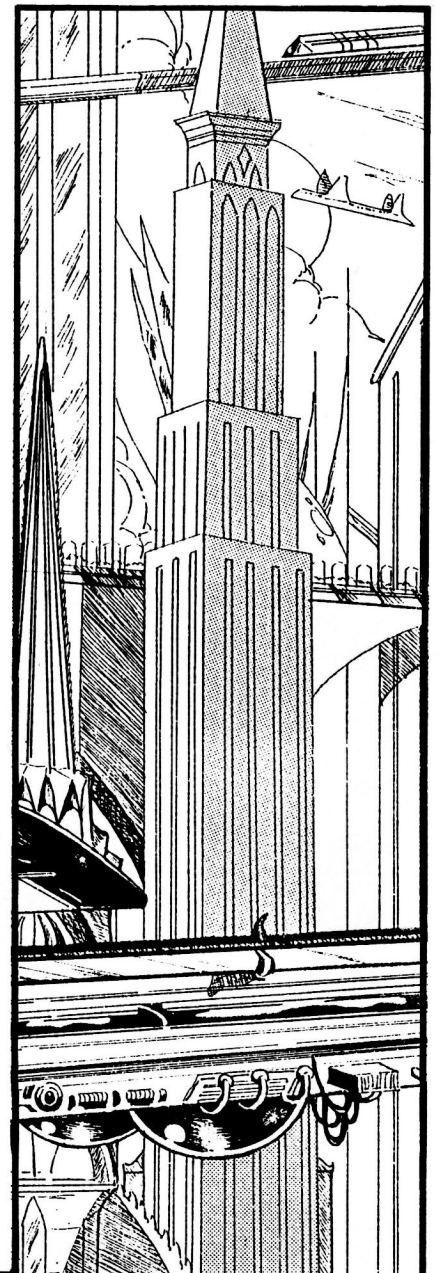
Waste Management

Waste disposal has been a problem ever since people started to settle down together in towns. The local disposal site has always been an eyesore and an embarrassment to the community.

Historically, raw human sewage has been the worst problem. It was usually dumped, untreated, into local rivers or lakes where it gave off a foul odor and spread infectious bacteria. Modern sewage plants, however, have adapted chemical and bacterial treatment techniques developed in space colonies, which cleanse the water so well it is usually re-used in the local water system.

The real problem is solid waste, or refuse. Per capita production now averages 15 tons per person per year. Less than one ton of this is household waste under direct control of individuals; the rest is agricultural, mining and industrial waste.

New material recycling techniques developed in the colonies have been used, but they are seldom cost-effective on Earth. It is usually less expensive to buy new material than to recycle the old.



Mercury

As the innermost planet, Mercury is an ideal platform from which to observe and learn more about the sun. But these opportunities don't come without dangers.

Solar Weather Station

Maintained by Terradyne, the Solar Weather Station is actually a complex of several observing stations designed to monitor solar activity. In addition to the observation sites on Mercury's surface, there are five satellites scattered about Mercury's solar orbit, three more satellites in polar orbit around the sun, and an underground neutrino observatory.

These platforms gather data, analyze it and transmit it to other points in the Solar system. Because of its proximity, the SWS can detect and predict solar flares, storms and other events much more quickly than stations in Earth orbit can.

Solar Flares

The primary threat to humans in space is a solar flare. If flare radiation strikes an unshielded craft, the inhabitants of the craft can receive lethal amounts of radiation damage (see p. S77). This also applies to individuals on planets or moons not surrounded by a protective atmosphere or magnetosphere.

The SWS can give settlements in Earth orbit three hours' notice of solar flares in advance of what the settlements themselves can detect.

Station Geography

The main station is near Mercury's north pole, built on the mountainous rim of a large crater. Mercury has no axial tilt, so the station always has an unobstructed view of most of the sun.

Additional observatories are scattered about the northern hemisphere of Mercury. None is more than 750 miles from the primary facility, and most consist simply of telescopes, monitoring equipment and minimal housing facilities.

Travel is extremely dangerous on Mercury, and is restricted to times when the path is in shadow (except in case of emergency). Any given point on Mercury spends roughly 88 days in the glare of the sun and another 88 in the dark, so teams in the various remote observatories can be "locked away" for three months at a time.

