

PYRAMID[®]

Issue 3/79 May '15

SPACE ATLAS

OSTARA

by David L. Pulver

HALFWAY TO ANYWHERE

by Timothy Ponce

THE SKIPTIME HUB OF THE OCEANWE

by J. Edward Tremlett

THE VANISHING SUN

by Christopher R. Rice

HOMEWARD UNBOUND

by Steven Marsh

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Man belongs wherever he wants to go – and he'll do plenty well when he gets there.

– Werner von Braun

ARTICLE COLORS

Each article is color-coded to help you find your favorite sections.

Pale Blue: In This Issue

Brown: In Every Issue (humor, editorial, etc.)

Green: Columnist

Dark Blue: **GURPS** Features

Purple: Systemless Features

COVER ART

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IN THIS ISSUE

The heart of space gaming is exploration and travel. This month's *Pyramid* looks at both, taking you to strange new worlds like never before!

Ostara seemed like the perfect place for a colony of outcasts from Earth. But internal division and a mysterious, psionic-inducing plague have created trouble. David L. Pulver – co-author of *GURPS Bio-Tech* – guides you through the planet's history, current situation, and planetary details, including *GURPS* stats for its sometimes dangerous native life. Find out why scientists and smugglers are so interested in this formerly lost frontier world.

Space is dangerous enough without wandering *solar systems* snagging ships. Long-time *Pyramid* contributor Christopher R. Rice ponders *The Vanishing Sun*, revealing its origins, its purpose, its unusual inhabitants, and its possible campaign uses. You'll get details on a variant of the Empathy advantage, a new racial template, and suggestions for crossovers with *GURPS Banestorm*, *GURPS Monster Hunters*, and more.

What would you pay to know exactly the right thing to do? For just a bit of culture, you can find the answers at *The SkipTime Hub of the OceanWe*. This systemless campaign frame explores the history of the Hub and its creators and some of their mysteries. It also offers two adventure outlines that give would-be explorers a chance to interact with these uncanny prognosticators.

In any universe that follows the laws of physics as we know them, one hard-science question that will be on the forefront of many explorers' minds is, "How much delta-V do we need to get *Halfway to Anywhere*?" These questions can now be answered here, with a distillation of the concepts and mathematics you need to navigate around any solar system. Learn the maneuvers and options that are necessary to make most efficient use of your energy, including Hohmann transfers, gravity slingshots, and more. And everything is fully compatible with *GURPS Space* and *GURPS Spaceships*!

What would happen to space exploration if people could step through a doorway on one side of the galaxy and instantly return to where it all began? They might be *Homeward Unbound*. The mysteries, details, and possibilities of this unique transportation mode are all detailed herein.

This month's Random Thought Table wraps up the issue with tips for infusing awe into any exploratory campaign, while Odds and Ends has more awesome details from the articles herein. Whether you're looking for realistic science fiction or "impossible" cinematic space gaming, this issue of *Pyramid* is your atlas to adventure!

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FROM THE EDITOR

ALL THE WORLDS: A STAGE

I talk elsewhere about the significance of other worlds in space gaming (see pp. 36-37). However, there's another way that the idea of "other worlds" ties in well with *Pyramid*. Really, each article in an issue is another opportunity to visit a new vista, to behold an amazing discovery, to boldly roll what no gamer has rolled before.

Think about off-world exploration for a moment. We get to a new world. What's one of the first things we're likely to say? "What are we going to *do* with this?" Some worlds might be suitable to start living on as-is; others might require some tweaks or even terraforming to make truly habitable. Some worlds are best seen as resources for other explorations or goals. Living on Plutonium World probably doesn't fit in with our plans, but it might be useful for our goal to have a limitless source of portable energy (or, if you're playing willy-nilly with the cosmos, the foundation of the most explosive Mentos and Diet Coke reaction *ever* . . .). Some worlds may not have any application that we can think of, but it's good to know that it's there in case we ever come up with a need. (Mercury isn't our

