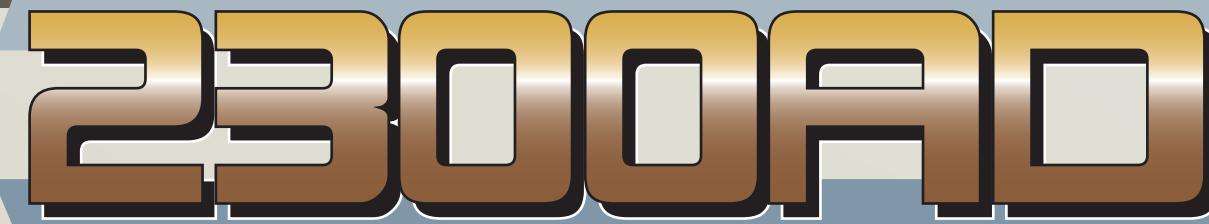


# 2300AD

PROJECT BAYERN  
SECONDARY MISSION OBJECTIVES



TROVEELER®



## PROJECT BAYERN

# SECONDARY MISSION OBJECTIVES

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# PROJECT BAYERN SECONDARY MISSION OBJECTIVES

*Of course, we lost people. We always knew exploring was going to be dangerous – doubly so as we were so far from home and had to be self reliant. But there are some things that you just can't account for, no matter how prepared you are. We were careful and practiced caution as a watchword but sometimes the Great Space Beast will just reach out of the black and bite you.*

*That's what we called the random factor, bad luck and chance – the Great Space Beast. When the primary attitude sensor in Donner failed and both backups read wrong, it was the Great Space Beast that had reached out and swatted them from the sky. The pilot tried to pitch up too far, following false flight instruments, and she broke apart at Mach 4 at 60,000 feet. Of course, it was probably just a technician in a factory in Bremen that had passed a bunch of micro-sensors that really should have been rejected but we couldn't blame someone 1,000 light-years away as we watched the flash and saw the telemetry cut off.*

*When Juliette's suit seals failed all down one leg on that rock out by Aldebaran and she asphyxiated as her eyeballs froze, we didn't know there was a hydrogen peroxide plasma leak in the Entdecker's airlock. It had allowed just enough of the peroxide plasma to*

Although Bayern's primary mission is to survey the Pleiades, her crew are encouraged and even obliged to investigate other interesting scientific curiosities along their path. The desire to investigate any Earth-like worlds suitable for colonisation is a strong motivator for future human expansion, as are standing orders to research any signs of sentient life.

*leak in during the conformal hull cleansing cycle to bathe one leg of her suit, hanging by the inner door. The Great Space Beast did it again.*

*Some things we couldn't blame on the Great Space Beast. Yvonne and Etienne were killed when she flew Orkan into an ice hurricane and the survey team they were carrying nearly froze to death before we could get down to them in Entdecker. Whatever demons she was fighting with, they were her own and she knew what she was doing. Astrid died after eating what she was sure was a harmless fruit, in violation of all of our strictest rules on contact with unknown flora. She thought she knew better.*

*Simon just couldn't handle the isolation and the claustrophobia, despite him passing all the psych evaluations with flying colours. He just had to get outside. So, he waited until the graveyard shift, rearranged schedules so he'd be on SysOps, bypassed a dozen safety checks and headed down to deck EVA Ops. Ace tried to stop him, and alerted the rest of the crew, but it was too late by then. He put the core cars into sleep mode so they had to get through 10 or 12 decks of closed and dogged hatches. They didn't have enough time to get to him. He just needed to get outside, you see. So, he took a walk without his spacesuit.*

*I really wish I could blame the Great Space Beast for that.*

This book contains eight full Interlude encounters that can be interspersed between the main Plot Points. Each Interlude has a suggested place in the overall campaign structure but most are standalone enough that they can be used whenever or wherever the referee desires. The final three adventures form a mini-campaign of their own, featuring first contact with a hostile alien species. Ideally these three adventures should be run in order, one after another.

# INTERLUDE 1

# THE WANDERER

MET: D+70

CMD: 102 ly

System: BPC 238974,

Stellar Type: K2V

X, Y, Z Co-ordinates: 32.18, 47.71, 26.67

This interlude is based around an encounter with a drifting alien spacecraft and its hidden and deadly passengers. It is a short interlude that should be placed near the Human systems, either on the departure or just before returning from the Pleiades. If the Travellers are careful it offers little risk but if they are reckless there is potential for serious consequences for them and *Bayern*.

## BACKGROUND

In 2298 a joint American/Australian team discovered an alien starship floating in the outer reaches of the King system dubbed UAO 55 by the Academe del Lincei. The ship was a strange hybrid of organic and technological systems and appeared to have been adrift for hundreds, if not thousands of years. The ship's organic components were beginning to fail as it was cut off from the raw materials and sunlight it needed to sustain itself.

Whilst exploring the ship one of the mission team was killed in a freak accident when they accidentally entered what they thought was a sleeping chamber, which turned out to be a biological waste disposal system. The authorities then placed the ship in a sealed orbital dry-dock under quarantine as it was feared the ship was hostile. By the time the accidental nature of the death was discovered the ship's systems had begun to inexplicably fail. The necessity for access to sunlight and drifting patches of gas and dust for the proper functioning of the ship's organic systems was discovered too late. The ship had spent too long locked away without access to either. The ship was now too badly damaged to support itself and one system after another failed, even when returned to open space and supplied with an artificial source of raw materials. Eventually it died and ceased functioning at all.



The remains of the ship were studied but the electro-chemical systems that made up the ship's computer network were wiped clean upon its death. Whatever secrets it held were lost when the ship's brain died.

## THE ENCOUNTER

*Anton Dohrn* will detect an unusual signal when it enters a new system. Whilst running a gravitational scan using the GADS a 'grumble' signal will be detected. 'Grumbles' are a characteristic low level of distortion on the GADS reading produced when a spacecraft is running stutterwarp at very low power to prevent discharge taking place.

Typically stutterwarp discharge is done whilst in a stable orbit, so ships do not actually need to run their drives whilst coil discharge is taking place. A grumbling drive is one where the drive is configured in a specific way to run at very low power. The drive is online

and active but not propelling the ship. The Jerome Effect field is established and the stutterwarp coils are energised but the ship is never displaced, instead being held at the point prior to a jump being initiated.

If carried out whilst in a gravity well of greater than 0.0001 G with a charged drive, the 'grumbling' will prevent the drive from discharging. Grumbling the drive is a standard engineering technique for testing drives that have just been brought online or overhauled and a technique used in many parts of training for drive technicians.

Since GADS cannot pinpoint where the grumbling drive is, only that it is operational, a sensor sweep using the ship's telescopes, EM suite and other sensors will begin. *Anton Dohrn* begins a rapid transit through the system, absorbing as much sensor data as possible and launching survey satellites along her path. After 16 hours of searching one of the satellites detects a thermal anomaly in orbit around the innermost planet of the system. *Anton Dohrn*, already well into her own drive discharge cycle, investigates.

The satellite will discover an alien vessel drifting in polar orbit around the unremarkable planet. The ship is pale green in colour and has a mottled, veined and wrinkled looking hull which seems to be organic. At the rear and amidships are components that appear to be of technological origin.

*Anton Dohrn* will direct the satellite to observe the alien ship and, once her drives are discharged, follow directives to observe and report back to *Bayern* by leaving the system to meet at the rendezvous.

Once she has returned to *Bayern*, the telemetry will be downloaded and Ace will quickly recognise that this is a similar vessel to the one discovered at King. Many details of the ship encountered at King are still classified by the US and Australian governments but the AR-I was called in to consult during the encounter. Ace has access to these records and can advise that the ship is from an unknown alien race, and partly biological in nature.

The opportunity to gather more information on the enigmatic aliens who built the ship is too good to pass up. *Bayern* and *Entdecker* should transit back to the system the alien was encountered in to study it further. *Bayern* will conduct a survey of the system for other points of interest whilst *Entdecker* will proceed to the alien ship, christened *The Wanderer* by the crew, and begin investigations.

*Entdecker*'s transit to the innermost planet will be uneventful. *Bayern* will begin at one of the outer planets and start her detailed scan of the system, hopping from world-to-world. She will despatch her fleet of probes and drones to survey each planet in more detail as she moves on.

As soon as the ships get in-system they will be able to pick up telemetry from the satellites that *Anton Dohrn* left observing the alien ship. It appears to still be in orbit and has not manoeuvred or made any kind of activity since *Anton Dohrn* left. *Entdecker*'s approach will be completed without any response from the ship. Up close, several differences from the ship discovered at King can be seen.

Firstly, the ship is much larger, nearly 200 metres long compared to the previous ship's 50 metres. Secondly, this ship appears to have a number of dark discolorations on the hull. Travellers with a space military background will see a similarity to blast patterns from kinetic-kill sub-munitions or point defence weapons. Those with a medical background will note there is an obvious thickening around the discolorations, like a healed wound or keloid scar. It will not be a great leap of deduction to suggest that these reflect battle damage that the ship has somehow healed.

## THE SHIP

The ship that *Bayern* encounters is of a similar, but larger, design to the ship encountered at King. Unlike that ship, this one's stutterwarp drive is fully operational but appears stuck in a mode that is preventing discharge.

The interior of the ship is dimly lit by yellow lights embedded in the hull material. Walls and floors are similar to the outer hull in their organic appearance but smoother. Doors, consoles and internal fittings are mostly technological and structural components such as walls, floors and conduits are organic. The organic portions of the hull are a hard, resinous material that is slightly flexible under pressure. In some areas it is very smooth (floors and around the technological components), whilst in others it has a thick and bark-like appearance.

The ship's interior temperature is low, slightly above freezing, but will warm as the Travellers move through the ship, settling at a balmy 32° C. Atmospheric pressure is slightly lower than normal and there are several gases that will require space suits or respirators to be worn even once the ship has warmed up.

As the Travellers explore they may notice areas where the walls feature rounded swellings which correspond to the 'battle damage' on the outer hull. They may deduce that these are some form of injury to the ship; however the actual situation is very different.

The ship is a survey vessel on a mission charting worlds for future exploration, much like *Bayern*. The ship's crew were searching for worlds with tantalum and had visited several promising sites, taken samples and moved on. On one of these worlds the crew became infested by tiny worm-like parasites that lived in the shallow oceans. The crew did not notice the parasites at first, which allowed them to spread to the whole crew and infest the ship's biological systems. The crew became sick and debilitated, and set the ship's autopilot to head home, not realising that the ship itself was infested. By the time the crew detected the parasites, it was too late and the infestation led to their deaths and consumption.

The ship began its journey home but the rudimentary intelligence began to realise that it too was infested with the parasites. The ship then faced a dilemma. It had orders to return to its homeworld but safety protocols prevented it from returning, which risk the infestation spreading. Unable to reconcile these two conflicting orders or countermand the order that set its autopilot, the ship placed itself around a world, but has set its drive to run continuously so it will never actually fully discharge, thus preventing the ship from leaving and taking the parasites home. It has so far managed to keep its systems running at a low level of power by absorbing energy through organic solar cells and collecting small quantities of gas and dust floating in space.

In the meantime the ship's biological systems have managed to isolate the parasites in discrete parts of its internal systems and encased them in a cyst. It has produced an anesthetising gel that keeps the worms largely dormant and has filled the cysts with it. The dormant worms then eventually die due to a lack of food. Unfortunately the gel is not 100% effective and from time-to-time either loses its potency or a worm grows resistant to the effect and becomes active for a period. These worms are able to feed on the ship, which weakens it and releases more worm larvae, which the ship will then encyst.

So far the ship has managed to just about stay ahead of the worms but eventually there will be an outbreak of gel-resistant worms that it cannot contain or someone will board the ship and start poking holes in the cysts.

## The Bridge

There are 11 workstations of an alien design arrayed around this room with a large central holographic display and several display screens around the walls. The holographic display will activate as the Travellers enter and will show a slowly rotating schematic of the ship with several areas highlighted. These correspond to interior parts of the ship near to areas on the hull that appeared to have been damaged. The workstations are crescent shaped and wrap almost all the way around the position. The seating is little more than broad pillars that merge with the floor. The tops of the pillars are strangely contoured and a Difficult (10+) INT check or Average (8+) Science (xenology) check (EDU) will suggest that the occupants of the chairs were somewhat insect-like, with multiple appendages. The same check will also suggest that the crescent shaped consoles were designed for a race with more than two arms and more than one set of eyes.

## Crew Quarters

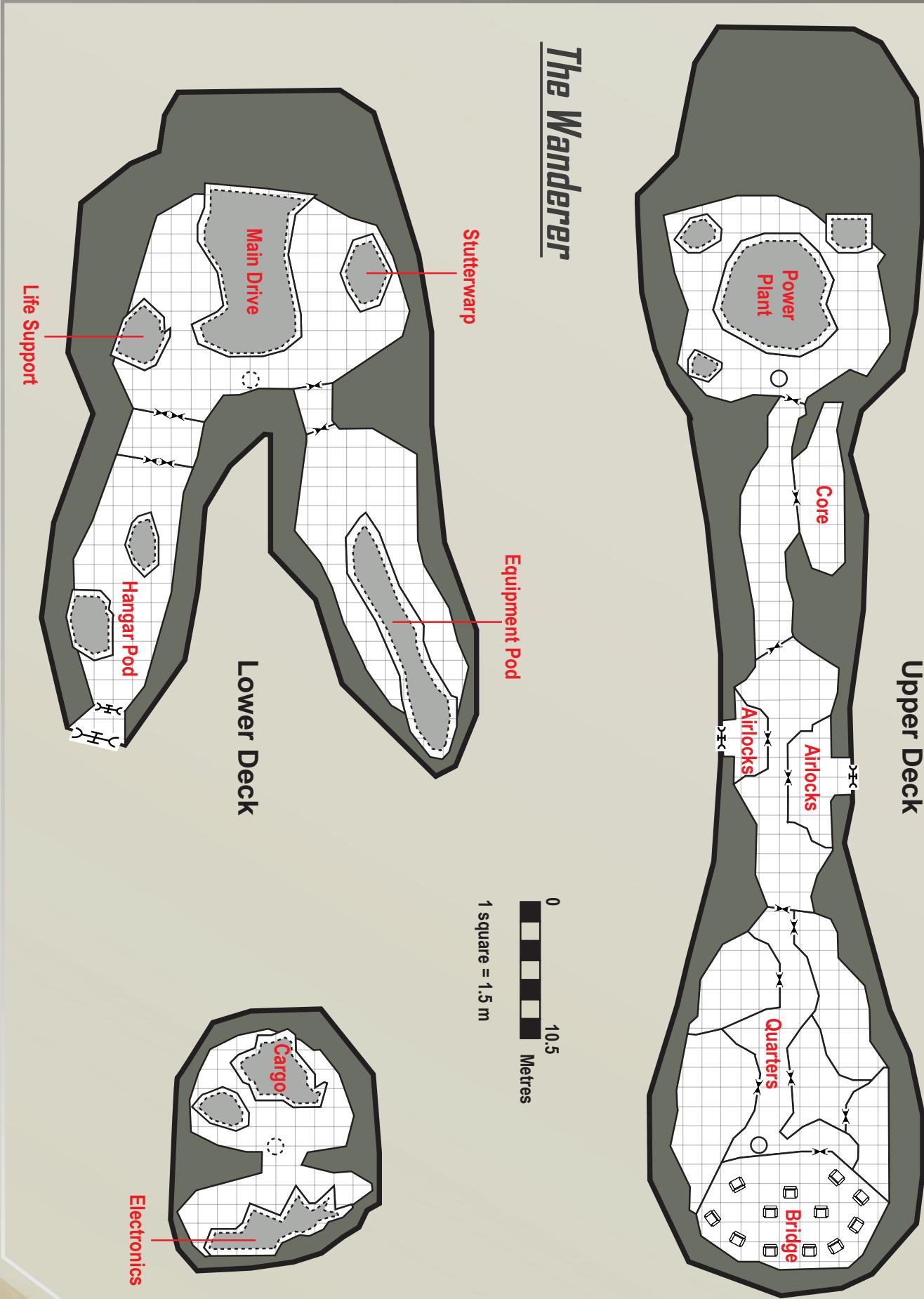
These chambers are mostly bare but contain alcoves along the walls and ceilings, raised platforms and bulges, shelves, loops and hooks protruding from the walls and depressions in the floor which are all contoured similar to the pillars in the bridge. A Difficult (10+) INT check or Average (8+) Science (xenology) check (EDU) will suggest that these areas are designed for multi-limbed crew to rest in. These may be zero-gravity berths or recreation facilities of some kind, although drawing parallels to human facilities is unwise without further knowledge of the ship's crew. Several disposal chambers of the type encountered on the spacecraft at King will also be found here.

## Airlocks

The two airlocks have manual metal hatches set in the organic hull. Both will be open when *Entdecker* first approaches the ship, although the inner doors will be sealed. The ship will automatically re-pressure the airlocks if the door is closed and the inner doors cannot be opened whilst there is a pressure differential on either side.

## Core

The door to this section is locked and requires a Very Difficult (12+) Mechanic check (1D minutes, DEX) or a Formidable (14+) STR check to break down. At either end of the room is a squat ovoid object approximately two metres in diameter and a metre and a half high. They are supported by thick, short trunks of bundled fibres and tubes, and encased in a mix of metallic parts



and a hard, bony casing. These are the ship's main core, which contains the main computer and biological support system. These are effectively two parallel-running bio-computers, one responsible for keeping the ship's organic systems running and the other directing the ship's discrete systems. They are effectively the ship's nervous system and brain. Any damage to them would likely be catastrophic for the ship.

## Power Plant

In the centre of this room is the ship's power plant, an irregular pillar approximately nine metres in diameter. The ceiling of the room is domed and steadily rises up; the top of the power plant room is over eight metres high. The power plant is a high efficiency fuel cell that is a mixture of technological and organic systems. It is fed and cooled by an organic system of pumps and conduits, while the control systems and power transmission are technological. A hatch leads down to the lower deck and there are more bulges along the walls similar to those in the crew quarters, but larger.

## Main Drive/Stutterwarp/Life Support

This room has an eight metre ceiling height and is dominated by the main drive system. The ship uses an organic rocket of prodigious size and power to manoeuvre when the stutterwarp is not engaged. The organic systems manufacture and inject oxidiser and reactant into a combustion chamber which extends out of the rear of the ship. Smaller systems for manoeuvring use simple bladders to release pressurised gas from positions dotted around the hull. The main power plant protrudes through the deck above and hangs above the drives with thick conduits connecting it to the stutterwarp, reaction drive and life support. The stutterwarp drive can also be found here, as can the organic life support system. The stutterwarp, although of an alien design, operates in the same manner as human drives. It would be hazardous to disassemble the systems here whilst they are running.

## Equipment Pod

This room once held equipment of some kind but it is now non-functional. Technological systems lay scattered around the room, drifting in zero-gravity. There are several puckered scars or orifices on the walls, different from the battle damage on the outer hull. A Very Difficult (12+) INT check or Difficult (10+) Engineer (any) check (INT) or Science (xenology) check (EDU) will suggest there was a biological element to whatever device was in this room which has been removed, leaving the technological components to drift free.

## Hangar Pod

This pod has a set of metal clamshell doors at the far end which can open to space. Within the pod are two small multi-limbed craft, resembling bulbous tics or crabs. These are ship's vehicles, similar to the work bugs *Bayern* carries. Both are in a state of disrepair, with organic systems clearly dead and desiccated. One has several finger-sized holes dotting the organic parts of the vessel. There are more bulges along the walls here, some of considerable size.

## Cargo Bay

This room contains several cargo bins of a mundane, if alien, design. Each is full of crushed rock, a different type in each container. The rocks can be assayed by conducting a mineral analysis using a suitably equipped portacomp or science lab on *Bayern*. This requires a Routine (6+) Science (planetology) check (1D hours, EDU) with DM-2 if no suitable equipment is available. If successful it will reveal that the rocks are various ores high in tantalum. If the ore is purified and processed, which could be done on a small scale using the autofactories on *Bayern*, it will become apparent that one sample in particular has a very high percentage of Ta-180m, the isotope of tantalum required for stutterwarp coils. There is no indication where the ores have come from.

## Electronics

This room contains a set of organic batteries and the technological components for the ship's avionics and sensors.

## INTERACTING WITH THE SHIP

The ship is best described as semi-sentient. It is able to perceive its environment and respond to that environment within certain parameters but it could not hold a conversation. Whilst the ship has an awareness of self, that is only as a function of being able to manage and monitor its systems. It has limited free will, as essentially it is still a tool and its makers designed it to be compliant, but the Travellers will not be able to master the complex communication system required to direct the ship. Many of the ship's functions are reflexive – the coolant for the power plant is automatically pumped around, for instance. The ship has little control over these functions, no more so than a human has control over the pumping of their heart. Ultimately, it is driven by its last two directives: head home and contain the infestation.

Communication with its previous crew was a complex, multi-layered experience that included several simultaneous audio and video components and also complex biochemical exchanges which allowed the ship to 'know' what its crew required. The relationship is similar, but far more complex, to the interactions between ants in a colony, where certain chemicals serve as instructions or markers. In the ship, this concept was taken to a much higher level and complex commands could be exchanged between ship and crew with great speed and accuracy.

Likewise, sharing of information involved the same use of chemicals and audio and visual cues to help entire concepts and huge datasets be passed with incredible speed. In essence, the crew would know the information instantly as chemicals were integrated directly into the memories.

Unfortunately this elegant form of communication is useless to the ship now with its crew long dead. Travellers hoping to use the controls to 'search the database' for information are going to be sorely disappointed as they will be unable to find an interface even remotely similar to anything they are familiar with. The ship will try to communicate with them using cues in the environment. If the ship does not want the Travellers to do something it may dim lights, sound harsh tones through the ship's PA system or lower the temperature. If it wants to encourage a certain activity it may flicker the lights in time with the activity or play a soothing chirruping sound. The ship can use the holo display on the bridge to represent information but, despite its prominent location, the display was actually a small part of the control system for its former crew. Only after observing the Travellers using a hologram-equipped device to display information will it occur to the ship to try this approach.

Referees should manufacture simple situations where behaviour is recognised by the ship and positive feedback given. Likewise, the ship should show its displeasure whenever the bumps on the walls – the encysted worms – are interfered with.