Communication

The first communication systems on Mercury were radio repeater systems. These proved to be very unreliable due to interference from solar radiation, so a system of optical land lines was laid down. These are redundant systems; if a line goes down, repair crews cannot repair them until nightfall.

Radio is used as a backup system, but is limited to line-of-sight unless repeaters are used. All of the repeaters between source and target must be working for a message to get through, and solar flares can knock out transmissions.

Station Personnel

The main complex houses up to 125 people. The team consists of scientists and technicians, with two or three of the senior scientists doubling as administrators, and a small maintenance crew.

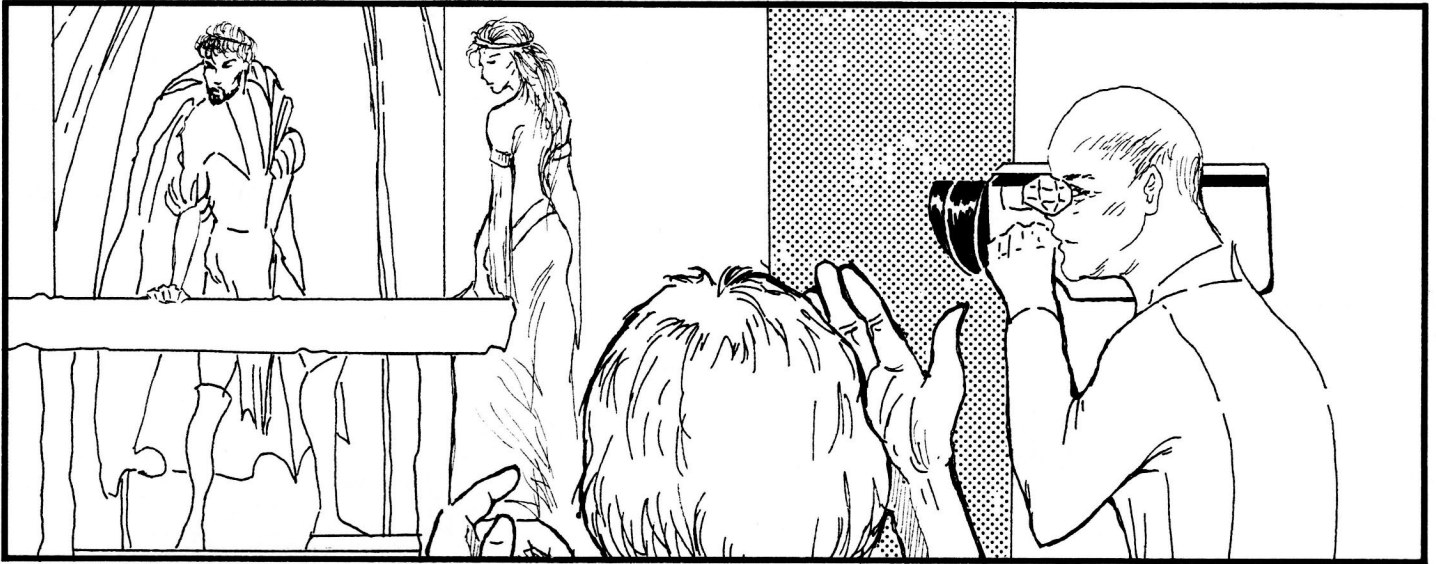
Terradyne does not restrict its use to employees. The station is treated as an extension of Lunar University, and is funded as such. Most assignments to the station are through research programs and postdoctoral work. UPOE maintains a rotating but permanent contingent of 5 to 10 scientists on Mercury through an



Lost Cargo

Evidence strongly suggests that not all of the metals mined and refined on Mercury reach their intended destinations. Solar sail craft fitted with cargo containers have been spotted in Mercury's orbit accelerating at .5 G. Even in the strong Solar wind at .3 AU, this would suggest that the craft was traveling without cargo. Also, estimates of Terradyne's mining output exceed those of Martian and Lunar imports by anywhere from 20% to 30%, depending on whose figures you accept.

Terradyne isn't saying anything about the situation one way or the other — its only official comment is that "mining operations on Mercury are proceeding in accordance with corporate goals." Skeptics label this doubletalk; some believe that Terradyne is siphoning off materials for reasons they don't want to talk about, on the theory that if the shipments were being pirated, they would announce that they were taking steps to stop the hijacking. No one knows for sure.