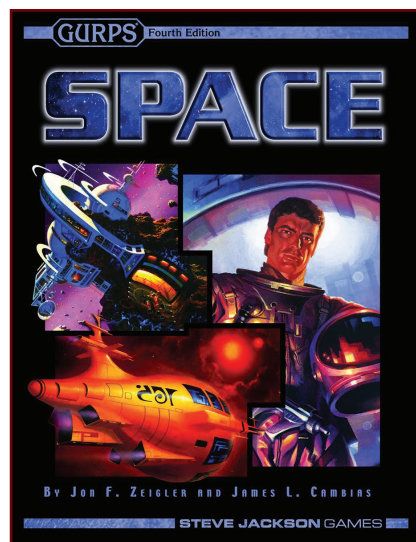
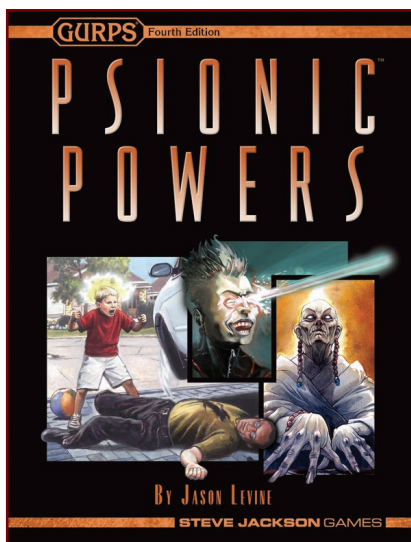
first pick for colonization needs, but if we invent broadcast energy and want a world that's as close to the sun as we can get, it's a great choice.)

Pyramid is the same way. Some features are perfect straight from the issue, for your heroes to "live in" or benefit from immediately. Some articles are best suited for "mining," taking the cool bits and applying them to your own purposes. Other pieces might not have an immediate utility, but you know they're there and can revisit them if you ever think of the perfect need. (I know I've rediscovered gaming articles in decades-old magazines that I didn't have a use for at the time, but have provided amazing insight in this millennium.)

Regardless, thank you for being part of this journey with us, as we explore new realms of gaming goodness together.

WRITE HERE, WRITE NOW

How were the new worlds we explored this month? Are there any you'd like us to visit more or less often? Let us know via private communication at pyramid@sjgames.com, or join the public broadcast online at forums.sjgames.com.



Special Thanks: Roger Burton West

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Few local animals have fur or feathers, so it's unknown how this would manifest in such cases.

Most hives are essentially nomadic. Pattern-hives have a dozen to a few hundred members. Hives stop reproducing when they get much larger than 500 members; this might be a limitation on the "psychic bandwidth" that can be sustained on a single "mental channel."

Hives encompass a variety of creatures, including sizable herds of man-sized to cow-sized grazers who provide mundane food. The GM can simply use statistics of cows or goats for them. The anthro-hives have also absorbed some human livestock animals.

All members of a pattern-hive work together in the common interest. However, they are implacably hostile to rival hives, fighting wars over food stocks and grazing territories.

Some individuals, especially in large hives, are born with minor deviations to the pattern. These tend to be forced out of the hive or killed. It's possible that these sorts of mutations were the origin of the divergence of different pattern-hives in the distant past.

In the early years of the colony, the origin of the pattern-hives was mysterious; various theories such as airborne hormones were advanced. The pattern-plague infections revealed that each pattern-hive was a shared telepathic mass-mind.

Pattern-Plague

Vector: Digestive.

Resistance Roll: HT-2.

Delay: 8d+2 days.

Damage: 1 point toxic.

Cycles: 12 × 12 hours.

Symptoms: Moderate Pain, Phantom Voices (Annoying), and Sleepwalker after 1/3 HP. Pattern-Bound (below) *permanently* after 2/3 HP; at this point, earlier symptoms fade.

Contagiousness: Highly contagious (even a small exposure requires a roll).

This syndrome is believed to be triggered by a form of contagious prion disease, microscopic skin parasite, or viral organism. The prevalent theory is that humans were exposed to "pattern-plague" after hunters ate improperly cooked hive-bound animal meat. (A minority theory is that it came from raw Shimmerock eggs used in eggnog in rituals). In fact, children in puberty can get the plague from eating certain poorly cooked meat and raw eggs from pattern-hive creatures, but this is only a risk for adults if brain tissue gets into the meat or is consumed. The pattern is also passed via intimate contact (provided those involved aren't already infected with a different pattern) and to fetuses in the womb.

The patterns are an outward manifestation of brain and metabolic transformations that alter behavior and stimulates telepathic powers. Each pattern might be considered a single superorganism, although members do maintain a degree of "self." It is a mystery as to why only some animals, all human-size or larger, can host the patterns, but one theory is that both a minimum brain size *and* skin surface area is required to host a colony large enough for telepathic powers to manifest to join the mass mind.