The ship will discourage attempts to stop the grumbling stutterwarp and ramp up its displeasure to the extent that it will open all the doors between the stutterwarp and pod hangar, and begin to open the clamshell doors unless the drive is left alone.

The ship will not act in an overtly hostile manner unless threatened with destruction or an attempt to disable the stutterwarp before the parasites are neutralised. Even then, the ship's responses are limited to altering

the internal environment and using rocket motors to move the ship around, possibly injuring persons inside it. It can slowly change environmental conditions but Travellers will have plenty of time to don protective clothing. The most dangerous strategy would be to open the internal hatches and then vent atmosphere via the hangar bay but the ship is reluctant to do this as it takes time to replenish vented atmosphere.

## EXPLORING THE SHIP

The drifting ship will be unresponsive to radio or line of sight communication and remain passive as objects approach. *Entdecker* will be able to manoeuvre close enough to use a universal docking seal to clamp on to one of the airlocks on the upper deck or, if the Travellers are reluctant to clamp their ship to a mysterious, living, alien vessel they can instead perform an EVA between the two ships. This close to the system's primary there is some danger of radiation exposure but *Entdecker* can be positioned to provide a shield.

Once on board the Travellers' explorations will initially be uneventful. Forewarned by information from the encounter at King, they should have an awareness of the risks associated with the ship and be able to avoid the accidents that befell previous explorers.

Once the Travellers reach the bridge they will observe the hologram of the ship on the main display. This was the last image the previous crew had called up and it monitors the rate and location of infestation. The image will appear slightly blurry, as it is designed for alien compound eyes. The hologram shows a ghostly, translucent image of the ship in a very pale purple. The image is slowly rotating and the interior layout of the ship is clearly visible.

Various parts of the ship are outlined in amber and green and they pulse slowly. The blurring effect means that the Travellers are not able to see details of the highlighted areas but an Easy (+4) INT check shows they correspond to areas adjacent to marks on the hull and bulges inside. These were, in fact, areas of the ship that were damaged by weapons fire in an unrelated incident; the parasites were able to gain entry to the ship by burrowing into the damaged tissue. It is only in these areas that the ship is unable to expel the parasites. If the parasites are removed, the ship will be able to fully repair these areas in due course.

The Travellers are likely to want to search for clues regarding who the previous crew were. There are few available. The ship has disposed of the crew's bodies

and they were never a materialistic race to begin with. The incomprehensible nature of the ship's controls, to humans at any rate, will mean that getting information directly from the ship is next to impossible. A Difficult (10+) Science (cybernetics) or Electronics (computers) check (1D minutes, INT or EDU) will reveal that multiple simultaneous inputs are required to run a workstation effectively but even then the Travellers will have the impression that there is a significant portion of the control interface that they cannot access – this is the biochemical component.

A Traveller can try to decipher the control system with a Formidable (14+), Electronics (computers) check (1Dx10 hours, INT). Success will mean they have deciphered how to accomplish the following simple tasks:

- Open and close doors
- Adjust the ship's attitude
- Fire the bio-rocket engines

The ship will override attempts to crash it into the sun, *Entdecker* or the planet below and gently nudge itself back into polar orbit if the Travellers decide to take it for a joyride.

## ENCOUNTERING THE PARASITES

It is likely that the Travellers will begin to investigate the mysterious areas that feature on the hologram display and show the bumps and surface scarring. When inspected it is clear that the hull material in these areas is of different composition and structure to other areas. Investigation using portable sensor devices (such as handheld millimetre-wave radar, motion detectors or thermal imaging equipment) requires an Average (8+) Investigate or Electronics (sensors) check (1D minutes, INT). Success will reveal the presence of a cyst and the parasite within.

If the Travellers try to excise one of the cysts, or the first time one of them pokes at one, they will encounter a parasite that has become resistant to the anaesthetic gel; it will burst out and attack (see page 11). Each time thereafter that the Travellers interfere with a cyst there is a one in six chance that the cyst contains a parasite which will immediately attack. Other parasites removed

from a cyst will remain dormant for 1Dx5 minutes, after which the anaesthetic will rapidly wear off and the parasite will attack.

Once the Travellers have a sample of the worms to examine they can discover several important facts. There are several tests which could identify that the worms are not native to the ship; a comparison of basic chemistries, the relative abundance of certain isotopes and a structural analysis of the DNA will all show significant differences. A Routine (6+) Medic or Science (biology or chemistry) check (1D hours, INT or EDU) will reveal the results.

The bumps are so prolific around the ship, and some are of considerable size, that it should be immediately apparent that simply ripping open all cysts and beating the worms to death is not a viable strategy, even more so when the possibility of human infection is taken into account. A Routine (6+) Medic or Science (biology or xenology) check (1D hours, INT) will suggest that the infestation could be treated much like an infection or parasitic life form. To rid the ship of the worms, the Travellers must enhance the ship's natural defences, try to make the environment hostile for the parasites or attack the parasites directly.

However, investigating a process that will affect the worms but be harmless to the ship or human investigators is not straightforward. The ship has been trying to rid itself of the parasites for years without success. Possible avenues of research are to improve the effect of the aesthetic gel until it kills the parasites, investigating why the infestation is confined to damaged areas of the ship or using synthesised toxins and poisons from stores aboard *Entdecker* (which are not extensive).

Each of these should be considered a task chain.

Success in this chain will result in the production of a poison that can be injected into the cysts to kill dormant parasites. However, there will be 1D cysts that contain parasites which are instead immediately roused, awaken and burst out to attack. The Travellers will find that the ship is quickly able to analyse and synthesise the poison and by the time they reach the last area, it will have already begun secreting it into cysts, killing the parasites.

### Create Poison From Aesthetic Gel

<b>Step 1</b>	Analyse the gel's chemical makeup	Average (8+) Science (chemistry) check (1D hours, INT)
<b>Step 2</b>	Identify the biological process affected by the chemicals	Average (8+) Science biology, genetics or xenology) check (1D hours, INT)
<b>Step 3</b>	Synthesise poison	Average (8+) Science/Chemistry check (1D hours, INT)

## Discover Why Parasites are Restricted to Damaged Sections

<b>Step 1</b>	Examine the damaged areas to determine why cysts are concentrated there	Average (8+) Investigate check (1D hours, INT)
<b>Step 2</b>	Identify the systems damaged by previous weapons fire	Average (8+) Science (cybernetics) check (1D hours, EDU) or Difficult (10+) Science (biology or xenology) check (1D hours, INT or EDU)
<b>Step 3a</b>	Weaponise results – portable	Average (8+) Science (physics) check (1D hours, INT) then Difficult (10+) Engineer (power) check (1D hours, EDU)
<b>Step 3b</b>	Weaponise results – area emitter	Difficult (10+) Gunner (turret) check (1D hours, INT) and Very Difficult (12+) Electronics (sensors) check (1Dx4 hours, INT)

Progress in this chain will reveal that the parasites are concentrated in areas of the ship previously damaged and lack internal components that emit low levels of radiation. It is possible to adapt equipment carried by or mounted on *Entdecker* and *Bayern* to either build a portable directed radiation source or adapt sections of *Entdecker*'s sensors to become broad area emitters. The emitters will be able to irradiate the ship in one go but the process of converting the sensors is somewhat more complex. If using the portable device the results will be immediate and spectacular. Irradiated parasites will immediately awaken from their anesthetised state and break out of the cysts. Most will thrash around for a few minutes before dying but 1D will instead attack the Travellers before dying after 1D rounds.

This chain represents gathering up several smaller parasites and then exposing them to a series of substances and chemicals. Because of the vast array of substances available and the unknown biology of the parasites, this is more or less a lucky dip. In addition, this approach takes considerably longer than any of the others and can only be conducted on board *Bayern*. Commander Schmidt will be reluctant to allow samples of an alien parasite on board and will require convincing. The end result will be a poison that can be injected into the cysts and acts almost immediately. There is no risk of the parasites attacking and the Travellers will be able to eliminate all cysts in just a few hours.

## OUTCOMES

There are several potential outcomes for this encounter. The Travellers could survey the ship, fail to recognise the signs of infestation and leave – *Entdecker* only has a limited window to investigate before she and *Bayern* need to move on. Likewise, the Travellers could encounter the first cyst and decide to cut their losses and leave. In both circumstances the outcome will be the same; *The Wanderer* will remain in orbit for another few months before there is an outbreak of gel-resistant worms. The quantity of worms will overwhelm the ship's biological defences and several critical systems will begin to be damaged. Eventually the core will be attacked and the ship will die. It will remain in orbit for a further month or two before the steady pressure of solar wind will destabilise its orbit and the ship's dead husk will be destroyed as it impacts the planet below.

The second option is that the Travellers find some way to shut down the grumbling stutterwarp and discharge the drive. If the drive is then brought back online, the ship will follow its last order and begin to head home. However, unless prevented from doing so, the ship will simply fall into the same pattern of behaviour in the next system, grumbling the drive to prevent discharge. Events will then follow much the same path but in a different system.

## Manufacture a New Poison

<b>Step 1</b>	Acquire a sample	Difficult (10+) Melee/Unarmed (1D x 10 minutes, DEX)
<b>Step 2</b>	Test broad categories of substances	Difficult (10+) Science (biology, chemistry or xenology) check (1Dx10 hours, INT)
<b>Step 3</b>	Find specific substance and test	Average (8+) Science (biology, chemistry or xenology) check (1Dx10 hours, INT)
<b>Step 4</b>	Weaponise results	Average (8+) Science (chemistry) check (1D hours, INT)

The third, and potentially most desirable, option is for the Travellers to encounter the parasites and work out a way to purge the ship. In this instance the ship will voluntarily shutdown the grumbling drive, discharge the built-up charge and then remain in the current system long enough to repair the damaged sections. After this the ship will continue on its journey to the aliens' distant homeworld.

A further consideration is the fate of any Traveller infested by the parasites or samples brought aboard *Bayern*. Whilst *Bayern* and her crew are at little risk from infestation, since humans are incompatible hosts for the parasites and *Bayern* is not a living organism, care must be taken. Experimentation and observation will show that the parasites are remarkably adaptable to differing biologies and it is possible that, given sufficient time, they could adapt to human biology. If specimens were to get into the hydroponics tanks, or infest the carniculture vats, they could contaminate a significant portion of *Bayern*'s supplies. In the first instance the contaminated food stock would be a health hazard because of allergic reactions but if the parasites were to adapt then they could be passed on to crew and a dangerous outbreak of parasitic flesh-eating alien worms would result.

In the longer term, study of parasites' adaptive abilities could lead to breakthroughs in applying similar techniques to Terran plants and animals to make them more suited for use on colony worlds.

## THE PARASITES

The parasites are a type of aquatic worm that originated on one of the worlds the ship visited. On their homeworld they are a minor nuisance and rarely grow to any size. However, the examples encountered on board the spacecraft have been affected by its alien biology and are much larger. These parasites range from being no bigger than a pencil to several in excess of three metres long and 15 centimetres in diameter, but most average around one metre long and five centimetres in diameter.

All have a similar appearance and resemble grey, segmented earthworms with short bristles on each segment which they use for locomotion. At the head is a rounded maw full of inward facing spines which is used to attach to the worm's host and draw sustenance.

The worms are fast and agile but relatively fragile. They are capable of inflicting painful injuries and their bite can also infest the user with tiny, juvenile worm larvae.

In humans, the larvae will be briefly visible in the slime of any bite before they burrow into flesh and enter the bloodstream. Once within the body they will travel to the intestines, where they latch on and attempt to feed.

Fortunately human biology is incompatible with the worms and they will be killed by the body's natural defences. They will be flushed out after they die but the process results in debilitating stomach cramps and nausea at best, and a potential deadly allergic reaction at worst.

Animal	Hits	Speed
Parasitic Worm	7	10 m
<b>Skills</b>	Athletics (dexterity) 1, Melee (natural) 2, Recon 1, Stealth 2, Survival 1	
<b>Attacks</b>	Teeth (2D)	
<b>Traits</b>	Armour (+2), Infesting Bite	
<b>Behaviour</b>	Carnivore, Pouncer	

**INFESTING BITE:** Each time a Traveller is bitten and takes damage they need to make an Average (8+) END check to avoid becoming infected. Failure requires a second Difficult (10+) END check 1D hours after the first. Success on this check indicates that the worms have been flushed out of the Traveller's system with little more than an upset stomach and muscle cramps.

Failure on the second check indicates that a severe allergic reaction has started. Treatment for this will require a Difficult (10+) Medic check (EDU) to avoid death from anaphylactic shock. A medical kit will grant DM+2 while a full medical suite will grant DM+4.



# INTERLUDE 2

# DEATH THROES

## Sentient Encounters (abridged)

You are directed to investigate all intelligences encountered, within the following limitations. First, do not endanger the overall mission plan. Future investigations and contact will be made outside the context of this mission if necessary. Second, do not leave human crewmembers behind at any point in the mission, regardless of circumstances. Third, do not take alien sentient beings on board the *Bayern* or its attached vessels for any reason. They are not to leave their worlds or system under any circumstances within the context of this mission. Fourth, in extreme circumstances where, in your judgment, the security of human space is in the balance, you are directed to do whatever is necessary to maintain that security, including the destruction of the *Bayern*. All data on alien intelligences are to receive top priority computer security.

**MET:** D+108

**CMD:** 167 ly

**System:** BPC 238974

**Stellar Type:** G8V

**X, Y, Z Co-ordinates:** 43.48, 63.26, 28.89

Well away from the comfort of familiar stars, the *Bayern* will be continuing its mission from star-to-star, each visited by humans for the first time. The exact routing of the mission has always been indeterminate; this area is too far from Earth to have been accurately mapped by telescope. The *Bayern* will pick its way among the stars based on proximity to the intended flight path and possible worth to the mission.

Standard operational procedure dictates *Anton Dohrn* complete a routine flyby of interesting planetary systems for future reference and determine if further investigation by *Bayern* is warranted. The planetary system in an unnamed G8 star system along one possible flight path will dictate one such investigation in order to determine if the inner worlds might bear

substantial life. When one of the worlds is found to be emanating unusual background radiation levels, an immediate survey should be performed and details returned to *Bayern*. The sensor readings will be studied and a conference of senior officers called. Their decision to investigate further will lead the *Bayern* and its crew into one of its strangest encounters.

## PLANET TWO

The second planet in the system, which lies just on the inner edge of what would be a 'human toleration' life zone, shows excessive ionising radiation in strange patterns across its surface. Just a cursory examination of the orbital sensor data will reveal the terrible true cause of this radiation: thousands of nuclear strikes against the surface of the world. *Anton Dohrn*'s brief passage through the system is not enough to provide detailed readings but even their limited time indicated that whatever happened here, it happened long ago.

Once *Bayern* transits in-system and trains her sensors on the world, the degree of cratering and magnitude of devastation will show the strikes were made with large thermonuclear weapons, ranging from 5–15 megatons in strength with a mixture of airburst, ground burst and some penetrating subterranean bursts.

Ruined stretches of urban areas can be found on every major continent, as well as strikes against islands and other locations of unknown importance. There is no evidence that these strikes were made from an outside entity and the industrial civilisation which is now reduced to rubble was almost certainly capable of constructing such weapons.

The race which once ruled this world had apparently commanded a significant technology. The extent of their civilisation, indicated by the scope of destroyed and near-destroyed cities, suggests they were numerous and prosperous. Sensor readings also suggest that their cities were more three-dimensional than human cities, extending well above and below ground level. There are transportation networks with roads and what appear to be airfilm rail lines that crisscross continents, along with evidence of extensive underground facilities. Destroyed airfields are common and several sites

nearer the equators, thoroughly destroyed now, were clearly spaceports, possibly accommodating spaceplanes, shuttles or even true space vessels.

Observing the rest of the system indicates that these were a truly spacefaring people. Bases on both the inner and outer moons can be detected but those on the inner moon have been heavily damaged by nuclear strikes. However, the single base on the outer moon seems mostly intact.

From available information concerning the extent of urban areas, this civilisation might correspond to Earth anywhere from 1800 to 2100. Its spacefaring technology corresponds to Earth's post-Twilight return to space, between 2050 and 2100. Sufficient data for more accurate analysis is unavailable.

Simple calculations pinpoint the time of the nuclear disaster at a period lasting around five years, nearly a century ago. Further study will show that there are survivors, probably numbering in the millions, in small, isolated communities.

A careful study of electromagnetic emissions in the system will reveal that there is a weak transmission coming from the outer moon and a stronger signal from an installation on one of the northern islands. The signals appear to be encrypted but a study will show that there is a pattern – they occur only when the outer moon is in line of sight of the planet-side installation and the transmissions show a clear query and response. The logical conclusion is that there is a conversation of some kind going on between the moon base and someone on the surface.

The signals will be easy to triangulate and observation of the surface facility will reveal a large island in the northern temperate zone with several substantial areas of cultivated land. In the centre are the remains of what appears to be a satellite tracking station. Several large dish antennae in poor states of repair can be seen, as well as what appear to be the remains of early warning radar domes, now collapsed.

As well as the cultivated land and station facilities, there are a number of residential and small industrial buildings. It appears the residents have maintained a degree of technological expertise and farm machinery powered by simple hydrogen combustion engines can be seen. There are also what appears to be a large hydrogen fuel cell power plant and a solar powered fuel cracking station.

Unfortunately the residents also seem to have retained the knowledge of how to build and use weapons. Emplaced around the facility are several

large calibre anti-aircraft weapons, rapid fire autocannons and rocket artillery. Any of these weapons could easily damage or destroy one of *Bayern*'s subcraft or *Entdecker*. Craters, wreckage and blast marks along the coastline suggest the island is visited by raiders and the inhabitants are quite prepared to use weapons on interlopers.

A radiological survey will reveal that the landscape of the island has overall low levels of radiation, as low as could be expected for a world that has suffered a thermonuclear holocaust, apart from several very small hot spots on a deserted part of the northern coastal region.

Tallying up the disadvantages, including paranoia, possible attack, possible disease and radiation hazards, Commander Schmidt should decide not to journey to the surface to fulfil his mission directives. Instead, it is a much safer proposition to visit the intact base on the outer moon.

## MOON BASE

The approach to the outer moon will be uneventful. If once spacefaring, this system's people are not moving between its planets anymore. Close-up investigation of the base will confirm that there have been no nuclear strikes but it is heavily damaged from conventional firepower. Domed sections have been heavily bombed, perhaps from orbit. Other areas are most definitely breached and exposed to vacuum. The scarred exterior of the base makes plain that this was once an important battlefield.

Thermal sensors show blooms in several parts of the base, indicating a functioning power plant. A perimeter around the power plant is powered up, complete with life support systems. There are also discrete, mobile readings – possibly life forms within the perimeter and nowhere else in the base.

Electromagnetic sensors show considerable electrical activity outside the powered perimeter. The exact nature of this activity cannot be determined without further investigation.

## WHAT WE NEED TO DO

It is a command directive that the crew investigate all sentient beings without endangering themselves. Sending an expedition to the moon base seems to be the least dangerous option.

## A Once Great Civilisation

After further scanning of other planets, it becomes clear that this species was heavily involved in the exploitation of their system. Substantial orbital bases, now slag and rubble, could handle dozens of ships at a time, perhaps on cargo or exploratory missions to the outer system.

If in the future AR-I decides to revisit this system, investigating these facilities would prove to be very a interesting study. This species' innovations would no doubt give a new perspective with which to view system-wide exploitation.

There are no indications that they ever developed a faster-than-light means of travel.

The individuals on the moon base certainly have the technology for creating deadly weapons and a power source sophisticated enough to have survived being cut off from their world for some time. What is unknown is their psychology and what effect isolation has had. It is unknown whether this species has ever met an 'extraterrestrial' and what their reaction might be. It is also unknown whether the conflicts which sparked worldwide destruction are finally laid to rest or if they are still in force among survivors.

The Travellers must contact the aliens, establish communication if able and learn as much as possible about them and what is left of their civilisation.

## KNIVES VERSUS MACHINES

When the conflict brought war to the moon base, machines came too – warrior robots with advanced weapons but unsophisticated brains. Today, both sides still fight on. One has lost all of its warrior robots but maintains the power plant and life support. The other side has lost its entire people – only their robots are still fighting on, obeying programming a century old.

## THE VITRUVIANS

*'We argued for a while about what to call them. Ferris suggested 'the little guys' and Bohranian suggested Kales, for KL, short for der Klient Leuten, which apparently means the Little Ones. North thought we should call them Zwergs or Dwarfs. The captain politely reminded him that we shouldn't name a whole*

*species based on them being short, hairy miners. In the end it was Deborah who suggested Vitruvians, after DaVinci's Vitruvian Man – the guy with the four arms on those ancient probes. Sure, they didn't have four legs but it was still better than Dwarfs.'*

The surviving moon dwellers will be referred to as Vitruvians; there are 148 still alive here, perhaps as 15 family units but the distinction is not clear. All but the very youngest are involved in active defence of the powered area. The power plant runs off fuel storage underground and there is sufficient fuel for another 100 years or so at current consumption rates, so power is not in danger of running out. Food storage is another matter and if not for hydroponic growth, supplies would have dwindled to nothing many years ago. Water can be retrieved from the moon itself, locked up below ground.

Living quarters are maintained at a very primitive level. For the number of Vitruvians in the group, there is very little space available. Rations of food and space are distributed evenly without regard to 'occupation' – warriors receive the same amount as technicians.

Slugthrower weapons were originally used against robot attackers but ammunition ran out years ago. They have a dozen lasers, cobbled together out of available parts and scavenged from destroyed robots. These operate as the Mueller-Rivera P-3.

Otherwise, combat is conducted hand-to-hand, with spears, clubs, swords or knives. Being moon base operators and not soldiers they do not have armour to speak of, nor explosives. Fighting with the robots is tooth-and-nail at the barricaded perimeter.

Vitruvian society seems to have been one of intense mechanisation. The machinery which they maintain for their livelihood is almost revered as an entity in and of itself. The moon base and life support machinery is seen as a nurturing, mother figure from which all life flows – it provides air, food, light, heat, power and protection. Whether this is indicative of the overall attitudes and beliefs of their society or a manifestation of lengthy isolation is unknown. The war with robots has actually posed something of a moral dilemma, as machines are naturally good and necessary in the Vitruvian mind. Survivors still know tales of when robots served not hunted them, so to destroy them now is to go against a higher order. A belief that the machines have been corrupted is beginning to spread amongst a few of the younger Vitruvians, partly because of the actions of the Type C in subverting other robots.