Most farms have at one serviceable road to their central complex, and it is dangerous to leave it. Automated machines have sensors for detecting and avoiding humans, but these are not necessary for operation, so they are not always well maintained. People out in the fields risk being watered, fertilized, sprayed with chemicals, or run over. Intruders entering a livestock area may even be rounded up and “processed.”

Sea Farming

Japan and the United States now get a significant amount of food by farming the ocean floors along the continental shelves. These are large-scale operations, managed by teams of technicians in floating rigs the size of small towns. The crops are usually some form of kelp, which also attracts several varieties of small fish. The protein produced when this combination is harvested is higher than most surface crops.

Remote control of the robotic planting/harvesting machines is difficult. Poor underwater radio reception requires a communication cable back to the main rig or an antenna buoy on the surface. This is avoided in the Japanese farms by having humans operate all of the sea floor equipment, sometimes for days at a time.

Off-World Agriculture

The most dramatic developments in agricultural technology are *hydroponics* and *gludinoncorpus*, or free growth. These techniques have been used extensively in space stations, the colonies and extended life support systems aboard ships.

Hydroponics (or tank farming) is the cultivation of plants outside of soil. The roots of the plant are suspended in a wire grid or bed of gravel and flushed with a solution containing all of the nutrients they need for growth.

Free growth is a similar process applied to animal products. Genetically engineered muscle cells from livestock are artificially supplied with the nutrients they normally get from the animal’s bloodstream and grow into an amorphous mass of muscle tissue. Individual cells from this mass now become the “seeds” for the next.

Both of these methods are expensive, but they save a great deal of space over traditional farming methods. They work well in the confines of space stations and colony facilities.

Communications

The Data Networks

Most of the communication equipment and computers on Earth are linked together in a single dynamic web of optic cables and microwave links called the Data Network, or simply “the net.” Networks in each of the colonies are also connected to the Earth net and each other by laser or microwave links (with appropriate delays), forming an interplanetary net.

Any building constructed within the last 50 years will have at least one net hookup for its central computer and one or two auxiliary connections. Remote areas will have a microwave or laser link to an orbiting satellite. The devices on the net are referred to as *nodes*, and the connections between them as *links*. Each node charges a fee to the originator of the information it passes along and usually adds in a billing surcharge for first-time or infrequent users, so users generally want to find the fastest and least expensive path to a destination node. But the layout of the net is always changing, and comparing all reasonable paths can be time-consuming and expensive. There is also little security built into the basic structure of the net, so individual nodes must protect themselves with expensive security software which must execute continuously.

Service Nodes

Databases: Each of these nodes provides access to information in a broad area — medicine, weapons, or general news, for instance. Most databases cost \$10 per hour to access, with an additional charge of \$1 per megabyte to download material.

Few users require the raw data that accessing a database generates, and in fact find it much easier to get information through a *query service* (see p. 101).

Expert System: This is a specialized database of knowledge and advice regarding a particular skill. Access costs \$100 per hour for Mental/Easy skills, \$200 per hour for Mental/Average skills, and \$500 per hour for Mental/Hard skills (all at level 12). Better expert systems exist on the net, but their access cost is *doubled* for each +1 to skill level. The best have +3 skill level for eight times the cost.

Time required depends on the task. Simple tasks, like foren-

Character Types

Academician

Some university professors and students are involved in the latest research in areas like anti-agathics, maneuver drives or weapon technology. Others study human society and psychology, taking sabbaticals to travel throughout the Earth and the colonies, observing people firsthand. University populations are also sources of rebellion and civil unrest in many parts of the world. Many academicians are members of activist groups like the Red Planet Brigade and Academy of Earth Scientists.

Colonist

Anyone living in an extraterrestrial settlement could be considered a colonist. Some live there because Terradyne has the best jobs. Some were born there and know nothing else. Still others have lived so long in the low gravity that they physically cannot return to Earth. The true colonists, however, are those who are there to push back the frontiers. They *want* to be in space, so they get the education they need to qualify, they pay their own way with their life savings, or they sign on for two hard years with a road gang on Mars. A good HT score and an understanding of survival technology are essential.