Ways to treat the pattern-plague are currently unknown, but scientists are working to test various ultra-tech medical drugs and cures against it and develop vaccines.

Pattern-Bound

34 points

Someone infected with the pattern-plague may acquire this template. The hive is assumed to be a Patron rather than Ally, as the character's interests are submerged to it. The basic Telesend ability is sufficient to project the feelings of togetherness and friendship to other hive-bound. The Racial limitation on Telesend is assumed to apply not to your race but rather only to members of your own pattern-hive (regardless of race).

Humans who live in a pattern-hive will often further develop their telepathic abilities beyond the minimum given here. Ostaran hive-bound who have lived within the stimulus of a pattern-hive have been shown to develop the full range of Telepathy abilities, skills, and Talent detailed in **GURPS Psionic Powers** – in essence, the hive itself serves as a form of catalyst creature for stimulating telepathic powers! Of course, many don't live that long.

Hive-members always want to remain within contact, but as mind-link allows telepathy to work over long distances, individuals may be sent away from the hive on special missions.

Advantages: Mindlink (100-999 people; Telepathic, -10%) [27]; Patron (Pattern-Hive; 15 or less) [30]; Telesend (Telepathic, -10%, Racial, -20%, Vague, -50%) [6].

Disadvantages: Intolerance (Other pattern-hives) [-5]; Phobia (Being cut off from the hive) (12) [-5]; Selfless (12) [-5]; Sense of Duty (Pattern-Hive) [-10]; Unnatural Features 4 (Skin patterns) [-4].

Features: Can infect others.

Customization Notes

Someone who has lost themselves in the animalistic impulses of the hive will have Bestial [-10 or -15].

As they are considered outcasts by a religious society, hive-bound humans on Ostara have Social Stigma (Excommunicated) [-5] when dealing with non-hivebound communities.

Shimmerock

This is one of several creatures found in a typical pattern-hive. It is a flying pseudo-reptile with a lavender-skinned body (often covered in pattern-hive markings), two pairs of shimmering silver-gray wings with 25' span and two clawed legs. It can easily fly in the dense atmosphere of Ostara. It has a long stabbing beak that has a distinct silvery color, hence the name. When not driven by the hive's cooperative impulses, it feeds on lake, ocean, or river fish, but is also an opportunistic scavenger. The Hive uses it as a scout. A Shimmerock is just powerful enough to carry a lightweight young human rider and saddle – or snatch a person into the air and drop him to his death.

ST: 13	HP: 9	Speed: 6.00
DX: 13	Will: 11	Move: 1 (Ground)/18 (Air)
IQ: 4	Per: 11	Weight: 90 lbs.
HT: 11	FP: 11	SM: +2
Dodge: 9	Parry: N/A	DR: 1

Bite (13): 1d-3 large piercing. Reach C.

Claw (13): 1d-1 cutting. Reach C, 1.

Despite only 100 years passing in the Saturi Talis system, nearly 500 years have passed outside it, with more and more people getting drawn in, seemingly without rhyme or reason. From space liners to cargo ships to military vessels, some 50 of ships found their way to the system. A “cultural ark,” the *Santa Margarita* (which had been hauling art, precious jewelry, and other valuable rarities from Earth’s blasted landscape)

made its way in-system. Likewise, the *Emerich* and *Roland*, a military frigate and its consort ship, were pulled in. All ships’ crews experienced the same thing the *Walrus* and the *Great Michael* had: Once they were in, they couldn’t get out. Many settled on Primus (but see p. 13 for information about the Rovers). Furthermore, brushes with the elusive Shellycoats have been reported a handful of times since.

SATURI TALIS SYSTEM

The Saturi Talis system is *remarkably* similar to Earth’s. Closest to the sun is Nessuno, a small rockball with a chlorine atmosphere. The next planet in the system is Saturi Talis Tertius (p. 13), a *big* rockball with a surprisingly breathable atmosphere, followed by Secundus (below), a water-world with a large number of island-like landmasses. Fourth from the star, Primus (below) is an Earth-like clone in gravity, mineral content, and climate. The fifth planet, the Rover’s Eye, is another rockball (p. 13), but it lacks an atmosphere. Next is the Asteroid Belt and the Paragon (pp. 13-14), followed by the Kings’ Crown Comet and then the Further and Furthest Sisters.

Curious scientists have tried to study the signals over the years, but none of them have discovered anything other than irregularly regular radio waves put out by the sun.