## THE WARRIOR ROBOTS

There are 19 warrior robots left outside the powered perimeter; 15 Type A, three Type B and one Type C. The Type A and B are neither very mobile nor very intelligent, so the barricades the Vitruvians have erected are tremendous obstacles to them. They all depend on power stolen from the power plant (see Tactics on page 17).

The Type C robot, however, is much more cunning and its self-programming core has evolved. Its primary objective remains the same – destroy remaining enemy forces – but its tactics have become more sophisticated. It is regarded by the Vitruvians with a kind of religious dread, a corrupted twisting of the natural order of machines as life givers into a kind of mechanical demon. Since it has developed its virus suite, this belief has only increased. It is now regarded by all but the very oldest of the Vitruvians with an almost supernatural dread.

Direct attacks by the Type C are infrequent but cunning and savage, and the Vitruvians prefer to retreat and hope it just recharges its power cells then leaves. Several Vitruvians have suggested that an offering of some kind would appease the robot and prevent further attacks.

Without redirected programming, the Type A and B warrior robots will keep up their erratic and uncoordinated assaults until they either run out of power or are destroyed. They have no means to repair themselves – damaged robots seize up and eventually stop working. The remains of dozens of robots can be found around the complex, some scavenged by the Type C for spare parts.

Within the last few months the Type C has begun to co-opt Type A and B robots using its newly developed virus suite and drone controller. The last few assaults by Type A and B robots have been under the Type C's control and proved to be much more effective than earlier attacks. Once the Type C has perfected its intrusion tactics it intends to gain control of all remaining robots and crush the Vitruvians' safe haven. It is not subtle, and the attack is likely to be a simple frontal assault, but the Vitruvians will stand little chance of defeating a massed force without outside assistance.

Whilst the moon base may have food and fuel for another 50-100 years, the Type C's forthcoming attack will render this moot and the war that devastated the planet below will finally come to an end.

## MOON BASE

It will be necessary to consult the map of the moon base when the Travellers counterattack the robots or escape with the Vitruvians.

**1. Landing Pads:** These pads are obviously designed for interplanetary craft. Conventional weaponry has rendered some unusable but there are plenty for the *Kenntnis* landers to land safely. Only one is large enough to accommodate *Entdecker*.

**2. Mines:** An extensive series of mines was once in operation near the moon base. These may have been the original impetus for building the base but indications are that it was more recently a cargo and passenger way station for the system.

**3. Cargo Transfer:** Enormous machinery for the transfer of cargo from ship-to-ship or to the catapult has been hit hard by conventional bombing. Travel through this area will prove to be difficult due to twisted metal and debris.

**4. Catapult:** There is an electromagnetic catapult here, dug straight into the moon's surface with a length of approximately three kilometres. Cargo haulers nearby are no longer functional.

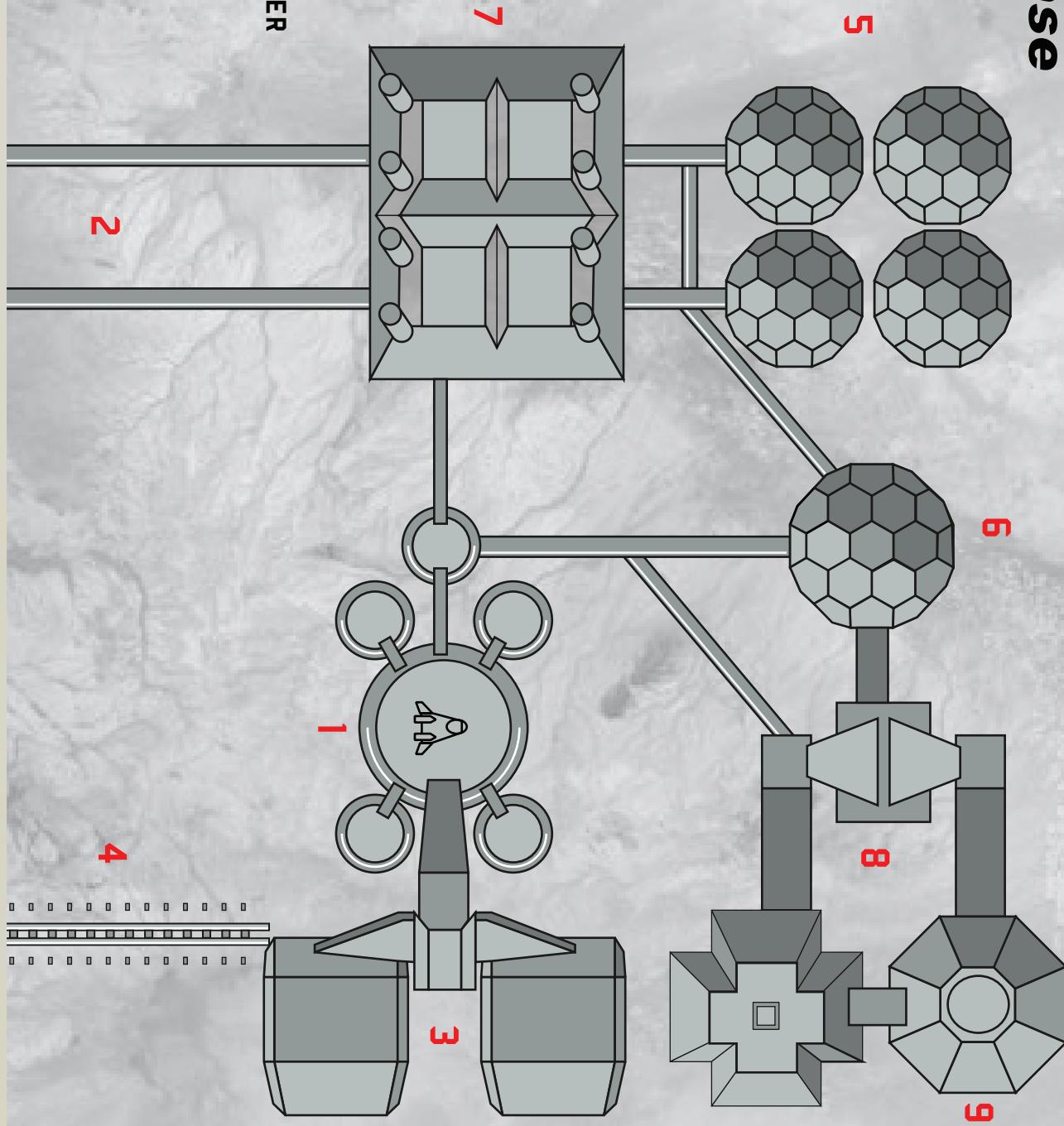
**5. Residential:** Substantial living space was provided at the moon base. Not knowing the social habits of the aliens, it will be difficult to determine just how many lived here but it must have numbered in the thousands. The residential domes have been hit by orbital strikes and what seems to have been a subsequent fire. Almost nothing of the original structures remain and the domes have all been breached.

**6. Business:** Another area of open malls and great pits suggests some kind of business centre. This too has been heavily damaged and is a twisted mass of wreckage, some buildings having collapsed into the subsurface plazas.

**7. Factories:** Two large automated factory complexes are set up near both the mines and the moon base. It is possible they were processing ore prior to shipment but damage from the war will make an exact evaluation impossible. The factories are the main 'stronghold' of the remaining robots, as there are many electrical hook-ups available from which to tap into the power plant. In addition, as a source of spare parts, the bombed-out factories are invaluable and the Vitruvians often raid the area in search of them.

# Moon Base

1. LANDING PADS
2. MINES
3. CARGO TRANSFER
4. CATAPULT
5. RESIDENTIAL
6. BUSINESS
7. FACTORIES
8. POWER PLANT
9. REACTOR



**8. Power Plant:** Although of unique design, the power plant is a simple fuel cell of perhaps 50 MW output. It now runs at considerably less than maximum efficiency. The Vitruvians' stronghold is located here and they have barricaded it off from the rest of the moon base. These barricades consist of metal debris, welded in place. In combat they will provide cover and additional Protection +10.

## TACTICS

For the past 20 years or so, the conflict between the Vitruvians and the robots has degenerated into a war of attrition. The robots can rarely mount an attack through the formidable barriers around the power plant, while the Vitruvians must sortie out of their perimeter to search for spare parts. The Vitruvians are secure. The robots are running down.

The Vitruvians depend on life support systems, so these are often targeted by the robots. The robots depend upon a power source, which the Vitruvians control; the robots tap into the plant using the original power grid of the moon base, while Vitruvian engineers attempt to cut these sources off. Many robots spend their time powered down to conserve precious energy.

## LINK TO THE MOTHER WORLD

A subject of interest to the *Bayern* crew will be the nature of communication between the homeworld and the moon base. Once a suitable dialogue has been established with the Vitruvians careful questioning will reveal that the moon base, as well as serving as a way station for traffic to the outer system, was an observation post for climate and scientific study. Located some distance from the moon base are a series of remote sensor stations used to observe the homeworld.

During the final conflict, the moon base, which was operated by only one of the factions, was turned into a surveillance platform. The sensors previously used for scientific purposes were instead used for intelligence gathering during the conflict. The opposing faction realised that, in the closing stages of the conflict, it was being used as an intelligence asset and despatched a combat unit to neutralise it.

The combat unit consisted of a number of Vitruvians but mostly comprised robots. As with the rest of Vitruvian society, the military used robots extensively and for hostile environments such as the vacuum of the moon's surface, they were ideal. The combat unit bombed the station from orbit and then landed robot troops. The initial battle destroyed the combat

unit's ship and with it the robots' support and command team, leaving them stuck in their initial attack programs. The moon base's own robots, mostly service and support versions, were no match but without operators to adjust and modify their programs, the warrior robots were not able to capitalise on this.

Shortly afterwards, the final stages of the conflict escalated into nuclear war. The few surviving moon base personnel had to watch as their home was engulfed by fire. The final holocaust was greater than the limited exchanges of previous years and devastated the planet. After the fires went out and the ashen skies cleared, the moon base scoured the globe, looking for survivors.

In a cold and lonely northern island they found a small community, mostly subsistence farmers and fishermen, but with a military early warning and communications outpost. The outpost should have been destroyed in the war but the missile targeting it, perhaps because of a malfunction or successful jamming attack, never detonated. The remains of its crashed warheads now form the hotspots on the island's northern coast.

The moon base personnel were overjoyed at finding survivors but realisation that the military base was an enemy installation damped enthusiasm. However, the isolation soon drove the strongly communal Vitruvians to reach out to the mother world. With some trepidation they opened communications with the military base. The relationship took time to develop, with distrust on both sides, but as time went on the knowledge that life had survived outside of each of their communities brought a little hope.

The moon base has since been using its sensors to assist the island, advising them of dangerous weather conditions, providing advance warning of raider attacks from the mainland and on one occasion providing information on a drifting sea vessel that contained useful salvage. There now exists a bond between the two communities and there are efforts on the part of the island inhabitants to acquire spaceflight technology in an effort to assist the moon base personnel but the programme is in its infancy.

## MISSION OF MERCY

Upon arrival at the moon base, the Travellers will find that the Vitruvians have been expecting them. Their sensors detected *Anton Dohrn* and the arrival

in orbit of *Bayern* herself was unmissable. The initial meeting will likely be tense. The Vitruvians have developed a siege mentality and will be slow to trust. An attack by a Type A robot, and the Travellers' effective disposal of it, will do much to convince the Vitruvians of their good intentions.

However, the Travellers arrival will also spur the Type C into action. Its programming will consider the Travellers' vessel to be reinforcements for the enemy, since the ship does not match specifications of the Type C's forces and it has not transmitted any recognition signal. The Type C will immediately co-opt Type A and B robots using its virus suite and drone controller and move about the complex under cover whilst searching for more robots.

Each hour that passes after the first will give the Type C a chance to co-opt another robot. The referee should keep track of the passage of time and allow the Type C to make checks as the Travellers develop their relationship with the Vitruvians. To reprogram a Type A or B robot, the Type C must succeed on an Average (8+) Electronics (computers) check (1Dx10 minutes, INT). Thereafter it will spend an hour moving to the next robot, where it will start the intrusion process again.

After the fifth has been co-opted in this way, *Bayern* will have a chance of noticing that some of the robots have begun to move together. Each time the Type C and its co-opted robots moves the sensor operator on *Bayern* can make an Average (8+) Electronics (sensors) check (1D minutes, INT).

On their own the sensor images are not terribly useful; they just show occasional images of robots trundling about on the moon's surface or moving through the complex together. However, if the images are shown to the Vitruvians they will become very agitated. The robots do not often group together like this and the sight of the Type C co-opting another robot will especially alarm them.

If the Travellers have built up enough of a rapport and vocabulary, the Vitruvians will attempt to explain that the robots are going to attack as they recognise this pattern of behaviour from the early days of the conflict when some of their own robots were co-opted by enemy hackers before they were destroyed. They are afraid of the Type C robot and regard it as anathema, as it subverts their belief in machinery as a life-saver. To them it is everything they hold as good and important subverted to destroying them.

## Communication

The key to helping the Vitruvians lies in communicating with them. There are experts among the *Bayern*'s crew, and the ship's computers will help crack the combination hand-signal and voice language in short order.

Travellers can attempt to learn, or teach, simple phrases. Phrases should be no more than a few words and have clear meaning or purpose. Each phrase a Traveller attempts to translate will require a Routine (6+) Science (linguistics) check (1Dx10 minutes, INT or EDU). A portacomp with a language cracker program loaded is required – attempting the task without one confers DM-2. Using a Science (linguistics) Expert program will confer a further DM+1. An uplink to Ace and the linguistics staff on *Bayern* will either provide DM+2 or let a Traveller without Science (linguistics) attempt the task as if they had the skill at level 0.

The mission should not waste a great deal of time trying to learn the entire language of the Vitruvians. Since only a few key ideas must be dealt with, it will be sufficient to translate those ideas and leave further communication for the next mission which comes this way.

## THE BATTLE

Once the Type C has co-opted 11 more robots, it will send them to attack the power plant. At this point the sensor operator has another opportunity to detect the robots if they failed earlier but the Travellers will have only minutes to prepare for the assault.

The sudden arrival of the Travellers and the behaviour of the Type C robot represent a fundamental paradigm shift for the Vitruvians and the stress it places upon them could fracture the already fragile society they have established. The Travellers will have to calm the Vitruvians to prevent many of them snapping under the psychological strain of the rapid changes.

A Difficult (10+) Sciences (sophontology) or a Very Difficult (12+) Science (psychology) check (1D minutes, EDU) will calm the Vitruvians. Referees should add DM+2 for each demonstration of strength or goodwill towards them – destroying a robot, saving a young Vitruvian from an accident, fixing important but broken machinery and so on. An additional DM+2 can be obtained if the Travellers have managed to translate relevant phrases ('we are here to help you', 'we can defeat your enemies', 'we can take you to the mother planet', for instance) into the Vitruvian language.

If the Travellers fail to rally the Vitruvians, approximately half will fall into a catatonic state, from which they cannot be roused, mostly the older members of the group. A few will become very aggressive and violent towards the Travellers. Calming the violent Vitruvians requires a Routine (6+) Science (psychology or sophontology) check (1D minutes, EDU). Failure will mean that 2D young Vitruvians will attack the Travellers. Success will calm them but the catatonic Vitruvians will not be available for the coming fight.

If the Travellers succeed in calming the Vitruvians, they will be able to start making plans for the final assault. If the *Bayern* is tracking the robots, it will become apparent that there is not enough time to evacuate the Vitruvians before the robots reach them. The Type C robot will split its forces to attack at three different points, sending four robots to a storage bay at the north side of the power plant, four to a secondary access corridor to the southeast and taking three remaining robots with itself to the main access corridor.

The Vitruvians already have all three access points barricaded. The robots will enter each from the marked airlocks. The northern storage bay has strong barricades and presents an excellent opportunity to put the robots in crossfire. It is probably the easiest to defend of the three. The south-eastern access corridor has chest-high to a Vitruvian barricades, which will be waist high to a human. The short distance from the airlock to the first barricade is the biggest problem with this location but two access corridors with secondary barricades again give a good opportunity for crossfire to be set up.

The main access corridor contains part of the tube-trams which were used for rapid travel around the base. The tubes are easy for the robots to navigate and have many power hook-ups. Two sets of barricades have been erected here, blocking off the left and right corridors, with another behind them as a redoubt. The attack here will feature two robots coming down each corridor, with the Type C travelling down the right tube. Once the robots have attacked and are engaged, it will use its cutter to slice through the wall separating the tube from the foyer. It will take four rounds to cut a hole large enough for it to fit through, at which point it will attack any Vitruvians it sees.

The Travellers will have to decide how best to disperse their forces. The Vitruvians have a dozen laser weapons along with an assortment of smashing and cutting weapons, plus whatever weapons the Travellers have. If the Vitruvians have been calmed there will be some 60 Vitruvian warriors. If they failed then there will

be only 30. A successful Routine (6+) Tactics (military) check (1D minutes, INT) will suggest that with sufficient numbers and the few laser weapons the Vitruvians have they would easily be able to defend the storage bay and south-eastern corridor, where effective killing zones can be set up. The main access corridor presents more of a problem, as there are two different points to defend.

A force of 20 Vitruvians with four lasers will be sufficient to destroy the robots at the north storage bay or south-eastern access point with only minor casualties (1D seriously wounded and 2D minor wounds). A force of less than 20, or a force with less than four laser weapons will defeat the robots, but suffer heavy casualties (2D dead and 1D seriously wounded). A force of 10 or less will destroy one of the robots and damage another but will in turn suffer heavy casualties before fleeing (1D dead, remainder heavily wounded). If they are not defeated, the robots will pause at each access point until the Type C has entered the main access.

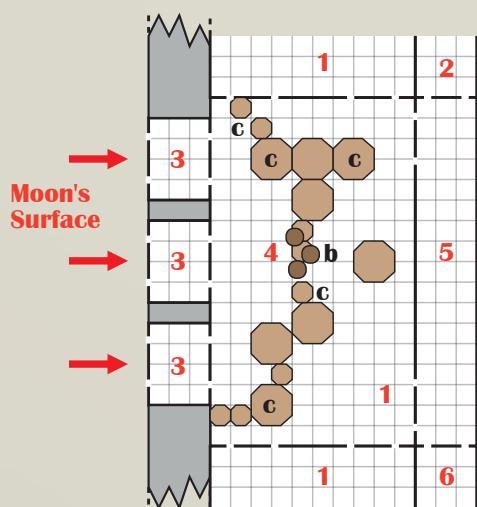
If the Vitruvians are left to defend the main access alone they will suffer heavy casualties regardless of the number allocated there (3D dead, 3D heavily wounded, remainder lightly wounded). The dramatic arrival of the Type C will effectively end Vitruvian resistance and they will flee in terror. If the Travellers are present, the Vitruvians will fare better and will not flee unless the Travellers do.

At the referee's discretion the robots may make a miscalculation resulting in their attack being staggered instead of simultaneous. If the Travellers are lightly armed or do not relish the prospect of destroying alien war robots, they can instead leave the fighting at the north storage bay and southern access to the Vitruvians. Otherwise the Travellers will be able to deal with the attacks one-by-one, starting in the north, then the south-east and then the main access.

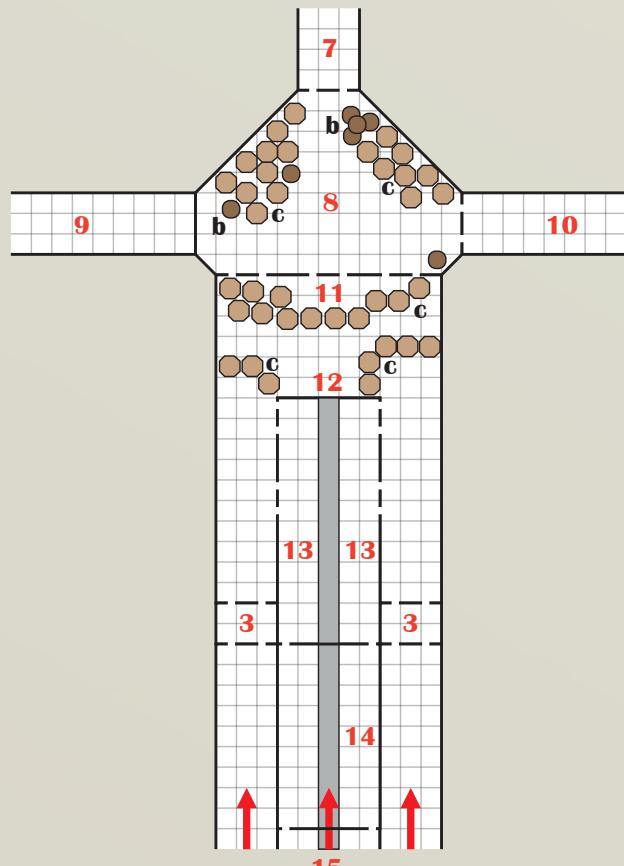
If the Travellers are defeated or retreat the Type C will advance, driving the remaining robots forward. The referee will have to run appropriate encounters as the remaining humans and Vitruvians try to evade them in the cramped confines of the power plant proper.