Computer Scientist

Information is the most valuable commodity in the solar system, and most of it is stored in computers. So computer specialists are in high demand, especially those who understand the details of the latest security systems. These “hackers” are used heavily, both offensively and defensively, by intelligence agencies like UPOE’s RMA, Terradyne’s Corporate Research, and the U.S. CIB. But they are also important to other organizations which rely on information, such as law enforcement agencies, large corporations, crime syndicates, and news services. Many of the best security specialists realize their own value and work independently, hiring themselves out for one job at a time.

Corporates

Executives and managers in many large, international corporations are expected to be loyal to their company over everything else, including their family, their country, and their home world. The company’s prestige and profits are all-important. Clever research and last minute, giga-standard wheeling and dealing may become a matter of life and death for the company *and* the character. Members of the Japanese *zaibatsu* are model corporates. Administration and other social skills are helpful, as is a loyal staff.

Doctor

Wherever there are large enough groups of people there will be medical doctors. Even the most remote settlements on Earth are visited by MDs occasionally. And there are many living aboard the Earth stations, in the colonies on Mars and the Moon, and at military installations throughout the solar system. Some practice forensic medicine as coroners, and others do medical research in genetics, bionics and new drugs.

Engineer/Technician

Engineers take the theory developed by scientists in their laboratories and use it to develop designs for real, working devices. Technicians understand the construction and operation of existing devices. Both engineers and technicians must specialize and train for a long time to be effective. They might operate and maintain sea farming equipment, become free-fall technicians, or be responsible for the life support systems aboard a large

space ship. Technicians have the Mechanic skill in their specialty areas.

Entertainer/Celebrity

As communication technology improves, media celebrities become more influential. Celebrities generally have wealth and some amount of influence in high places. On the other hand, they are hounded by the media and will have little privacy. Artistic skills such as Acting, Singing and Writing are often prerequisites for fame, but charismatic religious leaders and politicians also qualify. Disguise skill may come in handy.

Environmentalist

Environmentalists range from the scientist who works late in a laboratory to test the effects of a new insecticide to the activist eco-guerrilla who stalks through the Amazon jungle to blow up a half-constructed dam. Some are agents of UPOE’s Department of Environmental Sciences or scientists working for Terradyne’s Environmental Research unit. Others belong to the Red Planet Brigade, dedicated to stopping the terraforming of Mars, even if they must resort to violence.

Free Trader

These are merchants and space ship pilots who make trade runs, mostly along the legs between Earth and the colonies. They are not affiliated with UPOE, Terradyne, or any other large organization. Most free traders are members of the Free Trade League, a cross between a guild and a credit union. They spend a lot of time hanging around spaceports and orbital stations waiting for cargo; Gambling is a common skill.

Gang Member

Many of Earth’s young, aspiring criminals are too independent or too impatient to work their way into a syndicate, so they join with other kindred souls to form gangs. Gang members broadcast their gang affiliation with some special signal; the way they walk, the color of their clothes, perhaps their haircut. Gangs which are very successful in the crime business or control a key territory may be “adopted” by a local syndicate or become syndicates themselves.

Intelligence Agent

This includes intelligence analysts, cryptographers, undercover spies, and covert operatives. The most visible intelligence agencies are the U.S. CIB, UPOE’s RMA, and Terradyne’s Corporate Research unit, but most national governments and large corporations employ a group of intelligence agents. Thief/Spy skills are important, as are Acting and a cover skill.

Investigator

Trained investigators work as detectives for law enforcement agencies, or independently as private investigators. Detectives generally deal with mysteries involving criminal activity, while private investigators follow unfaithful spouses, search for missing persons or items, expose fraud and catch petty thieves. Investigators need Interrogation, Stealth and Streetwise, as well as a good understanding of local privacy laws.

Journalist

Reporters and photojournalists (see p. 26) are always where the action is. They travel extensively to document the news. Writing, Bard and Photography are valuable skills. Many jour-

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CAMPAIGNING

With nine planets, dozens of moons and uncounted space stations, not to mention the empty space between them all, there's lots of room for adventure in the universe of Terradyne. Where to start? Here are some hints and ideas.