INHABITED PLANETARY BODIES

Most Talisians live on Primus, but both rockball Tertius and water-world Secundus are populated. Various outposts are also in the system, notably the Tent-City dome on the Rover’s Eye and the small mining outposts that spring up in the asteroid belt (p. 13). A skeleton crew maintains (and inhabits) the *Great Michael* as a communications hub for the system.

THE NUMBERED SCIONS

Less than 10 years after his abrupt arrival in the system on the *Great Michael*, Jonas MacDonough discovered the “sun signals.” He grew obsessed with them and spoke to others about his findings, but he was dismissed by most as a madman. Some listened, though. They noticed the greatly lengthened lifespans some colonists exhibited and the equally hard-to-miss silver-haired offspring. Over the last hundred years, MacDonough’s small collection of numbers-obsessed cohorts has grown into a politically powerful and diverse group of adherents calling themselves the Numbered Scions. They are suspicious of the Rovers (see p. 13), but only a few are crazy enough to try to discover the secrets of the Paragon. Many view the Quicksilver-Born Talisians as abominations and are deeply wary of them, especially since they are beginning to replace the “normal” humans. Most Scions mutter about aliens and the Shellycoat watcher and how it has plans – *dark* plans – for them.

The mysterious radio signals could be anything the GM likes, but see p. 16 for one possibility.

Talis Primus

Even with 100 years of almost explosive expansion, the settlers have yet to cover even 5% of their planet. Primus itself is a verdant paradise with easily accessible natural resources, few predators, and abundant life. This Earth-like environment made it extremely easy to adapt to. Heavy industry is almost unknown on Primus; most factories are built on Tertius (p. 13). The capital of Primus is the grand city of Skye, which boasts a population of over a million in the urban centers and twice that in the surrounding farms and suburban neighborhoods. There are several key space docks; one serves double-duty as a sea port.

The Landing Field has long since been overgrown with the Talisian equivalent of grass. The decaying hulks of the landing craft (which have been stripped of all useful parts) serve as a reminder of their arrival on Primus to later generations. Very few of the original settlers remain alive, though Birdie May, born shortly before the colonists arrived in-system, still survives. She often talks about the otherness of the Quicksilver-Born (p. 15) and is more than happy to share her fears with any who will listen.

The majority of the Quicksilver-Born live on Primus. Thanks to their enhanced cerebral capabilities, they are often in positions of authority. It’s not uncommon to meet a ‘Silver who has yet to reach adulthood in a job supervising those many times his age.

Because of the occasional Rover raids (or all out war!), a strong military contingent exists. It doubles as a peacekeeping force and disaster relief – powerful hurricanes and storms are common on Secundus and Primus.

Talis Secundus

Despite being the largest planet, it has the least surface area and is over 90% water. There is plant and animal life, and the oceans are rich with the Talisians’ chief fuel source: deuterium oxide, or “heavy water.”

SATURI TALIS SUN

The sun is a G2V star and is only a few solar masses heavier Earth’s Sol, but emits strange radio signals. These radio waves pulse from the star at very specific timed rates (like the old number stations from Earth’s 20th century). This odd phenomenon has even inspired a religion of sorts that’s part ideology and part conspiracy theory (see *The Numbered Scions*, above).

Hohmann Transfers (Saturn through Sedna) (Continued)