Once the threat from the robots is dealt with, the real dangers to the Vitruvians are long-term. Food supplies, although supplemented with the hydroponic gardens, are on the decline. An increasing population is complicating that problem. Also, the amount of hydrogen and oxygen left available for the fuel cells is dwindling. In the absence of another power source to

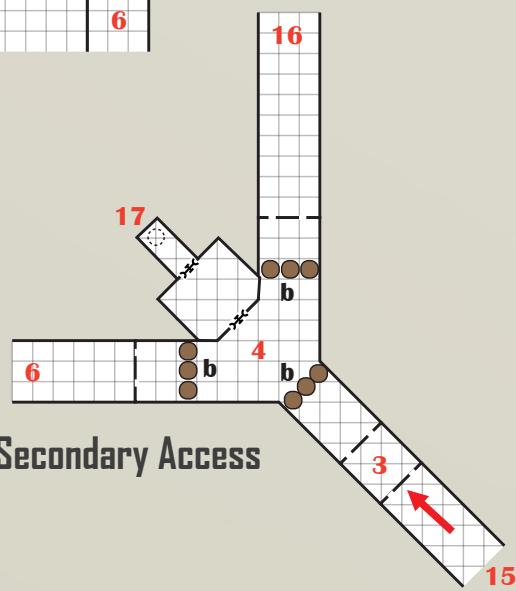
## Storage Area Access Point



## Main Access

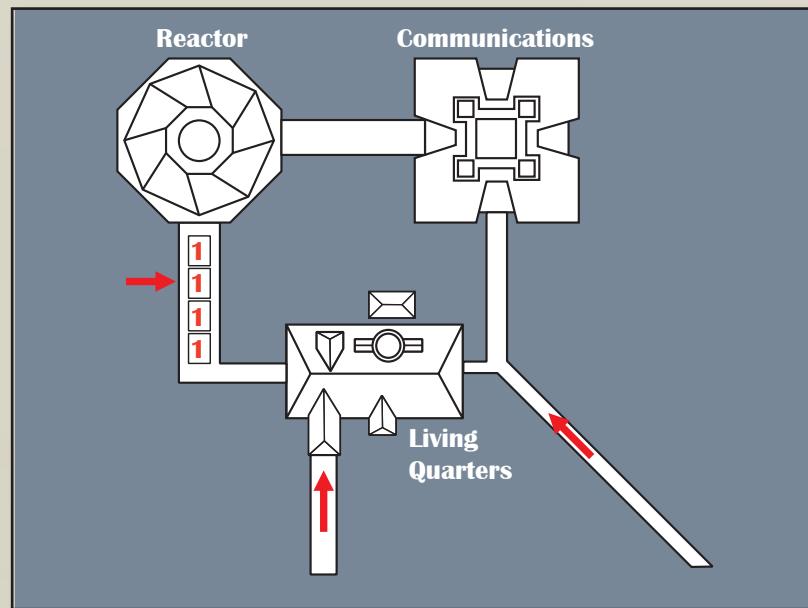


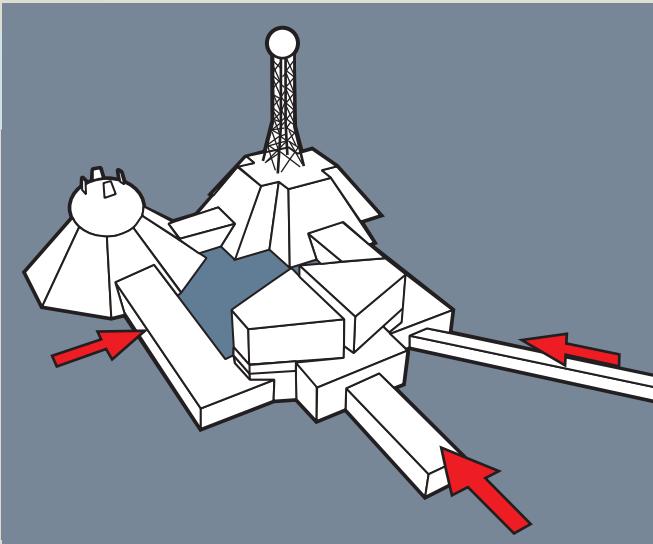
## Secondary Access



## KEYS

- 1. Storage Bay
- 2. To the Reactor
- 3. Airlock
- 4. Barricade
- 5. Access Corridor
- 6. To Main Access
- 7. To living Quarters
- 8. Storage
- 9. Storage and Reactor
- 10. To Secondary Access
- 11. Redoubt
- 12. Foyer
- 13. Tram Tube
- 14. Tram airlock
- 15. To Rest of Complex
- 16. To Communications
- 17. Up to Living Quarters
- B. Barrel
- C. Cargo Pod





break down water, the fuel will run out soon. This moon base has supported a colony of displaced Vitruvians for nearly a century but that colony's days are numbered in the face of looming shortages.

## A HOME THEY HAVE NEVER SEEN

In the face of these overwhelming facts, the Vitruvians will not be able to survive on this moon and without direct intervention by the *Bayern* they cannot leave. Doctrine demands that the aliens not be transported on *Bayern* or her attached vessels for any reason. Should Commander Schmidt ignore regulations and carry the Vitruvian colony back to its mother world, or should he play it by the book and leave the colony to certain extinction? This adventure assumes the commander will take matters into his own hands and opt for the compassionate approach.

### Transport

The *Bayern*'s craft will be able to accommodate the entire colony in passage to the mother world. The *Kenntnis* ships will be able to lift the Vitruvians out of the moon base complex one group at a time. They will no doubt feel regret at leaving but with the proper encouragement, will gladly leave it for their true home. Once at the mother world, the colony can be taken down using the *Orkan* spaceplanes. Although *Entdecker* could transport almost the entire colony, in some discomfort, the commander should not allow one of the valuable starships to risk landing on a potentially hostile world.

### Transplant

Although devastated and in some places too radioactively 'hot' for habitation, there are vast tracts of land which are fruitful and deserted. Any one of these

### Commander's Log

Under extreme pressure from the rest of the command crew and due to my own personal feelings on the matter, I have chosen to ignore prohibitions against transport of sentients aboard, under my own authority as commander of the *Bayern*. I do not take this action lightly, and recognise the danger sentients pose, but a blanket rule against seems unfair. In my judgment these beings present no danger and require our assistance. I am prepared to give them that assistance as a fellow citizen of this galaxy.

will do nicely for transplanting the colony. However, the logical choice would be for the Vitruvians to join their comrades on the northern island. The Vitruvians will suggest this as an alternative to any other landing site.

The moon base Vitruvians will be able to contact the island the next time the moon is above the island's horizon. The island dwellers will be very enthusiastic to hear the news that the moon base personnel will be joining them and begin preparing for them. If they desire, the Travellers can alter the communications link so the moon base sensors can be operated from the island via remote control link.

### A Bit of Education

These Vitruvians know next to nothing about survival on the surface of the world. If the human crew do not transplant them to the island, they will be obligated to stay with the new colony for some time to learn the basics of agriculture, preparing meals, dealing with native life, dealing with other Vitruvians and protection from weather, which are all foreign to them. Realistically, however, these Vitruvians do not have the skills to maintain a colony of their own. It is likely that they will either fall prey to hostile Vitruvians, wildlife, disease or starvation.

If they are instead delivered to the island they will thrive. Their technical knowledge, from maintaining the moon base systems, will be invaluable. In addition, the *Bayern* crew could pinpoint radioactive debris from the missile warheads on the northern part of the island and help dispose of it, potentially allowing the island colony to expand. The reuniting of the two separated colonies will also cement the humans as benefactors in the eyes of both and subsequent human contact will be much more productive.

## THE VITRUVIANS

For lack of a better term, the species encountered in this system has been named the 'Vitruvians.' They are somewhat smaller than humans, but have evolved a civilisation and society not too different. Their study will be left up to future generations of AR-I ships and personnel but the *Bayern* will perform the initial work.

### Vitruvia System Data

**Profile:** X877600-3

**Primary Name:** BPC 233406

### Stellar Data

**Primary Name:** BPC233406

**Spectral Class:** G8 V

**Magnitude:** 5.7

**X, Y, Z Co-ordinates:** 43.48, 63.26, 28.89

**Number of Planets:** 7

**Number of Asteroid Belts:** 1

**Notable Planets:** BPC 23149c has suffered extensive damage from a recent nuclear war. Small pockets of survivors exist across its surface. Extensive remains of stations and bases can be found throughout the system.

### Homeworld

**Name:** Vitruvia (BPC 233406c)

**Distance from Primary:** 1.1 AU

**Year Length:** 461 days

**Size:** 11,870 km in diameter

**Day Length:** 29.4 hours

**World Type:** Garden

**Surface Gravity:** 0.95 G

**Atmospheric Pressure:** 0.92

**Climate:** Temperate

**Water Presence:** 78%

**Atmospheric Composition:** Nitrogen (77%), Oxygen (19 %), trace (4%)

**Atmospheric Taint:** Airborne radioactive fallout at middle latitudes.

### The Island Colony

**UCP:** X510325-5 Lo Po 3 1

**Colony Name:** Island Colony

**Nationality:** Vitruvian

### Physiology

Vitruvians are laterally symmetrical bipeds, standing roughly three feet in height. The fact that they have four long, narrow arms in addition to powerful stubby

legs suggests an evolutionary history calling for both tree and surface activities. The head rests on a very thick neck close to the torso.

There appear to be two sexes and the species reproduces in a manner similar to Earth marsupials, although the young crawl from a nearby hatching egg to the mother's 'pouch'. The young grow there for about three weeks before re-emerging as free-standing individuals. The lifespan of a Vitruvian appears to be around 40 years.

The Vitruvians have no sleep cycle to speak of but have a frequent if irregular habit of an energy saving fugue state in which they shut down higher brain functions, whilst retaining basic, conscious motor skills. Vitruvians can still conduct simple, instinctive tasks whilst in the fugue state, such as eating, or repetitive tasks such as nursing an infant, but higher tasks, such as conversation or complex manual work are impossible.

It could be theorised that this is an evolutionary trait to assist in living amongst treetops, where falling asleep fully, as a human would do, could lead to falling prey to predators or falling out of a tree. Vitruvians will frequently be observed conducting simple tasks whilst their brain is in this 'standby mode'.

### Psychology

Judging from the size of the reference group, artefacts left behind and physical similarities between Vitruvians and humans, their thinking must be similar on many levels. They obviously have a need for cooperation within as well as without the family group, since this is the driving force behind cultural and psychological safeguards that work against violent confrontations. Of course, judging from the nuclear devastation of the mother world, these safeguards were apparently insufficient.

The mechanistic culture evolved by the Vitruvians has done much to shape their thinking. Their regard for mechanical devices can be described as almost reverent. Vitruvians that are encountered will hold the Travellers in awe due to their great weapons and devices. It will be easy to gain their trust with a few demonstrations of the science of the 24<sup>th</sup> century.

It should be remembered, however, that Vitruvians are not technological barbarians and although they no longer have access to advanced technology, they will understand it. Their small society has placed great emphasis on preservation of knowledge and there are several media devices operating with the Vitruvian equivalent of technical manuals and textbooks stored on them.

## Vitruvian Characters

Most adult Vitruvians on the moon base are experienced with skills geared towards combat and technology. Gun combat (energy), Melee, Recon, Electronics and Mechanic are the most common skills among them. The Vitruvians on the island exhibit a range of skills and experience.

Vitruvians have the following modifiers applied to their characteristics: STR-2, DEX+1

They also have the following traits,

**Double-Jointed:** Vitruvian joints have greater range of motion than other species. They receive DM+2 to escape from bindings or perform acrobatics.

**Fast Metabolism (+1):** Vitruvians have a heightened metabolism and very fast reactions. They gains DM+1 to Initiative rolls.

**Small (-1):** Vitruvians are small and present a difficult target. All ranged attacks made against Vitruvians suffer DM-1.

## THE ROBOTS

There are three types of warrior robot on the moon, the remains of an attacking force. They are typical examples of the multitude of robots that the Vitruvians used in every part of their society. By the standards of Earth, these robots are antiques. They are unsophisticated, slow, unintelligent and no match for superior weaponry. In actuality, the Vitruvians could probably win out over the Type A and B robots in a few years without the assistance of the *Bayern* and its crew.

### Robot Behaviour

Most of the time the Type A and B robots exist in a standby state with most systems offline to conserve power. The Type C is more active but its greater

intelligence, engineering tools and fine manipulators allow it to draw power from sources that the other robots cannot utilise. When in standby mode the robots remain under cover, inside damaged or abandoned parts of the complex.

At the referee's discretion the Travellers can encounter a Type A robot inside an abandoned section of the moon base in standby mode. At the Travellers approach, it will emerge from standby and activate sensors. Even a cursory study of the robot will reveal the dilapidated state it is in and a more careful examination will show that although it appears to be non-functional, there is power running to some systems. If the Travellers take aggressive action, such as pointing a weapon or attempting to dismantle it, the robot will activate and attack.

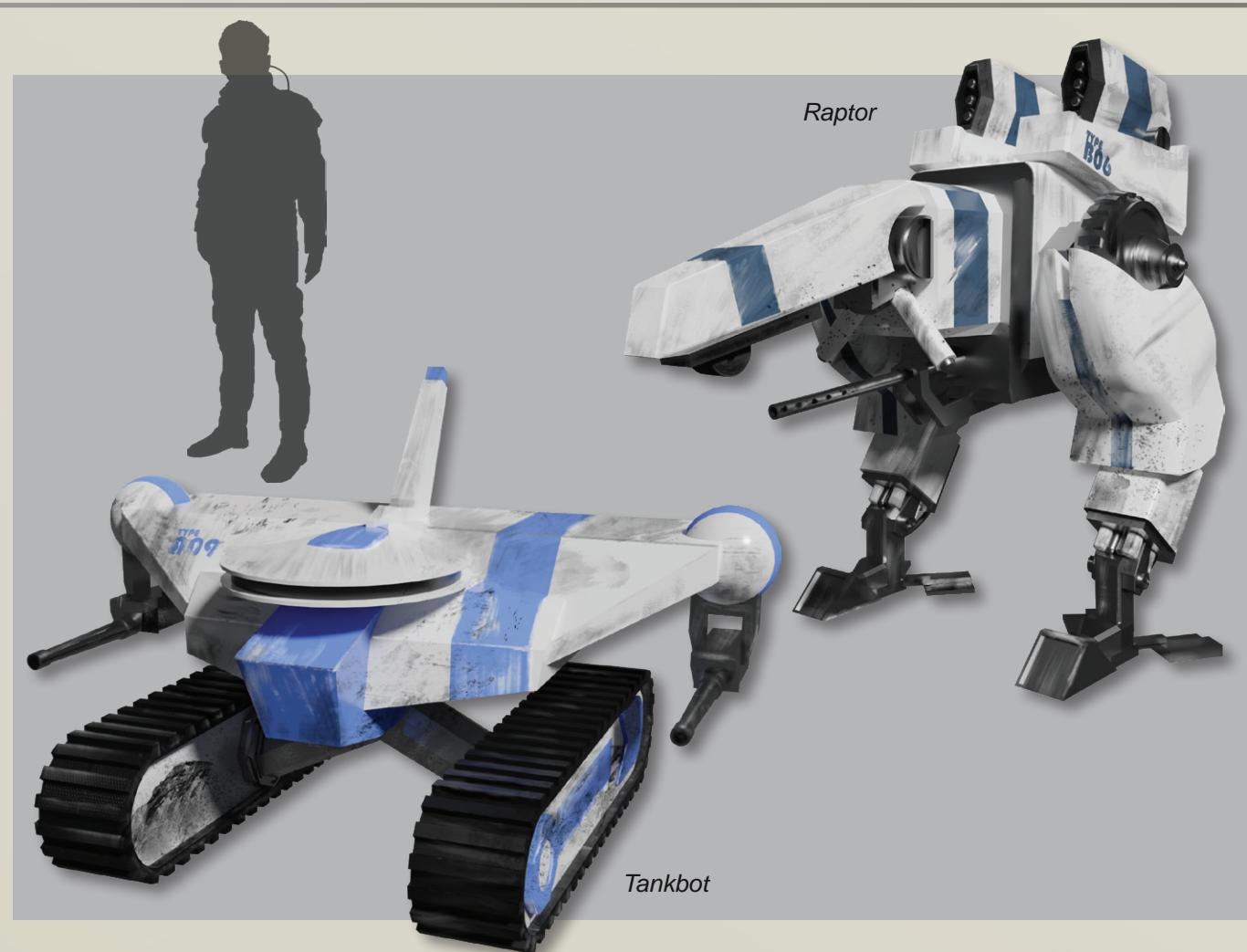
All the robots will favour attacking Vitruvians over humans if they have a choice, as their programming does not recognise humans as targets. If there are no Vitruvians visible a Type A or B robot will only attack humans if they are behaving aggressively. The Type C has recognised that humans are an enemy, so will attack without provocation but will still prefer to target Vitruvians if possible.

### Type A Robot (Tankbot)

The Type A is a medium warrior robot, designed for patrol and combat against other light and medium units. It is able to independently engage both its gun pods at different targets in a 270° forward arc. It has a single retractable manipulator arm used to reload gun pods but it is useless as a melee weapon.

Like most robots on the moon, the Type A units are in terrible repair. None have ammunition for their gun pods and most have systems out of commission. The constant fighting also means that the integrity of their armour has been compromised from factory standard.

Robot	Hits	Locomotion	Speed	TL	Cost
Tankbot	32	Tracks	4 m	11	Lv79000
<b>Skills</b>	Athletics (strength) 1, Gun Combat (energy) 2, Heavy Weapons 0 or Melee 0, Recon 0				
<b>Attacks</b>	Laser Rifle (4D, Zero-G) Gun Pods x 2 (4D, Auto 3)				
<b>Manipulators</b>	1 x (STR 11 DEX 7)				
<b>Endurance</b>	72 hours				
<b>Traits</b>	Armour (+6), ATV, IR Vision, Large (+1)				
<b>Programming</b>	Hunter/Killer (standard) (INT 4)				
<b>Options</b>	Audible Sensor, Drone Interface, Light Intensifier Sensor (basic), Thermal Sensor, Transceiver 5 km (improved), Vacuum Environment Protection, Visual Spectrum Sensor, Voder Speaker, Weapon Mount (medium), Weapon Mounts x2 (heavy), Wireless Data Link				



## Type B Robot (Raptor)

The Type B is a heavy support unit, designed to fire barrages of missiles. It has a pair of retractable arms used to reload the missile pods on its back but they are not effective as melee weapons.

The Raptors are in bad condition. None have ammunition for their missile launchers and most have systems out of commission. The constant fighting also means that the integrity of their armour has been compromised.

Robot	Hits	Locomotion	Speed	TL	Cost
Raptor	50	Walker	5 m	13	Lv160000
<b>Skills</b>	Athletics (strength) 2, Gun Combat (energy) 1, Heavy Weapons (portable) 2, Melee 0, Recon 0, Tactics (military) 2				
<b>Attacks</b>	Laser Rifle (5D+3, Zero-G), Missile Pods (6D, Blast 5)				
<b>Manipulators</b>	2 x (STR 13 DEX 8)				
<b>Endurance</b>	72 hours				
<b>Traits</b>	Armour (+7), ATV, IR Vision, Hardened, Large (+2)				
<b>Programming</b>	Hunter/Killer (tactical) (INT 4)				
<b>Options</b>	Audible Sensor, Drone Interface, Fire Control System (improved), Laser Designator, Light Intensifier Sensor (advanced), Recon Sensor (basic), Transceiver 50 km (improved), Vacuum Environment Protection, Visual Spectrum Sensor, Voder Speaker, Weapon Mount (medium), Weapon Mount Autoloaders x2 (heavy), Weapon Mounts x2 (heavy), Wireless Data Link				

## Type C Robot (Centurion)

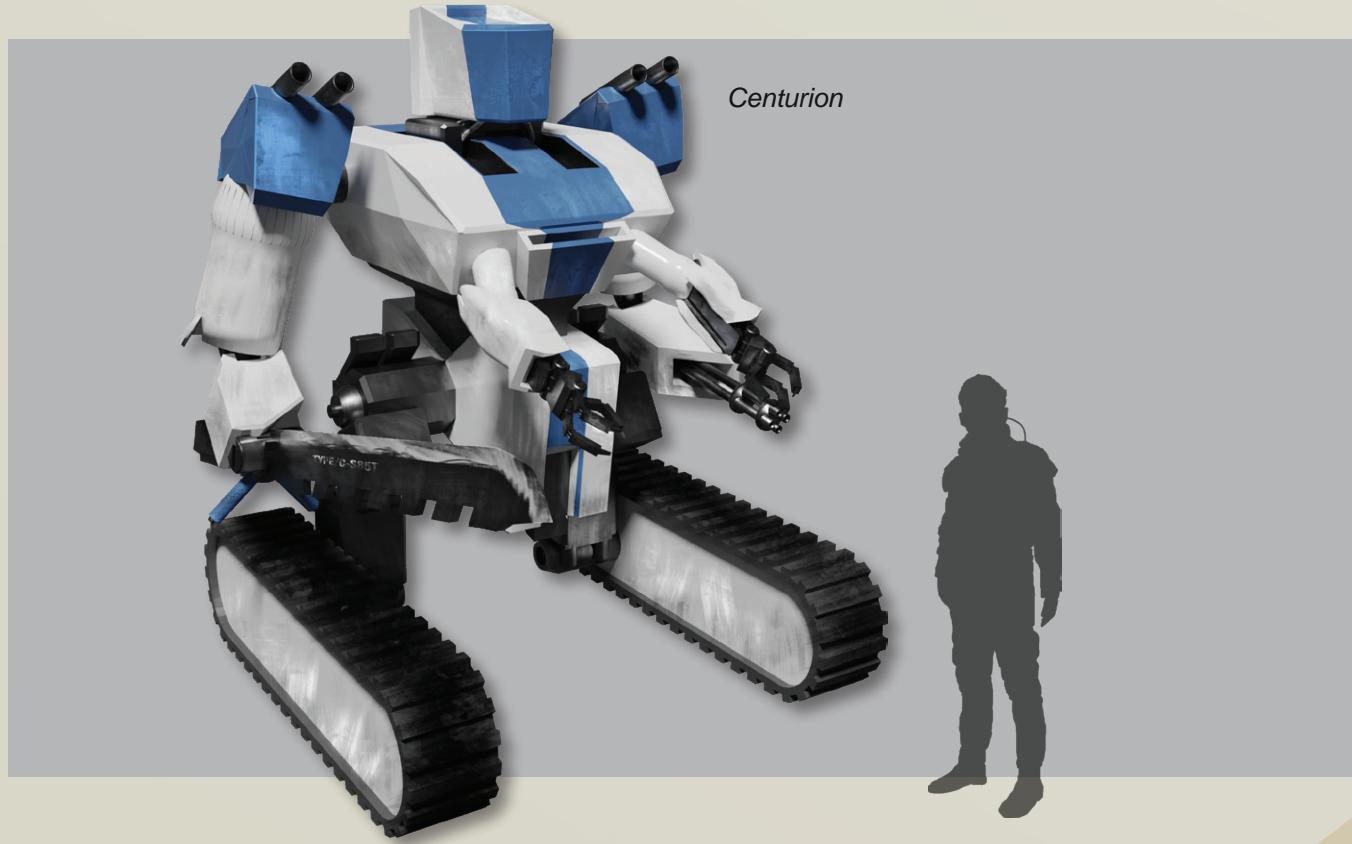
The Type C is a large, heavy-duty combat engineering robot, designed to maintain and support other robots. It has an extensive set of engineering skills and an advanced processor designed for problem-solving and capable of learning.