Other Societies

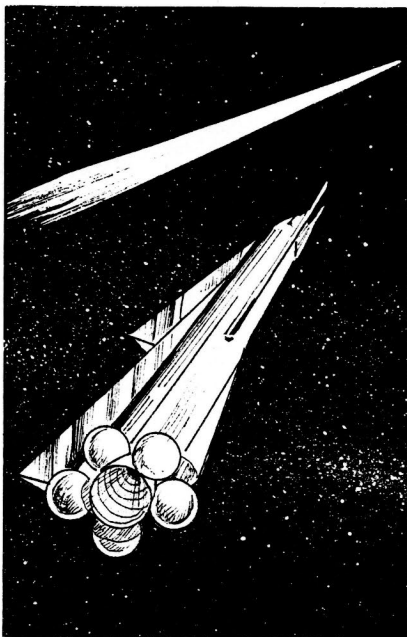
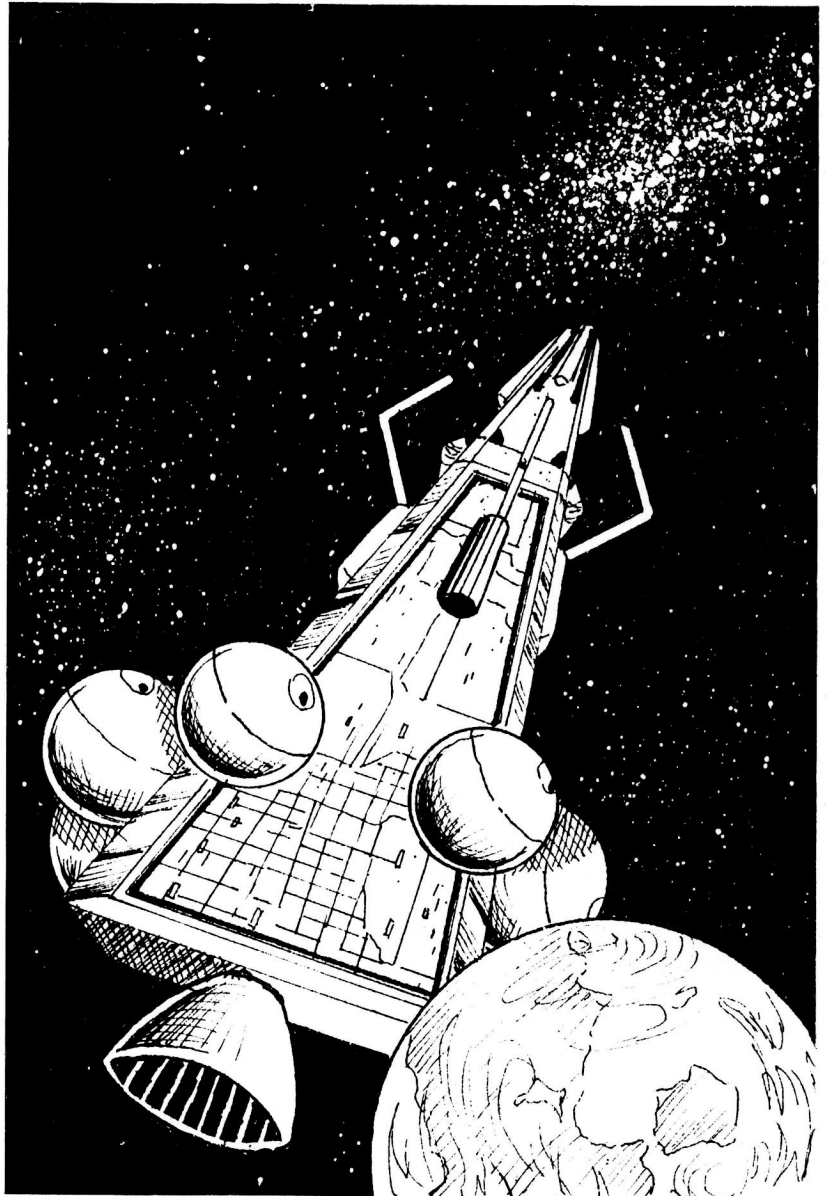
In *GURPS Space* terms, the world of *GURPS Terradyne* is a Federation campaign; the nations of Earth are in effect participants in a strong central government. Here are some ideas for fitting *GURPS Terradyne* into non-Federation campaigns:

Alliance

Terradyne was created by the Alliance as a holding company for space technology firms. As it grew, it found that its position in outer space effectively forced it to act as a government for its employees, and allowed it to act with autonomy from the Alliance.