	<i>Saturn</i>	<i>Uranus</i>	<i>Neptune</i>	<i>Pluto</i>	<i>Haumea</i>	<i>Eris</i>	<i>Sedna</i>
Uranus	-0.8, -0.9, -1.7 mps (27 yrs)	–	0.44, 0.39, 0.83 mps (61 yrs)	0.67, 0.56, 1.23 mps (79 yrs)	0.71, 0.59, 1.3 mps (83 yrs)	1, 0.75, 1.75 mps (140 yrs)	1.6, 0.6, 2.2 mps (2,200 yrs)
Neptune	-1, -1.4, -2.4 mps (44 yrs)	-0.4, -0.4, -0.8 mps (61 yrs)	–	0.22, 0.2, 0.42 mps (100 yrs)	0.26, 0.24, 0.5 mps (110 yrs)	0.6, 0.49, 1.09 mps (170 yrs)	1.3, 0.54, 1.84 mps (2,300 yrs)
Pluto	-1.1, -1.6, -2.7 mps (60 yrs)	-0.6, -0.7, -1.3 mps (79 yrs)	-0.2, -0.2, -0.4 mps (100 yrs)	–	0.04, 0.04, 0.08 mps (130 yrs)	0.37, 0.32, 0.69 mps (200 yrs)	1.1, 0.51, 1.61 mps (2,300 yrs)
Haumea	-1.1, -1.6, -2.7 mps (64 yrs)	-0.6, -0.7, -1.3 mps (83 yrs)	-0.2, -0.3, -0.5 mps (110 yrs)	0, 0, 0 mps (130 yrs)	–	0.33, 0.29, 0.62 mps (200 yrs)	1, 0.5, 1.5 mps (2,300 yrs)
Eris	-1.1, -1.9, -3 mps (120 yrs)	-0.8, -1, -1.8 mps (140 yrs)	-0.5, -0.6, -1.1 mps (170 yrs)	-0.3, -0.4, -0.7 mps (200 yrs)	-0.3, -0.3, -0.6 mps (200 yrs)	–	0.74, 0.42, 1.16 mps (2,500 yrs)
Sedna	-0.7, -2.4, -3.1 mps (2,100 yrs)	-0.6, -1.6, -2.2 mps (2,200 yrs)	-0.5, -1.3, -1.8 mps (2,300 yrs)	-0.5, -1.1, -1.6 mps (2,300 yrs)	-0.5, -1, -1.5 mps (2,300 yrs)	-0.4, -0.7, -1.1 mps (2,500 yrs)	–

A MISSION TO MARS

So you want to go to Mars tomorrow? Because there currently aren't any constant acceleration drives that can propel something large enough to carry people, the mission is limited to either a Hohmann (pp. 26-27) or bi-elliptic (p. 27) transfer. Your initial orbit is Earth's at 1 AU, which is more than 1/12 that of the final orbit – Mars' at 1.5 AU. Thus, a Hohmann transfer provides the most fuel efficient route.

The first step is to calculate the delta-V required for the first burn. We know that the first Hohmann equation tells us **B** equals 18.52; both planets orbit the Sun, so **M** equals 1 solar mass; we are leaving Earth, so **R_i** equals 1 AU, and we are going to Mars, so **R_f** equals 1.5 AU. By plugging this into the equation, we find the delta-V requirement for the first burn is 1.8 mps:

$$\Delta V_1 = 18.52 \times \text{square root of } (1 / 1) \times [\text{square root of } [2 \times 1.5 / (1 + 1.5)] - 1] = 1.8.$$

Second, we must find the delta-V requirement for the second burn. We use the same figures, but plug them into the second Hohmann equation and chug through that to get a delta-V requirement of 1.6 mps:

$$\Delta V_2 = 18.52 \times \text{square root of } (1 / 1.5) \times [1 - \text{square root of } [2 \times 1 / (1 + 1.5)]] = 1.6.$$

Next, we add the delta-V of both burns to find the total fuel requirement for the trip: 1.8 + 1.6 = 3.4 mps.

We also need to account for a 1.85° difference in orbital planes:

$$\Delta V = 2 \times 18.52 \times \text{square root of } (1 / 1) \times \text{sine of } (1.85 / 2) = 0.60 \text{ mps.}$$

Our spacecraft will need at least 15 fuel tank systems (*GURPS Spaceships*, p. 17) and be powered by a chemical rocket (*Spaceships*, p. 21).

Our final consideration is how long the voyage will take. We can plug in the same initial and final orbits from earlier, plus the mass of our sun into the third Hohmann formula to find that our trip will take 255 days:

$$T = 3.14 \times 58.11 \times \text{square root of } [(1 + 1.5)^3 / (8 \times 1)] = 255.$$

The ship requires at least one habitat system (*Spaceships*, p. 17) and probably a cargo hold (*Spaceships*, p. 13) for food, water, and supplies. Including the control system (*Spaceships*, p. 14), this leaves only one system remaining for the designer to assign – perhaps to more cargo, just in case . . .

ABOUT THE AUTHOR

At an early age, Timothy “Humabout” Ponce’s parents introduced him to Arthur C. Clarke, Isaac Asimov, and Robert Heinlein, and he has never since looked at the night sky the same way. Carl Sagan and Stephen Hawking did little to turn his gaze downward, and he still pines for the vastness

beyond our atmosphere. He wishes to thank Ross Hrubyak and Douglas Cole for their incredible patience and willingness to answer silly questions, and Julia for her love and support in this arduous adventure. Lastly, he would like to thank Christopher R. Rice’s *Pyramid* Write Club, but the first rule of Write Club is that we do not talk about Write Club.

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