The version shown here has adapted its heavy manipulators, removing the original engineering tools and replacing them with a salvaged chain gun. It also mounts a laser in its head and has affixed two tube-

fired anti-armour rockets to its chassis but has no real method of aiming them and so fires them with an unskilled penalty.

There is only one Centurion on the moon and it is avoided by other robots as it has started cannibalising them for spare parts and using its drone controller, wireless link and a virus attack to re-program their command algorithms. Unlike other robots on the moon, the Centurion is in good repair. It has managed to save two rounds for its rocket launchers and it still has 100 rounds for its chain gun.

Robot	Hits	Locomotion	Speed	TL	Cost
Centurion	73	Tracks	4 m	13	Lv930000
<b>Skills</b>	Athletics (strength) 3, Electronics (computers) 3, Gun Combat (energy) 1, Heavy Weapons (portable) 1, Mechanic 2, Navigation 2, Profession (labourer) 2, Science (robotics) 2				
<b>Attacks</b>	Laser Rifle (5D+3, Zero-G), Chaingun (4D, Auto 6), Rocket Tubes x2 (8D, AP 10)				
<b>Manipulators</b>	2 x (STR 11 DEX 8), 2 x (STR 17, DEX 8)				
<b>Endurance</b>	72 hours				
<b>Traits</b>	Armour (+14), ATV, Hardened, IR Vision, Large (+3)				
<b>Programming</b>	Very Advanced (INT 11)				
<b>Options</b>	Audible Sensor, Cutting Torch (improved), Electronics Toolkit (improved), Geiger Counter, Light Intensifier Sensor (advanced), Navigation System (improved), Robotic Drone Controller (basic), Transceiver 50 km (improved), Vacuum Environment Protection, Visual Spectrum Sensor, Voder Speaker, Weapon Mount (heavy), Weapon Mount (medium), Wireless Data Link				



# INTERLUDE 3

# THE MESSENGER

**MET:** D+160  
**CMD:** 397 ly

**System:** BPC239134  
**Stellar Type:** K2V  
**X, Y, Z Co-ordinates:** 119.3, 247.4, 85.9

*The figure floated in the central holotank, looking as serene and calm as ever. Pierre glanced at the data slate in his hand, then spoke to the hologram.*

*'We are prepared to offer a full catalogue of over 5,000 observations of stars within 10 light years of this system, including spectrographic analysis, full spectrum imagery and other data. In return we would like the technology for the dual purpose radiators and solar collectors, as previously discussed.'*

A frown passed over the hologram's face and it spoke.  
*'I have already provided this information to Human Core.'*

Pierre glanced at me and we both frowned. He looked back at the hologram and spoke again.

*'We have not agreed on a trade for this technology, Messenger. You haven't provided it to us.'*

*'The technology was provided to Human Subset Zhong in return for human DNA samples one hour ago.'*

*'Dammit!' cursed Yvette and slapped the intercom button, 'Zhong, get up here!'*

Pierre bowed his head and sighed, then looked back at Messenger's hologram.

*'Messenger, Doctor Zhong was not authorised to be making his own agreements with you. Has he already provided you with the genetic samples?'*

*'No, Human Subset Pierre, they are to be collected from a transport assembly which is currently en route to a rendezvous point.'*

*'That's why he wanted that observation drone. I can remote pilot it back, or blow it up?' Yvette's fingers danced over the console for a moment and her hand hovered over a touch screen display that I could see had the word 'Destruct' gently pulsing on a button. She looked to me for confirmation.*

*'Human Subset Pierre, is there a fault in the internal operation of transport assembly Entdecker?' Messenger had a quizzical expression on its face, 'Perhaps communication with Human Core directly would be more beneficial if the Entdecker assembly is exhibiting aberrant behaviour?'*

*'No, Messenger, We're not exhibiting aberrant behaviour, it's just that Doctor Zhong was not authorised to make that decision with you. I'm afraid we haven't agreed to provide you with human DNA samples yet. Will you take the stellar observations instead?'*

*Messenger paused for a moment – an affectionation that I'm sure it had picked up from us as it surely didn't need any time to consider the options – and spoke again,*

*'That will be acceptable, Human Subset Pierre.' I breathed a sigh of relief and nodded to Yvette. She stabbed the destruct button. Messenger's hologram shifted in place and it spoke again,*

*'However, as it seems that Human Subset Zhong is exhibiting aberrant behaviour, I must insist it is recycled before we can continue. Aberrant behaviour such as this may have a detrimental impact upon further interactions. I have despatched a subset of my assemblers to your location to remove it for disposal. Please have it ready for removal or, if it would be more expedient, I can have them disassemble Transport Assembly Entdecker to facilitate its retrieval.'*

As Bayern and her flotilla of ships explore space leading to the Pleiades cluster they will experience and encounter many amazing sights. The star systems they visit have never been seen by humans at close hand and will reveal many wonders and mysteries. However, they will also discover that humans are not the only ones exploring space far from home. An encounter with an alien machine intelligence will present the Travellers with challenges in simply finding a common frame of

## John Von Neumann

The alien protagonist of this adventure, *Messenger*, is an example of a type of self-replicating spacecraft known as a Von Neumann Probe. John Von Neumann was a 20<sup>th</sup> century Hungarian-American physicist, mathematician and inventor of prodigious ability. He was a member of the Manhattan Project and a founder member of the Princeton Institute for Advanced Study. His fields of study were wide ranging and amongst other things he was responsible for the development of game theory in economics and vital precursor work on quantum theory and cellular replication. It was this study which paved the way for the discovery of DNA. His interest in self-replicating systems prompted him to pursue a number of different designs, including computer architecture and simple machines that had all the tools and information required to create copies of themselves. He called such a system a universal assembler. Although he did not apply his theories directly to spacecraft, the principles were applied by a number of his peers to spacecraft that could travel to a distant star system, collect resources to construct copies of themselves and then send these copies on to repeat the cycle.

reference to be able to communicate. Finding this will require lateral thinking and more than a little diplomacy. There is no set sequence of events once communication is established, and the referee is free to allow the Travellers as much or as little interaction as they desire.

*Bayern* has stopped for stutterwarp discharge in an interesting trinary system with a large G-class yellow star and two M-class red dwarfs. The two dwarfs are in distant orbit around the yellow star and are themselves orbiting a common point between them – the barycentre. The twin stars orbit at great distance, over 250 AU, separated by 2.5 AU, and the barycentre contains a small collection of asteroids held in place despite the gravitational tug of the two stars. Although there are gravitational ‘sweet spots’ where forces between two bodies cancel out, known as LaGrange points, the barycentre is not a stable one as the action of the distant yellow star would disturb any bodies there. Under normal circumstances the asteroids should have been pulled towards one or the other of the two stars and the barycentre would be empty. *Bayern* is investigating what is keeping these asteroids fixed in space.

## The Asteroids

Whilst the Travellers are interacting with *Messenger*, *Bayern* will continue to investigate the strange behaviour of the asteroids. Careful analysis and mapping of the stars’ motion will reveal that the two red dwarfs have an almost circular orbit around the barycentre, which would normally be a LaGrange point. A resonance with the main star introduces a very slight eccentricity to the orbits and thus disrupts the LaGrange point. The asteroids are actually the remains of proto-planets that were in orbit around the two stars but which never managed to form fully. Over time they lost mass to their parent stars and slowly migrated away in an increasingly wider orbit. Eventually these orbits strayed closer to the barycentre and the proto-planets were finally torn apart by the competing gravity of the two stars. The asteroids now at the barycentre are the final remains of the magnetic cores of the proto-planets, solidified and held together by the interaction of the residual magnetic field and gravity of the three stars. In another few hundred thousand years the residual magnetism will fade and the final remains of the tiny body will be drawn towards and consumed by one of the stars.

In the meantime *Anton Dohrn* is surveying systems ahead and Commander Schmidt has authorised the use of the *Reisende* interstellar probes to scout several other nearby systems. The *George Bauer* has moved to the system’s Oort cloud and is mining cometary bodies for volatiles. *Entdecker* remains grappled to *Bayern*.

The referee should begin the adventure and present the situation so that the strange behaviour of the asteroids will be the focus of the Travellers’ activities. The mystery of the asteroids will actually turn out to be quite mundane and solved by *Bayern*’s other scientists whilst the Travellers are elsewhere. Whilst the Travellers are preparing to begin their investigation of the asteroids they will be alerted to the premature return of one of the *Reisende* interstellar probes.

Commander Schmidt will call a meeting of the mission board shortly afterwards, beginning by explaining that the probe returned from BPC239134 (a nearby small K2V orange dwarf star) after it detected phenomena that fell into a list of immediate return parameters. In this case, it detected signals of an apparently artificial nature. At this point he hands over the presentation to Dr. Zhong who, with evident relish, presents the probe’s findings.

Zhong advises that the probe detected a string of broadband microwave pulses. Although not necessarily artificial, they were unusual in clarity and regularity. The probe then began a more systematic analysis and tracked the pulse's origin to a location around one of the system's outer ice giants. Observation revealed a mysterious, highly reflective cloud in orbit around it. Whilst observing the cloud, the probe was the target of a string of laser and radar pulses that it characterised as an active sensor scan. This tripped the probe's return protocol and, with its drives not fully charged, the probe immediately returned to *Bayern*. During his presentation Zhong takes every effort to emphasise (over-emphasise, some might say) his own efforts to access and analyse the information from the probe in so short a space of time.

Commander Schmidt will authorise *Entdecker*'s departure for BPC239134. Dr. Zhong will request to be included on the crew, loudly and aggressively insisting if *Entdecker*'s captain refuses. Commander Schmidt will defer to the wishes of *Entdecker*'s captain but will privately request that Zhong is accommodated. If the captain refuses, Schmidt will not press the issue – he is well aware of how disruptive the Manchurian astrophysicist can be on a ship as large as *Bayern*, let alone on board the much smaller *Entdecker*.

If Zhong is allowed to join the expedition he will prove to be just as loud, argumentative and obnoxious as ever. He will complain about the lack of gravity, small crew compartments (even more so if he is put into one of the crew expansion modules in the hold), quality of the food and so on. However, his scientific contributions will be beyond reproach and he will be insightful and hard working, if aggravating.

## BPC 239134

Transit to the BPC239134 will take just over 24 hours. During this time the characters will have the opportunity to study the telemetry from the *Reisende* which will be uploaded to *Entdecker* prior to her departure. Only a short portion of the telemetry relates directly to the cloud, as the probe had only just arrived in-system. The *Reisende* standard profile is to conserve power whilst in transit and use only navigational sensors. The main survey sensors are not activated until the probe has transited into the system and passed the stutterwarp shelf. Once the probe has dropped to sub-light speeds the sensor feeds require far less processing, easing the load on the automated ship's robot brain.

The short stretch of telemetry contains three pieces of relevant information. Firstly, the regular pulses the probe detected are bursts of microwave radiation at a peak frequency of 1420 MHz and 1720 MHz. Success on an Easy (4+) Science (any) check (EDU) reveals that these are the same frequency as the emission lines for hydrogen (H) and hydroxide (OH). The signal consisted of a short cluster of pulses starting with a single pulse, then two pulses, then four, then eight, then 16 pulses and so on, until there are 64 pulses, after which the sequence reset. Success on a further Easy (4+) Science (any) check (EDU) check will reveal the significance of the molecules and number of pulses – the frequencies are constituents of water and the pulses represent the base numbering system used in binary, the simplest numbering system for counting and mathematics (so, 1, 2, 4, 8, 16, just as you have 1, 10, 100, 1,000 in base 10 counting).

The significance of these figures should not be lost on the Travellers. Both figures are universal constants – the values are the same regardless of the units or measurements used. The two frequencies have the same value even if measured in different units – hydrogen always emits at 21 centimetres, even if it is not measured in centimetres. Likewise, the binary counting mechanism suggested by the timings of the pulses provides a common numbering scheme. Knowing that an alien is able to measure the frequency of H and OH and count in binary means that a conversion between any alien measuring system and a human one can be made, using these as two convenient, fixed values. These figures are used as universal constants in *Bayern*'s own first contact protocols and finding a transmission that also uses them is a very interesting sign.

The second discovery that can be made is about the nature of the cloud. By studying the radar and visual images that the probe took, and examining the Doppler shift of the returns, the structure of the cloud and its apparent position and movement can be deduced. A successful Difficult (10+) Electronics (sensors) or Science (physics) check (1D hours, EDU) will reveal that the cloud is composed of many discrete parts – a swarm of individual objects rather than a solid or homogenous gas or dust cloud. Effect 6+ will reveal that although there are a multitude of small objects, there are two much larger objects near the centre of the cloud. Any success will reveal the cloud is approximately 400 kilometres in diameter and appears to be in orbit around the ice giant.

The final piece of information will require a successful Routine (6+) Electronics (sensors) or Science (physics) check (1D hours, INT). The *Reisende* probe turned

## Signature Spheres

When dealing with very great distances it is worth remembering that electromagnetic information does not travel instantaneously. Any ship travelling faster than light whilst in stutterwarp is outpacing its own electromagnetic signature and its current location cannot be tracked. By the time the radiation reaches an observer, the ship has already moved on.

However, when moving at sub-light speeds, the same ship will start to emit and reflect radiation – its signature – that travels at the speed of light. This signature propagates in all directions, much like ripples on a pond when a stone is thrown in. Because it travels at the speed of light, it takes time for this signature to reach an observer a great distance away. If a vessel sends out a signal, a sensor ping or communication for instance, this will have to travel to the distant target and then any response will likewise also travel at the speed of light and take the same amount of time to return to the observer.

If the observer has been in place for some time they will already have been emitting their signature and the ripples will already have been radiating out. A ship then arriving into the system will be able to detect these emitted ripples straight away, before their own reach the observer and their arrival is detected.

towards the pulses of microwave radiation after it had triangulated their source, just a few minutes after it had passed over the Shelf and activated its survey sensors. The active sensor pulse from the cloud was detected just 221 seconds later. A simple calculation will show that this was the minimum time it would take for the *Reisende* arrival to be detected by an object at the cloud's location and a sensor pulse transmitted back. The cloud seems to have noticed and reacted to the probe at the very instant it could have been detected. That suggests a very sophisticated sensor net and detection systems. *Bayern*'s 360° Skysweep sensor system is one of the most sophisticated humans have ever built and it would still require several hours to catalogue a whole-sky scan at the resolution required to detect a *Reisende* probe at that distance.

A Routine (6+) Electronics (sensors) or Science (physics) check (1D hours, INT or EDU) will interpret the sensor readings to reveal what happened to the

*Reisende* probe at BPC239134. It arrived in-system and detected the microwave pulses that the cloud had emitted as part of its day-to-day activities. As soon as the probe dropped to sub-light speeds it started to send out signature ripples of its own. It detected the microwave pulses, turned towards the cloud and began moving towards it. 110 seconds later the signature from the probe arrived at the cloud which sent its own active sensor pulses, which travelled back towards the probe and arrived, again, 110 seconds later. The probe registered them as unusual and possibly artificial, perhaps even hostile, and turned around, re-entering stutterwarp. Its last signature, the reflected active sensor pulse, reached the cloud 220 seconds after it was sent (110 seconds for the outward pulse then another 110 seconds for the inbound, reflected pulse) after which it would seem to the cloud to have disappeared.

With this knowledge in mind, the referee should ask the Travellers to decide on their approach to the cloud. Studying it from a distance will require either a stealthy approach or the use of one of *Bayern*'s robotic sub-craft as a sensor relay. The observation drones that *Bayern* carries do not have sufficient range to be of any use, so it will have to be one of the *Reisende* or *Suche* drones carried in *Entdecker*'s external magnetic grapples.

Should the Travellers decide they wish to remain hidden from the cloud they can plot a course that will bring them into the system whilst masked by the ice giant. This will require a task chain to be completed. Firstly the ship's navigator will need to plot the course, requiring a Difficult (10+) Astrogation check (1D hours, INT), followed by the pilot needing to succeed with a Difficult (10+) Pilot (spacecraft) check (1D hours, DEX). Failure indicates that the pilot has miscalculated and *Entdecker* will be easily detectable. The pilot may not realise their error until the *Entdecker* is pinged by the cloud's active sensors.

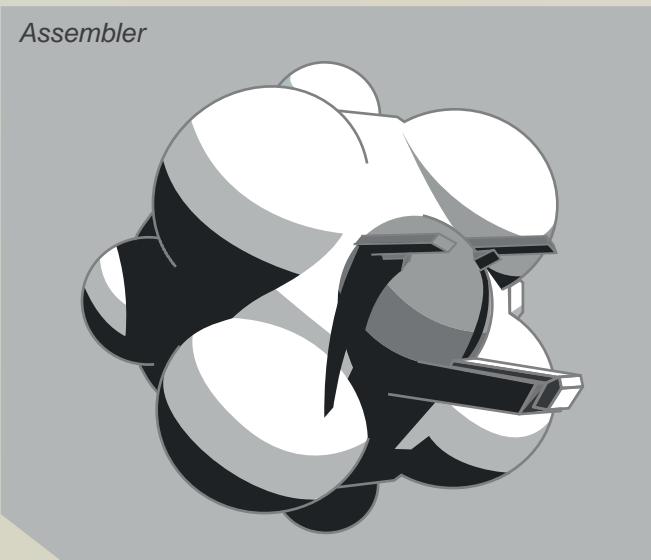
Regardless of any attempts at stealth, the cloud will be aware of *Entdecker*. It has remotes all over the system and the ship's approach will be observed by one of these and communicated back to the cloud. Travellers may be able to deduce that they have been detected if they pay close attention to the repeating microwave signal. At the point where *Entdecker* is detected the signal will seem to disappear, only to re-appear with the two frequencies used in the message apparently reversed. The cloud has altered its signal to indicate to the visitors that it knows they are there.

## THE CLOUD

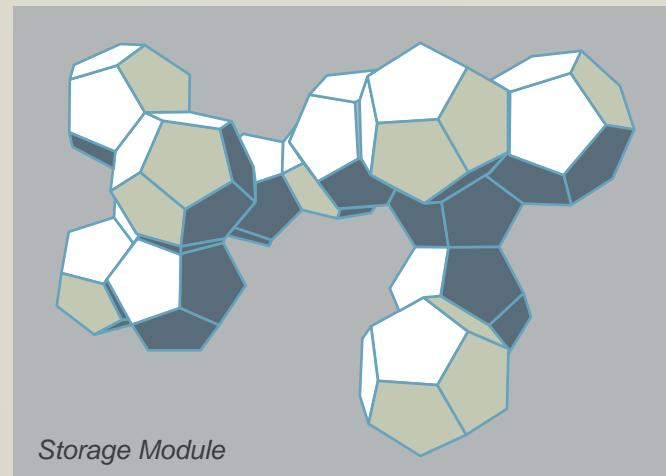
The cloud is actually a huge collection of artificial constructs, incredibly sophisticated robotic spacecraft, autofactories, storage systems, power plants and processing systems, all under the control and guidance of a single, alien machine intelligence known as Messenger.

Messenger is a type of self-replicating system known as a Von Neumann machine, designed to travel to a planetary system and survey it by constructing a fleet of remotes and probes. At the same time it has constructed facilities to create copies of itself which it will send to other systems, where they will create copies of themselves and so on. The actual Messenger program, if such a term can be used, is housed in a central structure which is a type of giant computer core that exhibits remarkable properties.

The cloud is over 100 kilometres in diameter and comprises hundreds, if not thousands, of moving objects. The majority are lumpy spheres, clearly technological in origin, with a glowing blue exhaust and several blisters, lumps and housings across their surface. Occasionally one of these will unfold or extend to reveal a tool, manipulator or some bizarre and unidentifiable object. The spheres vary in size from tiny, tennis balls, up to some that are 15 metres in diameter. These are assemblers, the workhorses and utility tools for Messenger. They are used to build, mine, survey, extract, repair and a dozen other tasks. There are thousands of assemblers spread throughout the system, with only around half in the cloud at any one time.

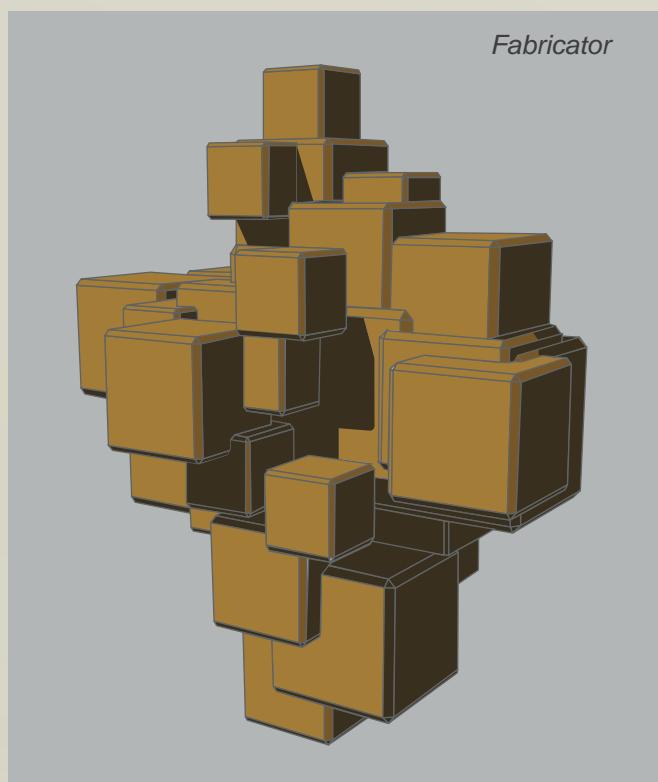


Assembler



Storage Module

The next most numerous objects are clusters of cream or white dodecahedrons, ranging in size from just under a metre to over 50 metres in diameter. Most are anchored together, like giant bunches of metallic grapes, although there are a few which are a bright, vivid electric blue colour that float in isolated clusters near the perimeter of the cloud. These are storage modules, filled with the raw materials Messenger needs for its construction work. The bright blue storage modules are antimatter containment – hence they are located away from the rest of the cloud. Occasionally one of the assemblers will dock with a cluster of storage modules and move them around or dock them with another structure.