In this background the UPOE is more of an advisory board than a world government. It does not have the authority to send troops into trouble spots, though coalitions of nations often do so on their own initiative.

Continued on next page . . .



Scope

The GM should first decide what kind of campaign he plans to run and how much territory it will cover. If the characters design a party of moonbaby VR stars based in Luna City, they'll have a hard time fitting into a mercenary campaign based in South America.

The next decision should be the *slant* of the campaign. In the Terradyne universe, there aren't any clear-cut good guys and bad guys. Terradyne sees itself as mankind's greatest hope, and whether the average Terran knows it or not, is actively looking for solutions to the Earth's problems. It is also faced with the realities of business — it can't help *anyone* without turning a profit.

GLOSSARY

Aerobraking — Flying a controlled path through a planet's upper atmosphere to reduce speed and go into orbit.

Ares — Largest of the three Martian continents. Covers most of the southern hemisphere.

Artemis Engine — Giant fusion drive which propelled Phoebe out of its orbit into a collision path with Mars.

Borealis — Uninhabited continent at the Martian North Pole.

CIB — Combined Intelligence Bureau. Capable United States intelligence agency.

Crawler — Tracked or wheeled vehicles used on the Moon and Mars. Most common model carries eight passengers.

Crystal Pyramid — Glass, pyramid-shaped building containing the offices of senior Terradyne management. Located inside Quad A of Luna City, near Town Square.

CSF — Corporate Security Forces. Terradyne's security guards and the closest thing to a police force on the Moon.

DES — Department of Environmental Sciences. UPOE agency responsible for monitoring the Earth's environment and the Terraforming operations on Mars.

Elysium — Island continent in northern temperate region of Mars.

Free Space — UPOE program which subsidizes Earth-based space technology firms. Impetus for development of Payload-90 shuttle.

Glasteel — Flexible glass reinforced with metal alloys.

Hadley Cell — Vertical air circulation pattern driven by temperature differences between a planet's poles and equator.

ISF — Interplanetary Security Forces. UPOE law enforcement agency which enforces UPOE regulations and international law in the colonies.

ITC — Interplanetary Trade Commission. UPOE organization which levies taxes and tariffs for interplanetary trade.

L4 — The Lagrange point preceding the Moon in its orbit. Location of a large cluster of zero-G factories and research stations.

Lagrange Point — Stable locations for small satellites in the Earth-Moon system, where gravitational pulls from the Moon and Earth are equal.

LEO — Low Earth orbit. Any Earth orbit below geosynchronous orbit (23,000 miles).

Lobber — A hopper configured with extra fuel tanks for longer range. Can reach any point on the Moon's surface in a single "hop."

Lowell Station — Large life support station in a permanent low-energy orbit between Earth and Mars.

LSS — Life Support System.

Maglev — Any of a number of vehicle types which are magnetically levitated above a monorail track.

Mangala — Large Martian storm. Appear as heavy rainstorms in the northern hemisphere and hemisphere-wide sandstorms in the south.

Mariner — Region of the Martian continent Ares, east of the Tharsis Ridge and north of Mariner Canyon.

OCA — Office of Colonial Affairs. UPOE agency which handles colonial issues. Advocate of non-Terradyne colonists.

Phoebe — Mars' great northern ocean. Named after the Saturnian moon from which it was formed.

Quads — The four main public caverns in Luna City. The Quads all meet at Town Square.

Quickships — Fusion drive ships used to reach the Saturnian system.

Red Lung — Deadly respiratory disease caused by inhalation of corrosive Martian soil.

Regolith — Lunar soil. Mined for its high content of aluminum and oxygen.

RF-12 — Terradyne's most powerful chemical fuel.

RMA — Regulatory Monitoring Agency. UPOE's intelligence agency. The most effective espionage organization on Earth.

Road Gang — Group of unskilled heavy laborers used in large-scale civil engineering projects on Mars.

SAH — Suspended Atomic Hydrogen. A powerful chemical-drive fuel used in Payload-90 shuttles.

Sinkhole — Area of Martian surface which suddenly sinks as the permafrost supporting it melts.

Scrip — The unit of Terradyne's corporate currency. Not legal tender on Earth.

Solis — Large, dry region of Martian continent Ares. Known for its extensive dune fields.

Standard — Global currency backed by UPOE's World Economic Reserve.