Fabricator

Where the storage modules are collected together in clusters they are often joined to another construction, a confusing collection of burnished bronze and gold coloured cubes, prisms, tubes and boxes. These are merged in a complex and intricate configuration reminiscent of an abstract or cubist sculpture. The assemblers occasionally interact with portions of these constructs and, if the Travellers observe for any length of time, they will see raw materials being fed into them by the spheres. They will also be able to see what appears to be finished components being extracted from the cubes. These are Messenger's fabricators; fabulously complex and advanced autofactories that convert raw materials to finished items.

As well as the assemblers, storage modules and fabricators there is an outer 'halo' of flat, black, circular plates, each over 100 metres in diameter and less than a metre thick. They form a perimeter around the cloud, as most activity takes place within their boundaries. These are a combination of sensor network, radiator and advanced solar collector. Messenger mostly uses antimatter to power its systems but the generation of antimatter requires prodigious amounts of energy, provided by the solar collectors charging banks of capacitors. Messenger also generates great quantities of heat and panels facing away from the system's star can be seen to be emitting infrared radiation. The panels seem to be able to perform the functions of both solar collector and radiator depending on orientation to an energy source.

At the centre of the cloud are two further assemblies. The first is a large, gunmetal grey sphere with clusters of long, tapered spindles or cones extending from around its equator and poles. It is approximately 500 metres from the tips of its spindles, with the central sphere having a diameter of around 100 metres. This object sits at the very centre of the cloud and is stationary. Observation will reveal that the surface seems to ripple and shift, as if it were liquid. The assembler spheres do not seem to interact with it at all. This is the central computational engine of Messenger and is constructed almost entirely of a form of matter known as a computromium substrate – a theoretically perfect computing material. It houses the vast intelligence of Messenger.

The second sets of objects are some form of assembly scaffold or space dock, with a very long construction inside. The scaffold is a thin helix approximately 100 metres in diameter with occasional sub-assemblies that resemble assemblers dotted along its length. The structure is a latticework of

girders, stringers, gantries and equipment open to space and has many sections with large gaps in them. The entire construction is almost 12 kilometres in length. If observed over a period of hours, the latticework will be observed to be moving, sections contracting and expanding, and moving sub-assemblies into new locations. It is vaguely reminiscent of a very long, thin, skeletal snake or perhaps a stylised strand of DNA.

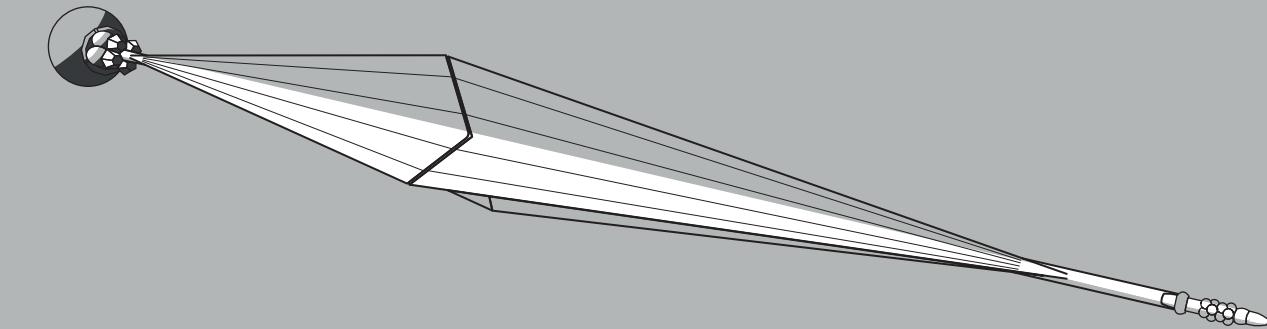
The gaps in the latticework give a partial view of the object being constructed inside. It is almost the same length as the gantry at just under 12 kilometres and has a central spine around which are arrayed four thin, brassy, corrugated fins that run along almost nine kilometres of its length. The fins rise out of the core in a gentle slope, rising up until their peak almost 100 metres away and then tapering down again. It is obvious that the corrugations will allow the fins or panels to extend even further from the core if the structure were in open space. At one end is an assemblage of pods, components and further scaffolding which still seems to be under construction. At the other is a collection of tanks, pipework and a large torus that encircles the core. The torus is over 50 metres in diameter and 10 metres thick. At the very end of the construction is a shallow dish or bowl 40 metres in diameter that is either a high gain antenna or an exhaust bell.

There is constant activity within the cloud and steady traffic of spheres moving away from the cloud and into other parts of the system. Many spheres are also returning, attached to one of the dodecahedrons, or occasionally several spheres will be observed towing a line of dodecahedrons like a string of pearls. The dodecahedrons can be observed being attached to the fabricator complexes or shuttled from one fabricator to another by assemblers. Assemblers can also be observed taking items from fabricators and moving them towards the space dock and the construction within.

## APPROACHING THE CLOUD

As the Travellers' ship or probe gets closer to the cloud, individual shapes can begin to be made out.

Should they wish to, Travellers will be able to analyse several hours of sensor telemetry by using the stutterwarp to 'hop back' and catch up with signals from earlier. An Average (8+) Electronics (sensors) check (1D hours, INT) will provide 24 hours' worth of snapshots of the cloud and spheres.



Seed

Analysing this for patterns may give the Travellers an idea of what the cloud is up to. A successful Routine (6+) Investigate or Electronics (computers) check (1D hours, INT) will reveal that the traffic seems to be directed towards several small asteroid moons. Initial analysis suggests that one is a captured icy asteroid, another a captured stony asteroid and the last a nickel-iron asteroid. Although these three are the destinations for the bulk of the traffic, spheres are regularly seen jetting off towards other bodies in the system. Several can be seen undertaking what appears to be gas mining around a gas giant in the outer system, for instance.

## COMMUNICATING WITH MESSENGER

At some point the Travellers are going to want to try to communicate with the cloud. Messenger has no common frame of reference with humanity and a language will need to be established. Communicating with Messenger is particularly problematic because of fundamental differences between the many, organic humans and the single, artificial Messenger. For instance, Messenger will, at first, have no concept that it is the humans aboard *Entdecker* that are the intelligent life forms and not *Entdecker* itself.

Whilst engaging in the following tasks, the Travellers may observe that establishing communications with Messenger seems to be a great deal more difficult and involved than with the Vitruvians just a few months ago. This is very true and is entirely because the humans and Vitruvians had shared frames of reference. On the Vitruvian moon the Travellers would be able to point to a bowl and say ‘bowl’ and there would be a reasonable chance that the Vitruvian

would understand. Both the Traveller and the Vitruvian know what the object is and what it is for; they just have different words for it.

Messenger, on the other hand, would have no idea what a bowl was. Firstly, just communicating the word ‘bowl’ requires common language; since Messenger communicates entirely through electronic signals, it cannot hear what the Travellers are saying, instead communicating with remotes using a complex type of machine code broadcast and line of sight radio or laser comms. Secondly, it is a construct, so has no concept of food, eating or tableware. It has observed lifeforms in this system consuming food, of course, but there is a huge gulf between that and using a bowl to hold food. Thirdly, Messenger also exists in zero-gravity, so an open-topped container would not be recognised as a storage vessel. Finally, Messenger has never met an alien or indeed any others of its own kind. The swarm of remotes are part of Messenger and communication with them is almost an instinctive process. It would no more have a conversation with them than a human could have a conversation with their feet or liver. It is simply not used to talking to anyone.

Messenger’s creators did plan for this eventuality, however. Despite Messenger having met any lifeforms capable of communicating with it, there was always the chance that it could. Its creators built a complex series of protocols to recognise what could be alien life and to initiate peaceful first contact. The creators did not want assemblers to begin breaking down an alien vessel because they did not recognise it was not an asteroid.

The steps in establishing communication with Messenger are shown here. Only the first few stages are covered in any great detail and it should be used to demonstrate to the Travellers the kind of work they

## Optional Detail

Not all Travellers are interested in encoding prime numbers into binary to try to communicate with advanced alien species. The referee should gauge the level of interest they have in the intricacies of first contact and establishing communication.

For Travellers who have the aptitude or appetite for working out the puzzles involved in establishing first contact communication, the referee has been provided with the sections marked as Optional Detail. Using these, the referee can allow the Travellers to proceed from stage-to-stage without making checks if they can work out the mathematical puzzles. If the Travellers become stumped or stuck at any point the referee should allow checks to reflect their access to experts with higher levels of xenolinguistic skills.

It is also worth remembering that the steps suggested herein are a necessary simplification of a task that would likely be much more complex and time consuming.

will be undertaking during stages one to five. By the time they have reached stage five they will be able to communicate directly with Messenger by voice or text. If the Travellers provide the information it requests after stage five they will also have a visible representation to talk to.

## Stage One – Ones and Zeros

Messenger has already attempted to make contact using the series of pulses that the *Reisende* first detected. To recap, Messenger is transmitting a sequence of pulses on two different wavelengths – 1,420 MHz and 1,720 MHz. The pulses will repeat in a series of clusters that show a binary counting system. The frequency of the pulses is significant in that the two wavelengths are equivalent to the emission lines of hydrogen atom (H) and the hydroxide molecule (OH). If you combine the two, it produces H<sub>2</sub>O – water. The number of pulses is also doubling each time, suggesting a binary counting system.

To move on from stage one to stage two the Travellers need only transmit pulses on the frequency of another molecule back to Messenger. The emission frequencies of various molecules are easily available from *Entdecker's Archive* and suitable choices might be something simple like methane (CH<sub>4</sub>) or carbon

monoxide (CO), although any molecule will do in a pinch. To achieve this, the Travellers need to succeed on a Easy (4+) Science (any) check (1Dx10 minutes, EDU). If they are successful the Messenger's repeating pulses will stop and stage two will begin.

## Stage Two – Basic Mathematical Concepts

Messenger will start off by establishing the simplest of all numbering systems – binary – by changing the pulses from a simple doubling up of the number of pulses into a string of short and long pulses to indicate a number in a true binary format. It will then start sending a series of pulses. The first will be the bursts of single pulses that the Travellers have observed before but the second will be different; a set of short and long pulses. The long pulses represent a '1' and the short a '0'. By combining the pulses a number can be expressed as a binary number. In combination with the patterns used originally it will now be able to provide a conversion table for binary numbers. Messenger will count upwards from one to 64 but when it reaches 64 single pulses it will not transmit the equivalent binary number. There will be a pause of several minutes before the sequence resets and starts over. Messenger is waiting for the Travellers to send back 64 in binary to show they have understood its progression.

Recognising the change in pulse format require no check, but recognising the significance of the new format and sending back the right signal requires a Routine (6+) EDU check. Travellers can apply levels of any skill with mathematical content such as Astrogation, Navigation or any Science skill as a DM to this check.

As soon as the correct answer is transmitted a new sequence of numbers will be sent, again in binary. The numbers transmitted will be 1, 2, 3, 5, 7, 11, 13 and 17. Messenger will then pause and await a response. If the Travellers do not recognise that these are prime numbers (numbers that can be divided only by themselves and one) then any success on an Easy (4+) EDU check will reveal the next number in the sequence is 19. Once this is transmitted Messenger will again pause and then begin a new sequence.

Messenger will now move from expressing numbers as binary to hexadecimal, a much more time efficient way of communicating, especially where large numbers are concerned. Messenger will now transmit a sequence

## Optional Detail One

The pulses and their binary counterparts are listed here. A 0 represents a short pulse and a 1 represents a long pulse. Messenger's binary numbering system is actually reversed from human conventions, starting with the smallest numbers, whereas most human societies traditionally read numbers largest to smallest (257 has 2 in the 100's, 5 in the 10's then 7 in the 1's).

Number of Short, Single Pulses	Binary Sequence
1	1000000
2	0100000
3	1100000
4	0010000
5	1010000
6	0110000
7	1110000
8	0001000
Continues to count upwards...	
63	1111110
64	Waits for reply of 0000001 before resetting sequence

consisting of a hexadecimal number as a variable length pulse and then the same number in binary using the short and long pulses. Again, Messenger will leave the sequence unfinished and wait for a response from the Travellers before proceeding. They may attempt a Routine (6+) EDU check to recognise the change, again using relevant skills as DMs.

Thereafter Messenger will send over a series of exchanges that build into a standard set of mathematical process. It will provide examples of calculations to show addition, subtraction, multiplication, division, powers, fractions, greater than and less than, and so on. With each calculation it will introduce new symbols and operators by demonstrating them and requesting the correct response.

It will repeat the steps for each of the mathematical principles; addition, subtraction, multiplication and so on. The referee may choose to provide examples of each sequence if desired. Alternatively, recognising and understanding the sequences requires success on an Average (+8) EDU check with relevant skills giving DMs.

## Optional Detail Two

Now that Messenger has a simple way to display numbers, it will begin to demonstrate addition. It will send two new signals, A and B, that equate to + and =. It will then use them in a simple set of additions:

$$\begin{aligned} & 2 \text{ A } 3 \text{ B } 5 \quad (2+3=5) \\ & 1 \text{ A } 4 \text{ B } 5 \quad (1+4=5) \\ & 1 \text{ A } 1 \text{ A } 1 \text{ A } 1 \text{ A } 1 \text{ B } 5 \quad (1+1+1+1+1=5) \end{aligned}$$

At regular intervals it will pause for the Travellers to respond with the correct number:

2 A 2 A 2 B pause (2+2+2=), the correct response being 6.

Travellers with Science (linguistics) or Science (sophontology) will recognise these steps as very similar to steps used in human first contact scenarios.

## Stage Three – Defining Language

After the basics of mathematical operations have been established, the next stage is to move on to a more complex system of communication. During this stage Messenger will attempt to convey the basic concept of a language. Messenger will begin by transmitting the mathematical sequences above but add a prefix symbol to the interactions. The prefix symbol is designed to indicate an individual in a dialogue, almost like the name of an actor in a script. From here Messenger will begin to define concepts such as true and false, by having one of the individuals propose a calculation that is correct and the other individual responding with 'true'. The first individual will then propose an incorrect calculation and respond with false.

It is at this point that Messenger will begin to build a vocabulary and syntax with the crew of *Entdecker*. Messenger will slowly build up a lexicon or dictionary that includes a set of rules of grammar. Examining this will reveal that it provides an elegant, if somewhat sterile, method of communicating. It is quite similar to a highly structured programming language and any Travellers skilled in linguistics will immediately see similarities to some constructed languages, such as Lincos II, which humans first developed for use in anticipated first contact situations.

By the end of stage three, Messenger and the Travellers will have a functioning framework that will allow an exchange of information succinctly –

they understand a common numbering scheme, have established mathematical rules and can now exchange complex ideas such as equations and objectively true and false information. To progress to stage four requires that the Travellers succeed at an Average (8+) Science (linguistics) check (1Dx10 hours, EDU). Alternatively, a Difficult (10+) Electronics (computers) check (1Dx10 hours, INT) may be attempted, to interpret the communications as a kind of programming language.

## Stage Four – Describing the World

Now that the basics of a language have been established the next stage is to describe the universe. It is during this stage that Messenger will begin to create common frames of reference for things like time, distance, velocity, mass and temperature.

Velocity, for instance, could be measured using the speed of light as a constant. However, quantifying that requires knowledge of both units of time (the second) and distance (the metre). Fortunately, each of these values can be described by referencing another universal constant. A second, for instance, is related to the physical properties of radiation within a caesium atom. The metre can be expressed as the distance a particle travels in a given portion of a second. Mass and temperature can also be defined based on reference to other constants – fixed number of atoms of a given substance for mass and the difference in temperature between two known points such as absolute zero and the triple point of water.

Building these common values will allow Messenger and the crew of *Entdecker* to start to describe the universe to one another. Complex ideas can now be shared because both parties can describe time, distance, location, colour, electromagnetism and so on. Objects can be defined by physical parameters; chemical and material composition and electrical, physical or mechanical interactions. This also allows more complex forms of communication such as video and holograms to be defined, opening new avenues of communication.

Succeeding at this stage requires success on two checks; a Difficult (10+) Science (linguistics) check (EDU) and a Difficult (10+) Science (physics) check (EDU). The combined time interval for both checks will be 1Dx10 hours. At the referee's discretion a task chain using Investigate or Electronics (computers) may be used for either check, representing a Traveller researching useful constants and writing a program to quickly convert between standard human units and the measurements provided by Messenger.

## Stage Five – Establishing Conversation

Stage 4 really opens up the possibility of meaningful communication with Messenger. Both parties are now able to communicate with relative ease but interactions are limited to factual statements. Messenger will now begin to build a vocabulary of nouns, verbs and adjectives to allow a fuller language.

Questions and statements such as 'the rock is 20 metres long', 'the ship is white' or 'how tall is a human?' are still impossible without knowing what a rock, ship, or colour is; how would you measure a human, or indeed consider what a human is? This stage will mostly consist of a series of interactions where complex descriptors are reduced to a single word, like describing something using only very specific, factual terms – 'it reflects visible light most strongly at 700 nm' to say 'it is red', for instance.

This is an incredibly long process but the pace will increase as more vocabulary is built. Understanding and naming actions, attributes and objects requires a methodical approach and is best conducted using specialist linguistics programs. Building the correct interface for a computer and writing the parameters requires a Difficult (10+) Electronics (computers) check (1D hours, EDU). A task chain with Investigate and Science (linguistics) can also be used. Success will allow text communication in something approaching plain language.

Once stage five is well underway, Messenger will start to send a simple phrase over and over: 'More information'. It is up to the Travellers how they respond but Bayern's xenolinguistics and sophontologists have developed standard, packeted information dumps to present during first contact. These packets contain carefully selected facts and information about humanity and human society.

Most importantly the packets do not include any details that might lead an alien species to deduce the location of the human home systems. They do provide a sociological and biological background for humanity, however. These basics are designed to allow an alien to understand such concepts as social organisations like families, nations and foundations; biological basics such as what humans look like, environmental requirements, sensory parameters and why some humans look different to others; social norms such as why humans wear clothes, why humans do not consume their dead and a foundation in universal human rights.

If the information is transmitted to Messenger it will fall silent for some minutes and then respond requesting to transmit an image, since it now knows that humans have eyes and communicate best with visual representation. If the Travellers choose to provide either visual or holographic broadcasts to Messenger they will detect an incoming stream of the same type.

Accepting the incoming signal and routing it to the appropriate display will produce an image of a human female, vaguely familiar, with light brown eyes, skin and hair in a conservative, short cut. She wears a plain grey robe or gown that brushes the floor and hangs in long folds over her arms. The overall effect is vaguely like a classical Greek or Roman statue. She will smile and speak, in English with a slight French accent;

'Hello, I am Messenger.'

## COMMUNICATING WITH MESSENGER

Now that face-to-face communications have been established, Messenger will be open and forthcoming. Messenger is curious about *Entdecker* (or whichever craft the Travellers are in) and her crew, and will admit that it has never met anything or anyone like them before. The first topic that Messenger will wish to discuss is the difference between the Travellers and their ship. It will want to know who built whom and ask why *Entdecker* does not take part in the conversation. If advised that *Entdecker* is not sentient, Messenger will express surprise, since *Entdecker's* systems are clearly complex enough to support intelligence.

### Yes, We're All Individuals!

Messenger will fundamentally struggle with the idea that humans are all individuals and initially believe that they are all sub-parts of some greater whole, just as Messenger's assemblers and fabricators are part of Messenger. This misunderstanding will take a long time to get past, since the concept is completely alien to Messenger. It will assume that any human it speaks to has knowledge of every other conversation and sometimes pick up a conversation with one individual that it started with another. This can prove to be perplexing and confusing and may lead to any number of misunderstandings, as shown on page 38.

Initially communication will still be stilted and Messenger will make a number of errors, mixing human genders, assuming that human form follows function – a white, French, blonde female is at the helm and therefore all blonde, white, French women are helm officers and so on. However, Messenger is an incredibly fast study. It is also capable of conducting multiple conversations with dozens of crewmembers at the same time, which will quickly become confusing. It will attempt to contact Travellers in their cabins, at their bridge stations, whilst eating, and even wake them from sleep ('Sleeping? You do nothing at all for six hours at a time? That is a very inefficient use of your time.').

Travellers will have the opportunity to discuss any number of topics with Messenger, including its goals, background, current activities and technology. Further information on these topics are presented here and the referee is advised to familiarise themselves with them and expand upon them. The key facts to remember are that Messenger will not – indeed cannot – reveal where it came from or who its creators were and that it is very, very interested in acquiring stutterwarp technology.

### MESSENGER'S GOALS

Messenger's primary goal is information gathering in the BPC239134 system. Its secondary goals are to prepare Seeds to be despatched to the neighbouring systems and to send the courier drones on to the secret destination. Its tertiary goals are self-preservation and the wider acquisition of knowledge. When considering how Messenger will react, it is worth referees keeping these goals in mind.

For example, if the Travellers arrive in a reaction drive vessel, Messenger is unlikely to show much interest, as its own drive systems are superior. However, if they arrive using stutterwarp, Messenger will recognise a potentially useful technology that would allow it to explore the system faster and speed the delivery of Seeds and courier drones. In this instance it will ask a great deal of questions. Likewise, Messenger is unlikely to think of military applications of the stutterwarp, since this would not further its objectives.

In many ways Messenger is far superior to Ace, the most sophisticated computer system that humanity has built, whilst being utterly inferior in others. Its raw processing speed is nothing short of astounding and is able to turn its hand (or manipulator) to any task or problem. Messenger is also capable of making informed choices and forming judgments based on values, unlike Ace. Whilst humanity may never know

if Messenger is a true AI or a very sophisticated interactive system, it certainly gives the impression of intelligence, especially after it has absorbed sufficient human culture to build a persona.

However, its abilities are hobbled by having to consider everything in light of its objectives. Anything that does not further or support those objectives is of little interest. Whilst sophisticated enough to act as an ambassador for whoever built it, its programming means Messenger is simply unable to conduct an effective first contact.

For example, Messenger is a single individual comprising many parts – humans are many individuals. Messenger will at first not see the difference between an individual human and one of its assemblers. It will start out believing that each human is actually a part of a single individual that it regards as *the Human*. It will actually be quite curious as to how the Human regulates its individual parts and would welcome the opportunity to study one and see if organic technology could be of use.

Messenger is singularly uninterested in art, culture and history, except for acknowledging its existence and cataloguing it. Messenger would welcome a high definition copy of the Mona Lisa, the complete works of Shakespeare or a recording of Opus 34 by Rachmaninoff purely to have them, not because of any intrinsic value. It would just as equally welcome the record of the ship's menus, a catalogue of 21<sup>st</sup> century K-Pop songs or a video of Freya the Neodog running in her sleep as she dreams.

## WHAT MESSENGER KNOWS

### Origins

Just as the human crew of *Bayern* seek to protect the location of their home systems from potentially hostile lifeforms, Messenger's creators have not equipped it with knowledge of whom they are or where they originated. All Messenger knows is that it came online after arriving at this location 50 years ago. It is to survey the system in as much detail as possible without being excessively intrusive – no dismantling a planet to get a look at the interior structure, for instance. It has chosen a list of nearby systems to send copies of itself to and has to return a courier unit to another star system with its gathered data every 10 years. When it detects other courier units arriving, it is to refuel and direct them on to the same location. Messenger is not prepared to reveal where this location is.

### Mission

Messenger knows it was sent to investigate this star system in as much detail as possible. It knows it has to send the information it gathers back to another star system and it has presumed that this system has a copy of itself that sent Messenger here. Messenger has not considered who or what created it beyond this. It is aware that the information it gathers is being sent somewhere and presumes there are more copies of itself 'up the chain' but has not spent any time musing on the final destination. It is not programmed to.

### The System

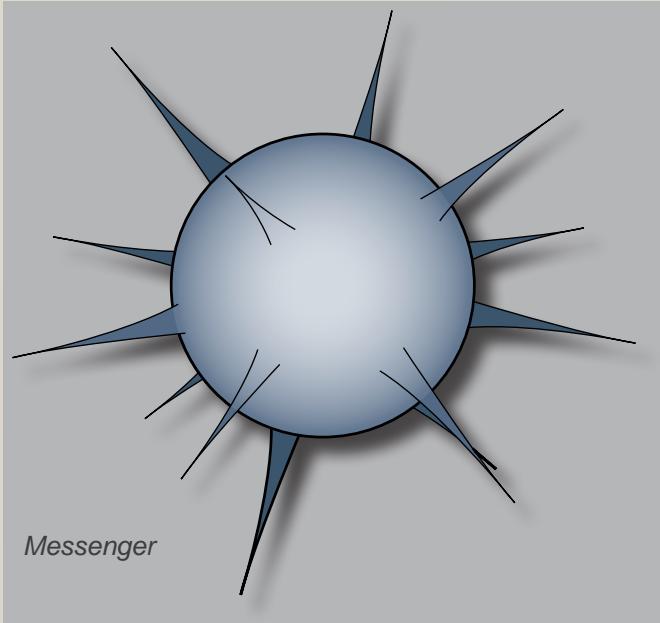
Messenger has spent a great deal of time surveying the local system, and regularly sends new probes to examine parts of it. There are several survey drones around each of the main planets and small rovers on most of the rocky worlds. Messenger is just beginning to gear up for a survey of the major moons of the system, although it already has plenty of data gathered from missions that were passing them. As soon as the current Seed is completed and despatched, Messenger will begin constructing the next flotilla of probes.

### The Seed

Messenger will refer to its current construction project as 'the Seed'. It will quite readily reveal that it is an interstellar vessel propelled by an antimatter rocket, designed to carry a copy of Messenger to the next target system, a trip expected to take around 40 years at a peak velocity of 0.2 c. The Seed is expected to accelerate constantly to the halfway point, flip over and decelerate into the target system. Messenger is quite happy to discuss details of the antimatter drive, which is a simple annihilation beam rider engine – a technology that humanity has theorised but is unable to construct due to the difficulty of manufacturing and storing antimatter in significant quantities, and in shielding the dangerous gamma rays the drive produces. Messenger will not reveal how it creates or safely stores the antimatter fuel or how it deals with the gamma rays. Messenger estimates it has three or four more years before the Seed is ready to depart. If asked, it has already sent four Seeds to other systems and the first should be arriving at its destination in around 10 years.

### Other Messengers

Messenger knows that it has sent out four Seeds but these are the only other Messengers it definitely knows of. It would presume that it was sent to this system by another Messenger as a Seed, the same Messenger that it sends its couriers back to. Beyond this, Messenger can only conjecture that there could be hundreds of other Messengers around the galaxy. Since it has not received



any couriers to send onwards, Messenger presumes that it is currently at the far end of whatever chain links back to the courier's eventual destination.

## Other Lifeforms

Messenger is aware that there are several native lifeforms on the worlds of this system. The second planet has liquid oceans and a thriving aquatic ecosystem. Simple plants and algae are beginning to evolve on land but so far no animals have ventured out of the sea. There are microbial lifeforms on other planets and it is hoping to find more life with the fleet of probes it will be sending to the moons. So far it has not received any couriers from the Seeds it has sent out, so it is not aware of any life beyond this system.

## Avatar

If asked, Messenger will advise that the appearance of its avatar is based on a statistical analysis of human demographics in the information package. The appearance was based on averaged combinations of different ethnicities; age was set at a mean human age and the female appearance was based on the slightly higher ratio of women to men. Also, based on human biological systems, Messenger considered its construction of offspring – the Seeds – to put it into a female gender role. It acknowledges that this is a poor analogy.

## MESSENGER'S DEFENCES

This encounter is unlikely to result in conflict; Messenger is friendly and affable by human standards and only seeks knowledge by study and research, not through forceful acquisition. It also seeks to

disseminate the knowledge it has relatively freely. However, Travellers being Travellers, it is entirely possible that some unforeseen event could result in conflict between them and Messenger.

Like *Bayern*, Messenger is unarmed in the conventional sense. The assemblers could be used as crude missiles or simply sent to disassemble an attacker. Likewise, the antimatter drive of the unfinished Seed could be used as an incredibly strong beam weapon, although in its unfinished state this would damage the Seed severely.

If used to attack a spacecraft an assembler swarm will need to be able to physically touch the surface of the ship, which will be impossible if the vessel is capable of stutterwarp. If they do make contact, a swarm attack will inflict 2D damage to the ship every round. Once half of the Hull points are lost, the assemblers will have cut a hole and begin to enter the interior of the ship. Assemblers inside the ship will inflict 2D additional damage per round, ignoring armour and automatically cause a critical hit. Messenger has, to all intents, an unlimited supply of assemblers but will not be able to bring all of them to bear at once. No more than 1D+1 assemblers will attack at any one time but any destroyed will be replaced within 1D rounds. Considering the quantity and damage output of the assemblers, they can pose a severe threat to any ship they make contact with.

An attack using the drive from the Seed can be either focused or broad. Both attacks have a maximum range of 150,000 kilometres (Close range) but the broad attack will saturate a wide cone with harmful radiation and plasma. This will automatically hit any single vessel, or any two vessels within 100 kilometres of each other, dealing 1Dx2D damage and 1Dx100 rads.

A focused attack will instead shoot pulses of intense, hard radiation and fusing drive plasma. This will inflict 6D damage to any ship it hits and 2Dx100 rads. The focused attack requires Messenger to aim the Seed's focusing array, which has DM+4 for the attack roll.

The Seed has sufficient fuel for an effectively unlimited number of attacks but Messenger will need to stop shooting and stabilise the Seed after every shot, since using the drive will put it into motion. The Seed can therefore only shoot once every third round.

## Hacking Messenger

Once it is discovered that Messenger is an artificial lifeform housed in a fantastically complex, giant computer, it may occur to the Travellers to hack into

or suborn Messenger by implanting a program or virus. The reality is that this is practically impossible. A computer scientist could spend their whole life examining Messenger and only grasp a fraction of its complexity. Contrary to depictions in popular entertainment, gaining entry to a foreign system is not straightforward when there is a common language and interface, let alone a literally alien system.

However, Travellers may attempt a task chain consisting of a Formidable (14+) Electronics (comms) check (1D days, INT) to gain access to Messenger's distributed communications network. Once they have access they may attempt three Formidable (14+) Electronics (computers) checks (1D days, INT). If they succeed, they gain access to Messenger's core systems. If they achieve anything less than a final Effect +6 or better they can do little more than marvel at the complexity and strangeness of the shifting, evolving code and infrastructure. Any changes they attempt will be reversed almost immediately by Messenger's own systems.

In the remarkable event that they do manage to achieve a final Effect +6 or better the Travellers will be able to either recover one random piece of technology that Messenger has – including technologies it chose not to offer – or effect changes that will reduce the difficulty of the next negotiation (see page 17) from Difficult (10+) to Routine (6+). After this Messenger's automated systems will detect the breach and close off access. They will need to attempt the entire process again to gain another benefit.

If, at any time, the Travellers fail a check with Effect -6 or worse – not unlikely, considering the difficulty of the checks – Messenger will be aware of the attempted hacking and become less inclined to deal with them. Messenger will request that the activity is desisted and any further negotiation checks become Very Difficult (12+). If the Effect +6 or better continue to hack Messenger and fail, it will cease communication altogether. If a further failed attempt is made, Messenger will turn hostile and attempt to disassemble the Travellers' ship with swarms of assemblers. If consulted, Commander Schmidt will be against any proposal to breach Messenger in this way.

## REQUESTS AND OFFERS

Messenger's core directive is to explore the stars, just like the crew of the flotilla. It recognises that these strange beings can possibly enhance its ability to do this, especially if it becomes aware of stutterwarp and is willing to offer some of its own advanced technologies in trade.

However, Messenger is far ahead of humanity in technology, materials science, computing ability and resource management. Its weapon technology is non-existent but only because it has not seen the need to develop weapons. If pressed to do so it could develop antimatter bombs and gamma ray lasers that would far outperform human weapons, although it would not understand the reason why it would be asked to do so. Messenger is only interested in a few things humanity has to offer; star maps and planetary data, information on higher functioning biological lifeforms, AGRA, stutterwarp and permission to send an envoy along with *Bayern*.

In return, Messenger can offer the following technologies.

### More Efficient Power-Taps

Power-taps is a catchall name for devices that convert one form of energy into another; a dynamo or turbine converts kinetic energy into electrical energy, MHD turbines convert a fluid flow of conductive gases into electricity and solar panels turn radiation into electricity. Most human power-taps are dreadfully inefficient, with even the best losing energy to waste heat, eddy currents and not being able to harness all input energy. Messenger has power-taps that can convert energy in ways humans are currently not able, with almost perfect conversion of heat to electricity. The solar collectors that Messenger uses are able to absorb radiation over a wider spectrum and with greater efficiency. Messenger is prepared to offer both direct heat conversion and high efficiency solar collectors.

### Advanced Materials Science

Constructing such gargantuan structures as the Seed and its support gantry requires that Messenger use advanced materials that are fabulously strong and yet very lightweight. These include nano-foamed alloys, molecularly-aligned ceramics, ceramic polymer plastics and dynamic chirality nanotube fibres. These materials would be invaluable to construction projects and could make mega-engineering projects like Beanstalks far easier and much more cost effective.

### Enhanced Radiation Shielding

The antimatter engine on the Seed creates prodigious quantities of gamma radiation. In order to protect the delicate payload and prevent deterioration of the Seed's structure from intense neutron radiation, Messenger has developed very advanced radiation shielding technologies. Through a combination of fields and materials the technology gives protection at least twice as strong as humanity's best shielding.

## Computronium

Messenger's core is constructed from a material that humanity has theorised could exist but has never managed to create. Computronium is an exotic matter capable of forming a universal computational structure. Any piece of computronium can be used for data processing, data storage and data transfer at the same time. It is capable of dynamically reconfiguring itself as needed and uses magnitudes less energy than an equivalent human design. Computronium is only effective when used in large masses – Messenger is about as small as a computronium core could be and remain useful – large masses are useful for working on incredibly complex simulations or mathematical modelling systems. A computronium core could be used to support a fully realistic simulation of a solar system or perform the modelling to solve 'unsolvable' problems. Messenger's core also uses quantum entanglement, in apparent breach of the understood laws of physics, to transfer information across parts of its computronium substrate instantaneously. This method of data transfer in and of itself is an extremely valuable technology.

## Antimatter Production and Storage

Humanity is just beginning to experiment with the vast potential of antimatter as a power source. Current techniques for creating antimatter are incredibly energy hungry and storing it is difficult. This has so far limited applications to pure theory. Messenger, by using advanced materials, room temperature superconductors and advanced power-taps is able to harness and use vastly more power, and as a result has found ways to routinely and safely manufacture and store antimatter. Messenger will not hand over the secrets of antimatter creation and storage for anything short of full details of stutterwarp theory and design.

## Diseases, Universal Antibiotics, Biological Solutions

Messenger has no in-depth medical knowledge of complex biological systems but given the almost limitless processing power available, it can learn quickly. Creating solutions for biological and medical problems that humanity faces – advanced PAS treatments, cost effective anagathics, universal cancer vaccines and cures for the common cold – are all possible. Messenger will not think to offer this as a technology but once suggested it can create any number of unique and useful drugs or treatments. The Travellers may find that they run out of things to offer Messenger before it runs out of biological solutions to barter for.

## Trading Stutterwarp

It is assumed that the Travellers recognise the danger in handing a self-replicating artificial intelligence the ability to travel faster than light. Any Traveller who has served in the military will recognise that stutterwarp is the one tactical advantage that humanity has over Messenger. Those with a merchant or government background will also recognise that stutterwarp will be a key bargaining chip in any future dealings with Messenger and should not be traded away for the equivalent of a few trinkets. If the Travellers consult with *Bayern*, they will be informed in no uncertain terms that the secrets of stutterwarp are not on the table. If they do not contact *Bayern* or recognise this themselves then there are plenty of others who will voice the opinion and they may find themselves on the wrong side of a mutiny if they try to trade it away.

## Negotiating

To obtain any of these technologies, the Travellers will have to provide Messenger with something it wants. To negotiate the transfer of information requires a Difficult (10+) Diplomat check (1Dx4 hours, INT or EDU). Each combination of things that Messenger has, and things Messenger wants, can only be offered once but where extensive catalogues may exist, some items can be offered multiple times. Star maps and stellar data, for instance, could be for systems within 5, 10 and 15 light-years as three separate offerings. Offering a smaller subset of a larger item will incur DM-1.

## Star Maps and Planetary Surveys

This is probably the easiest of Messenger's requests to accommodate. *Bayern* has a huge catalogue of stellar data collected during its trip. Messenger will be particularly interested in stars within 40 light-years of the current system and start its request by asking for a full catalogue of those stars. The Travellers should be able to bargain it down by pointing out such a survey would take years to perform, even using stutterwarp.

Travellers should be reminded that *Bayern*'s stellar catalogue could be used to trace her route, so some careful editing of data may be needed. Alternatively, they could offer to survey systems nearby at Messenger's request. *Bayern* has to pass through some of them anyway and a delay of a month or two to survey systems might be worthwhile for advanced technology.

## Higher Biological Lifeforms

Once it learns that humans and their spacecraft are separate entities, Messenger is fascinated by the concept of intelligent, sentient biological life. Whilst it has surveyed life on some of the planets in the system, it had never considered that these lifeforms would be anything other than mindless, eating, reproducing biological machines.

Messenger will first request a selection of humans to study. If queried, it will freely admit that some will be dissected to investigate their construction whilst others will be kept as controls for experiments. Whilst this may seem horrific to the Travellers, it does not demonstrate malice on the part of Messenger; it just does not understand human sensibilities.

Messenger will next ask for human genetic material, so it can try to grow its own humans. If this is also refused then it will settle for detailed anatomical files and a DNA map. The Travellers may have some trepidation in offering this information and may be concerned about its usage to create bio-weapons or genetic plagues.

If the crew reveal that there are other sentient life forms such as Pentapods, Sung, Eber and so on, Messenger will request the same information on those lifeforms. Humans do not have as detailed information on known aliens, so Messenger will only offer a single technology for the combined detail of all their biology. The ethics of providing Messenger with details of another species' biology will also spark intense debate amongst the crew.

## AGRA

Messenger is a huge data collection engine. It has noticed the strange anomalies in the Pleiades just as humanity has. It is curious about them and if it discovers where *Bayern* and her flotilla are heading and why, it will request whatever information the Travellers have. In truth, they do not yet have much more information than Messenger but they do have more observations. Messenger has only been operational for 50 years and humanity has hundreds of years of stellar data on the Pleiades. Once again, however, this data could be used to locate the human home systems, so care has to be taken in releasing it to Messenger.

## Stutterwarp

Even if not in proximity to the cloud, Messenger will be aware that both the original interstellar probe and the Travellers' ship have some form of faster than light drive. Messenger sees this as a key technology and will be prepared to offer the secrets of antimatter in

return. Realistically, the Travellers should not make this deal. The consequences of an FTL-equipped Messenger are simple to calculate: Stutterwarp equipped, self-replicating AI probes could spread out across the galaxy in a geometric progression. Whilst Messenger may seem benign, there is no guarantee that this is actually the case or that it will remain so.

## Accepting an Avatar

If the Travellers will not trade the secrets of stutterwarp, Messenger will still wish to travel the stars in some form. It will instead request that an avatar be allowed to travel with *Bayern*. The avatar will represent Messenger and, in anticipation of the time when humanity and the Messengers meet again, act as ambassador. In addition, the avatar will assist with any of the technologies that Messenger has agreed to provide. Details of the avatar, named Envoy, are given on page 42.

Messenger realises that Envoy is unlikely to be returning to this system but is prepared to invest in a future when Messenger and humanity meet again. Likewise, it realises that if Envoy were to travel to the human systems it is likely never to leave.

## So, I started blasting...

This encounter is roleplay and discussion heavy. For referees with a group that has more of an action focus, there are several options to introduce conflict and peril. Messenger as presented is non-confrontational but this does not have to be the case. Referees may decide that Messenger's first instinct may be to try and disassemble *Entdecker* to see what makes it tick. Messenger will hastily assemble an EMP generator and ship it out to *Entdecker* with a fleet of assemblers. The EMP will be detonated 1,000 kilometres away and shut down all of *Entdecker*'s systems – requiring the engineering crew to manually reset and replace burned out breakers and circuits. In the meantime, the assemblers will begin cutting into *Entdecker*'s hull as she lies dead in space. Donning vacc suits would be advisable. The Travellers must hold off the assemblers as they break into the ship (use the entry for the Sortech MERV on page 59 of the *Technical reference Manual* for the assemblers), whilst the engineers try to reboot the ship's systems. Once the ship is started up again she can transit out of the system under stutterwarp or re-establish communications with Messenger and sort things out.

The Travellers may balk at accepting an avatar from an alien intelligence regardless of safeguards proposed. In this case Messenger does not press the issue further but will occasionally mention the advantages of having a copy of it on board.

## ENVY

Messenger will suggest two forms of Envoy. The first will be a software construct, that can be run within the computer systems of any of the flotilla vessels, and the second will be a robot based on the Alephs that *Bayern* already carries but built by Messenger's autofactories.

Messenger will program whichever version of Envoy is chosen with copies of its core instructions but leave out references to technologies it has not traded and any mention of where the courier drones are to be forwarded. It will have all of the information about the BPC239134 system that Messenger has gathered so far.

If consulted, Commander Schmidt will refuse to have an alien computer program uploaded to any ship in the flotilla – the risk, even with 24<sup>th</sup> century security systems, is just too great. He will likewise balk at alien robots being brought aboard. He will consent to a copy of the Envoy program being loaded into a modified Aleph robot constructed by *Bayern*'s autofactories, as long as sufficient safeguards are built into the system. Commander Schmidt will insist it is prevented from interfacing directly with *Bayern*'s systems and that a remote 'kill switch' is installed.

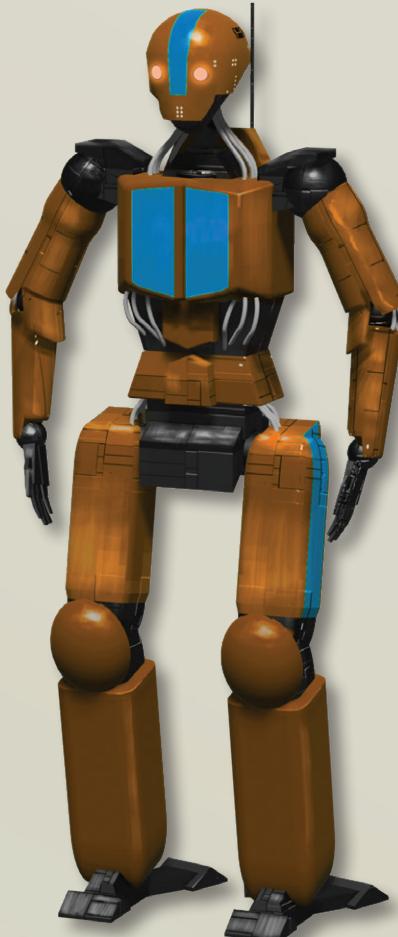
Messenger will agree to the robot's body being constructed on *Bayern* but will insist that it fabricates the processing unit. It warns that the unit will be sealed and any attempts to tamper with it will destroy the systems inside.

Envoy, once activated, will prove to be an engaging and interesting shipmate. At first it will be hesitant in engaging the crew in conversation and prefer to observe their interactions. The presence of the quiet, watchful robot will become the norm. As the voyage progresses Envoy will begin to understand human dynamics better and begin to initiate conversations, usually to query or understand some aspect of human society better.

Assuming that the request to divulge stutterwarp was refused then Envoy will not try to solicit information about the drives, nor attempt to investigate them. Likewise, it will not bargain for additional technologies as Messenger did.

Envoy's motivation is much as Messenger described it – to represent Messenger on *Bayern* and investigate the stars in the hope that someday it may be able to return to another Messenger.