Syrtis Major — Region of Mars stretching northeast from the Hellan Sea to the coast of Phoebe.

Terradyne — Mega-corporation based on the Moon. Dominates high technology markets, including space transportation. Engaged in terraforming Mars.

Tharsis — High Martian plateau containing several of the largest volcanoes.

Town Square — Central area of Luna City where the Quads meet.

UPOE — United Peoples of Earth. Powerful, democratic world government that establishes international law and economic policies.

Uruk — Largest city on Mars.

Volatiles — Chemicals necessary to sustain life, including nitrogen, carbon, oxygen, etc.

VOMS — Venus Orbital Meteorological Sciences Station. Used to study the runaway greenhouse effect on Venus.

Waldo — Working Automaton, Long-Distance Operation. Remotely-operated machine that allows mechanical handling by a human controller.

Water Burst — Eruption of water as permafrost melts and Martian crust collapses.

BIBLIOGRAPHY

The information and ideas found in this book come from several different sources. In order to make the world of Terradyne as realistic as possible, we've based our predictions of the future on the work of published authorities. For additional information, we recommend the following non-fiction sources:

Bound for the Stars — Saul J. Adelman and Benjamin Adelman

Encyclopedia Britannica

Introductory Astronomy and Astrophysics — Elske Smith and Kenneth Jacobs

New Earths — James Oberg

The New Solar System — J. Kelly Beatty, Brian O'Leary and Andrew Chaikin

Out of the Cradle: Exploring the Frontiers Beyond Earth — William K. Hartman, Ron Miller and Pamela Lee

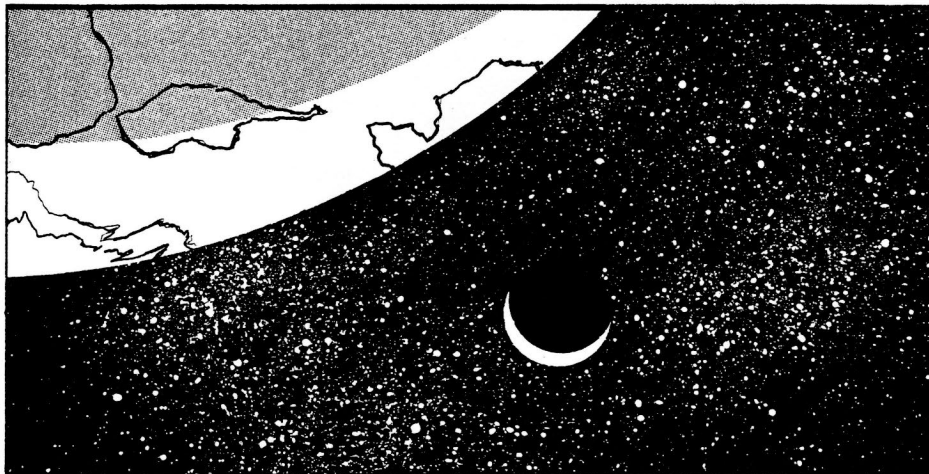
Race to Mars: The Harper & Row Mars Flight Atlas — Frank Miles and Nicholas Booth

The Real Future — T.A. Heppenheimer

Welcome to Moonbase — Ben Bova

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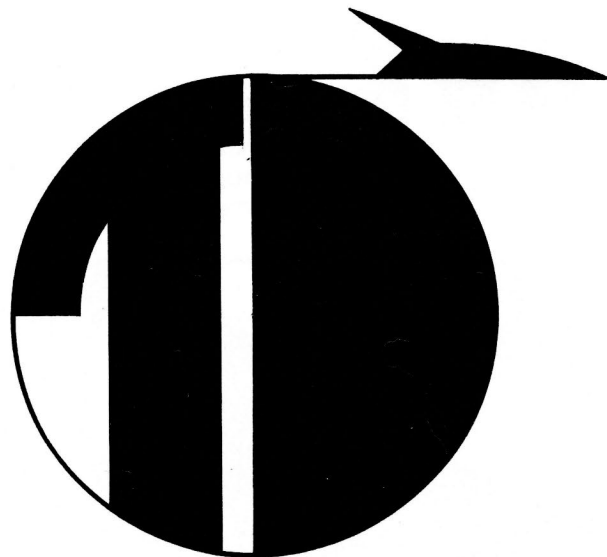
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