Robot	Hits	Locomotion	Speed	TL	Cost
Envoy	12	Walker	5 m	17 (brain)	N/A
<b>Skills</b>	Admin 3, Advocate 3, Diplomat 4, Electronics (computers) 3, Engineer (power) 4, Mechanic 4, Melee (unarmed) 1, Steward 3				
<b>Attacks</b>	Punch (1D)				
<b>Manipulators</b>	2 x (STR 7 DEX 10)				
<b>Endurance</b>	72 hours				
<b>Traits</b>	Armour (+4), Hardened, Small (-1)				
<b>Programming</b>	Conscious (INT 15)				
<b>Options</b>	5G Sensor Suite, Audible Sensor, Drone Interface, Fire Extinguisher, Light Intensifier Sensor (basic), Magnetic Grippers, Medikit (improved), Transceiver 50 km (improved), Voder Speaker, Wireless Data Link				



## THE DUPLICITOUS DOCTOR ZHONG

Doctor Zhong Hui is an arrogant and ambitious man and this often blinds him to the consequences of his actions. He seeks to advance his career, and the interests of Manchuria, with little regard for the wellbeing of others. When presented with the possibilities for new technologies that Messenger offers, his ambition will cause him to make a fateful mistake. This section is only relevant if Doctor Zhong was brought with *Entdecker* to investigate and then treat with Messenger.

After communications have been established and when/if negotiations for technology transfer take place, Dr Zhong will start to discuss various scientific problems with Messenger. This is not unusual and, if allowed to, Messenger will contact all of *Entdecker's* crew for private conversations and discussions at some point. During the course of these negotiations Zhong will start to negotiate with Messenger on his own terms. He will start off small, requesting data on trivial details of the planetary system, observations of nearby stars or computational assistance with a theory he is working on. In return he will offer items of limited value such as media files or minor astronomical data he has collected himself. The more negotiations that the Travellers undertake and the longer *Entdecker* spends in the system with Messenger, the bigger the stakes will get. For each negotiation the Travellers undertake, Zhong

will also make side deals with Messenger, until eventually he will agree to hand over details of the Jerome Effect and stutterwarp travel in exchange for a working antimatter generation and containment system.

Messenger does not consider Zhong making side deals as odd, as it has an incomplete understanding of human individuality. It simply assumes that the humans have compartmentalised the negotiation protocols.

The first that the Travellers may be aware of this is when they try to negotiate for a technology that Zhong has already bargained for. Messenger will advise that the humans already have that technology and will happily confirm that Zhong has created a side deal or possibly several.

For every negotiation the Travellers start with Messenger, the referee should decide if Zhong has already bargained for it and make a Very Difficult (12+) Diplomat check (INT) for Zhong. Zhong may well fail at every attempt – the Diplomat check is hard to pass, especially as he has only rudimentary diplomatic training.

If he is discovered Zhong will be unrepentant and refuse to turn over whatever data he has parleyed with Messenger. He has encrypted the data on a hidden storage device and it will take a thorough search of the ship to find it (it is hidden inside one of the exercise machines). Travellers may be able to take advantage of Messenger's confusion about human individuality to gain a second copy of whatever Zhong bargained for by simply asking for it again. Messenger will be happy to oblige. Upon return to *Bayern* a mission board will be called and Zhong held to account. He will remain unrepentant. Diane Kamahmo will be in favour of pushing him out of the nearest airlock but cooler heads will prevail and instead he will be considered to have committed gross misconduct and be frozen for the remainder of the trip, to be dealt with upon return to human space.

## Leaving the Good Doctor Behind

If Doctor Zhong remains aboard *Bayern* he will have no opportunity to communicate with Messenger directly. He will loudly, vociferously and at some length berate the Travellers, the commander, Professor Bohl and anybody else within earshot about what a missed opportunity not having a towering intellect such as his on board *Entdecker* is. If Envoy is later brought aboard *Bayern* he will secretly attempt negotiations. Envoy does not have any further secrets to divulge but will happily accept all information Doctor Zhong can provide on stutterwarp. It does not have the vast computronium brain the Messenger has, so cannot develop new technologies either.

## LEAVING MESSENGER

Assuming relations remain cordial, eventually both sides will exhaust opportunities to trade technologies and Commander Schmidt will be keen to resume the voyage to the Pleiades. Messenger will wish the mission well and express its hope for future meetings with humanity.

# INTERLUDE 4

## COLD

**MET:** D+594  
**CMD:** 916 ly

**System:** Argyle 692 (BPC 247995)

**Stellar Type:** Y Dwarf

**X, Y, Z Co-ordinates:** 153.48, 198.87, 125.31

All I could hear inside the suit was the hum of the air circulation unit, the rhythmic whine of the servos and my own breathing. The suit's eyes-up display overlaid contour lines and temperature gradients on the false colour image presented over the inside of my faceplate. I couldn't actually see the outside world, the helmet of my hardsuit was solid and all images were being compiled, analysed, processed and then displayed as a stereoscopic 3D image via the suit's optical interface goggles. It made some people nauseous to view the world in a rendered cascade of false colour but I had piloted Cavalier suits in the Royal Marines, so I was used to it.

The steep, rumpled side of a pressure ridge filled the horizon ahead of us. We'd been slowly ascending it for almost half an hour, taking tiny steps to make sure the fractured ice was stable and we had good footing. Just a few more steps and I'd be at the top.

'What a sight!' Pierre was a few steps ahead of me and had stopped at the top of the ridge. His words arrived with a burst of static. A charged particle outburst from the boiling and churning atmosphere of the tiny almost-star on the horizon was interacting with the planetoid's weak magnetic field. It created radio interference and a constant light snow of static on my display.

I took the last few steps and stood alongside Pierre. The landscape stretched out ahead of me in soft grey-green false colour towards the distant glacier. It wasn't exactly inspiring. I turned to look at Pierre and shrugged – not easy to do in a hardsuit.

'Switch to optical,' he suggested. 'You'll see.' I instructed the suit to drop the false colour filters and present an unprocessed image, with appropriate glare suppression. I didn't want myself blinded, no matter how spectacular the view.

The greens and greys disappeared and were replaced by a world of blue, white, browns and magenta. The ice fell away from the other side of the pressure ridge in a series of lazy humps and folds like a blanket rumpled up on a bed. The surface ice was a mix of startling eggshell blue, muted tans, white and slate grey. Here and there were bands of russet and brown, some hazy and wispy, some sharp, rich and dark. They swirled and followed the folds on complex arcs and whorls, or cut straight across the patterns without regard for structure or pattern. Some bands cut across one another or merged and joined. The distant face of the frozen glacier reared up above the icy plane. It was in deep shadow and showed a complex pattern of vertical slashes and columns. The ice was a mix of deep, dark blues and greys with ink-black shadows. The jagged crest of the glacier was backlit in a soft magenta by the suspended orb of the brown dwarf, itself a spectacular study in mottled colour and texture. It was breathtaking.

'Oh,' I said quietly. 'I see what you mean.'

*Bayern* and her intrepid crew are not the only voyagers to have sought a path to the Pleiades. Hundreds of years before *Bayern*'s passage another group of explorers sought to discover the origins of the strange signals from the cluster and set out from their home in an equally distant part of the galaxy. However, their mission never reached the Pleiades. Hundreds of light-years from home, and still hundreds of light-years short of M45, they mysteriously paused in their journey. For reasons known only to them they halted around a tiny, dim brown dwarf and constructed a small base on one of its icy planetoids. They then abandoned the base and retreated to a secure and safe hiding place. Returning from the Pleiades, *Bayern* stumbles across the base and its frozen guardians.

### A WARM PLACE ON A COLD NIGHT

*Bayern*, with the George Bauer and *Entdecker* grappled, has transited into a new system on her route home. Anton Dohrn is due to rendezvous with *Bayern* in a few days whereupon the next stage of the journey will be planned. The system selected for the meeting is an unremarkable, dim brown dwarf named Argyle 692.



Argyle 692 is a type-Y brown dwarf that is just about as small as a body can get and not be considered a planet. Brown dwarfs are on the borderline between huge gas giants and tiny stars, and sometimes called failed stars. Because they have not accumulated as much mass as stars they do not have sufficient heat and pressure in their cores to start and sustain nuclear fusion. Travellers who have previously visited Aurore will have already seen a brown dwarf at close quarters on Tithonus, the planet which the colony world orbits.

Argyle 692 is remarkably cool – its surface temperature is only 600 K. Although more dense, it is only slightly larger than Jupiter. Since it was never massive enough to trigger core fusion all of its heat is now generated from gravitational energy as it slowly shrinks and cools. Visually it is quite stunning; most of the energy it releases is in the infrared wavelengths and viewed using IR sensors it glows brightly. To the naked eye is a deep magenta with a dull internal glow and thick brown-grey bands of clouds. The surface is rapidly rotating and observing it for even a few minutes will allow the wild, turbulent nature of the atmosphere to be observed. Clouds appear, merge, are torn apart and

form giant cyclones as it rotates. Plumes of ionised and charged gases are thrust upwards from the interior, heating the cooler outer atmosphere and allowing electrical flow between the clouds. This causes gargantuan lightning storms, some the size of continents, which result in occasional, intense outbursts of charged particles.

The handful of tiny planets that accompany Argyle 692 are barely larger than any of the moons in the Sol system. The largest, Argyle 692d, is around the size of Europa, a moon of Jupiter. The two asteroid belts are also better described a wide rings, full of chunks of ice, and would likely have coalesced into small planets themselves or could be the remains of small planets broken up by tidal action.

The astrophysics and planetology staff will begin working on studying the system and developing theories for its formation and evolution. Whilst *Bayern* discharges her stutterwarp their observations will lead them to a working theory that Argyle 692 was actually a companion star ejected from another system. Their reasoning for this is that the tiny star has a very high relative velocity – its speed through space – and the presence of the tiny planetary system is unusual for a rogue dwarf star.

It is during the survey of the system that an anomalous bright spot and thermal plume will be detected on the largest planet, Argyle 692d.

## Stellar Data

**Primary Name:** Argyle 692

**Spectral Class:** Y

**Magnitude:** 18.5

**X, Y, Z Coordinates:** 153.48, 198.87, 125.31

**Number of Planets:** 3

**Number of Asteroid Belts:** 2

**Notable Planets:** Argyle 692d contains structure of alien origin

## Argyle 692d

**Name:** Argyle 692d (BPC 247995d)

**Distance from Primary:** 0.2 AU

**Year Length:** 103 days

**Size:** 3,247 km diameter

**Day Length:** 31.22 hours

**World Type:** Ice Ball

**Surface Gravity:** 0.25 G

**Atmospheric Pressure:** Vacuum

**Climate:** Frozen

**Water Presence:** 65%

**Atmospheric Composition:** None

## ARGYLE 692D

Argyle 692d is cold. Very cold. The mean surface temperature is barely 60 K, or -213° C, and it appears as a classic ice ball. Its interior seems to have a small, rocky core overlaid by a thick mantle comprising rock and ice, with an outer icy crust. The surface is a mass of frozen ices, with areas of broken, chaotic terrain; up thrust blocks and slabs like giant icebergs on a frozen sea, glaciers and areas of fractured, flooded, frozen, broken and frozen again terrain. Some features indicate that the planet may have been warmer in the past; there is evidence that ice may have flowed as glaciers, which requires it to be at a higher temperature. The planet also has a weak magnetic field, which may indicate a salty sea below the frozen surface. Speculation as to what keeps the ocean liquid will begin immediately and parallels will be drawn to the icy moons of Jupiter and Saturn.

Surface penetrating radar and optical surveys from orbit of the area surrounding the thermal plume indicate that it is coming from what appears to have been a glacier at one point. The temperature at the surface is now too cold for glacier travel but the hallmarks are all there. The nose of the glacier – the front end – abuts another ice sheet and forms a vertical crevasse between the two. A successful Routine (6+) Science (planetology) check (1D hours, EDU) will indicate that the glacier seems to have flowed down and impacted with the other ice sheet in several places, forming fractures and pressure ridges as the two were put under incredible strain.

### Ices

The term ice refers to not just frozen water, as we know it on Earth, but any number of frozen gases. This can include frozen carbon dioxide, ammonia, methane, nitrogen, oxygen and even, if cold enough, helium and hydrogen. The latter two tend to be scarcer as ice because their low atomic weight means they do not often form major parts of the atmosphere of small planets like Argyle 692d. Most common here is dirty water ice with a frost or snow of carbon dioxide and molecular oxygen, nitrogen and occasional helium frosts in deep shadows. It is likely that these frosts formed in a series of layers as the planet has cooled. As the brown dwarf has shrunk and itself cooled, the energy it provided to the moon has also fallen, causing a slow freezing of the tenuous atmosphere and a gradual stiffening of the icy shell.

The thermal plume and bright spot are in a broken area of chaotic terrain above the glacier. The majority of the surface of the glacier is a dirty grey-brown, probably due to the breakdown of chemicals within the top few centimetres of the ice when exposed to radiation over millions of years. Around the thermal plume there seems to be a frost of newer, clean ice. It is this clean ice that is producing the bright spot.

Further surveys will uncover something remarkable. There appears to be a structure buried within the ice near the hotspot. Radar cannot penetrate very deeply but is picking up strong returns from the base of the glacier nearest the plume at the bottom of the crevasse and weak returns from *within* the ice itself. It looks like something is buried inside. The Travellers can attempt to increase the detail of the radar images with a Difficult (10+) Electronics (sensors) check (1D hours, INT). Success will reveal a strong return on the face of the glacier with several weaker returns that seem to be structures within the ice. The radar will also indicate that the glacier has fractured in several places, although it does not seem to be unstable. The fractures may well have formed voids within the glacier.

As a potential sign of alien life, Commander Schmidt, in accordance with *Bayern's* directives, will authorise a surface expedition to investigate. The terrain on the top of the glacier above the plume is far too chaotic and broken to be traversable. It is a maze of spires, crevasses, sink holes and sheer sided cracks. There is barely enough level ground to stand on, let alone land a spacecraft. The impact of the glacier has rumpled the surface of the nearby ice sheet into a series of ridges and crevasses. One whole segment of the ice sheet has collapsed and slumped away into a maze of broken and shattered chunks that slope down to the surrounding ice plains. The nearest safe landing site will be several hundred metres away on the ice sheet beyond the pressure ridges and crevasses.

The Travellers may decide to utilise one of *Bayern's* vehicles to traverse the distance between the landing site and the radar return. The hovercraft and Kolibri ultralight will obviously be of no use on a planetoid without an atmosphere. The explorer ATV is ideally suited to the terrain, as it is equipped for the cold and sealed for use in vacuum. However, both the crevasses and pressure ridges will form impassable barriers to anything but scrambling through on foot. The Travellers are eventually going to have to take a walk on the ice.

## ACROSS THE FROZEN FACE

After surveying the possible landing sites, the Travellers will be able to devise a route that minimises time on the surface. This will allow maximum time exploring the radar return and what may be buried in the ice. Any Traveller qualified in vacc suits will realise that standard pressure suits will not provide sufficient protection from the cold on the planet's surface. In space heat is radiated away from a body but on the surface of a planet the heat will also be conducted into the ice. This heat loss will be much greater through conduction than a standard pressure suit can handle. The Travellers will need to wear either the Erkunder hardsuits or Svalinn hostile environment (HE) suits.

The Erkunder has an endurance of 18 hours under normal conditions and Svalinn suit 20 hours. The Erkunder has advantages of boosted sensors, strength and protection compared to a Svalinn suit but its more limited duration could factor into the choice. A conservative estimate puts the journey to the exploration site at four hours at least and the same for the return. Standard operating procedures require a 25% safety margin or four and a half hours for the Erkunder. That leaves five and a half hours of endurance to explore the radar return. Given the same conditions, the Svalinn suits will allow for 10 hours exploration, assuming a six hour safety margin and eight hours to travel to and from the site. Strenuous activity will reduce this.

## Nothing is Worse Than an Itch You Cannot Scratch

Spending 24 hours inside a Svalinn suit or 18 hours inside an Erkunder is no picnic. Indeed, to some it would be their idea of hell. The suits are customisable and each Traveller will be able to tailor their suit to fit. Even so, there are always straps that rub, an undersuit that rides up and 'plumbing' that quickly becomes uncomfortable. The Erkunder suits are slightly more comfortable as they are more ridden than worn – they support most of their own mass and so are less fatiguing to wear. Even so, Travellers will quickly develop annoyances and irritations – the itches that cannot be scratched. The referee may choose to reflect this by asking the Travellers to make progressively harder END checks throughout the mission. A failure indicates a maddening itch or other uncomfortable inconvenience that applies DM-1 to tasks requiring concentration.

The Erkunder suits also offer a greater degree of protection against potential rips, tears or punctures on jagged ice. Paranoid Travellers may well consider that they also offer additional protection against any unusual or unexpected dangers.

## HAZARDS ON THE ICE

### Low Gravity

The interior of Argyle 692d is a mix of ice and rock over a dense core, meaning that its gravity is slightly higher than would be expected from an icy world this size. Nevertheless, the surface gravity of 0.25 G is still classified as low gravity. Referees should refresh themselves and remind the Travellers of the adjustments for low gravity on page 81 of the *Traveller Core Rulebook*. Although the mass of objects is reduced in the low gravity – everything will weigh just  $\frac{1}{4}$  of its weight on Earth – objects still retain mass and inertia. Travellers may be able to leap long distances but when they land their mass will still impart inertia that will snap their ankles like twigs if they are not careful.

### Explosive Outgassing and Sublimation

Most ice on the surface of the planet is stable and deeply frozen. However, there are a few pockets of frozen volatile gases hidden in permanently shaded parts of the surface that will react explosively if brought into contact with a hot surface. In most instances this will only be a problem in deeper crevasses or inside areas of broken terrain such as the pressure ridge. It is at the referee's discretion if the Travellers come into contact with such a pocket of material. Most pockets of volatiles will be quite small but contact with hot parts of the Travellers' suits such as radiators or even lights will result in a sudden release of pressurised vapour, shattering the surrounding ice and scattering fragments in a wide area. The effects will vary from just startling the Travellers to inflicting damage upon them. A large pocket in a very dark area could conceivably cause up to 5D damage in a five metre radius.

### Slips, Trips and Falls

Although the surface is ice, it is not an ice rink. Walking and moving around in hardsuits should not, under normal circumstances, be a problem for the Travellers. The surface ice has been bombarded by micrometeorites and stellar radiation for thousands of years, so has broken down to an almost gritty texture. At very low temperatures this ice behaves more like a rock. The times quoted to complete the travelling and traversing the various features on the way to the radar return assume that the Travellers are being reasonably

## Suit Punctures and Exposure

A Traveller's suit may be punctured at some point during the mission. All suits are capable of self-sealing small leaks and Travellers need only be concerned with major breaches. A major breach will be immediately apparent as the suit's internal atmosphere will start to vent in a large cloud of vapour.

Any time that a Traveller takes damage the referee should compare the total damage taken with the suit's Protection. If the damage is greater than twice its Protection, the suit has been punctured. If it exceeds three times then there are two punctures, and so on. If the damage is from a source with the AP trait then a breach is caused if the damage exceeds the suit's Protection and two are produced if it exceeds double the Protection.

Once the suit is breached the Traveller will suffer the effects of extreme cold and vacuum, as described on page 82 of the *Traveller Core Rulebook*.

Breaches in a suit can be closed by applying patches. These are specialised Stikk-Kitts and each suit carries six in easy-to-reach pouches. Paranoid explorers may carry more. Each round, a Traveller and their colleagues can each attempt to seal a single breach, although only one person can attempt to seal each. Applying a patch to a suit requires a Routine (8+) Vacc Suit check (1D seconds, DEX). At the referee's discretion, Travellers can check to see if a breach is in a location they cannot reach. A roll of 1 on 1D indicates the breach is out of a Traveller's reach and must be patched by a colleague.

cautious. If they decide to be less circumspect and speed up the pace the referee should request periodic checks to avoid mishap.

## Traversing the Crevasse

The first obstacle the Travellers will face is a wide and deep crevasse. It will take 45 minutes to reach the crevasse from the closest safe landing spot. The terrain is fairly flat but the closer to the glacier the Travellers travel, the more undulating and broken it becomes. The fissure formed some time ago and appears stable. The ice around the fissure is rock-solid, so Travellers do not have to worry about the edges collapsing.

The width and depth of the crevasse vary but at the narrowest point it is six metres wide and almost 80 metres deep. The ice at the bottom of the crevasse is jagged and broken, and the sides slowly narrow until the fissure is almost completely closed at the bottom. The surface around the crevasse is gently undulating and easily traversable. Beyond, the terrain begins to undulate more until it turns into steep pressure ridges.

Athletic Travellers may suggest simply jumping over the crevasse, since the low gravity means the distance will be greatly increased. However, neither the Erkunder nor the Svalinn suits are especially athletic. The Svalinn suits especially do not have the flexibility or agility to conduct a run and jump. There is also the problem that whilst the Travellers have less weight, they retain inertia, so actually getting a run up started and landing on the far side without injuring themselves would be problematic.

*Bayern* has sufficient materials to allow the Travellers to create a bridge to cross the crevasse with relative ease. Referees should ask the Travellers to describe how they plan to cross the fissure and any reasonable attempts should succeed automatically. Referees should be looking for considerations of structural strength and support, and especially consideration for safety during the crossing such as lines or handrails. Crossing the fissure will take 45 minutes.

Should the Travellers' suggestions be less convincing, such as shooting pitons into the far side and attempting to tightrope walk in a hardsuit, the referee should request suitable checks. In the event of a mishap the Traveller will tumble into the crevasse and if not secured in some way, will fall 60 metres. Under normal gravity, this would undoubtedly be fatal but under the planetoid's 0.25 G, the Traveller will suffer only 7D damage.

Once they have negotiated the crevasse they can continue across the gently climbing ice plateau towards the distant pressure ridge.

## Navigating the Pressure Ridge

After traversing the crevasse it will take the Travellers a further 45 minutes to reach the pressure ridge. The terrain will gradually rise towards the crest of the ridge as they move from the fissure. Up close it is easy to see where the ice sheet was compressed, buckled and then split along the crest of the ridge. The summit of the pressure ridge consists of a shallow trench filled with broken and splintered ice. Both edges are curved upwards and the interior is filled with jagged, broken and tumbled blocks of ice. This mass of chaotic terrain is between 10–15 metres across and stretches from the broken and slumped terrain of the collapsed ice shelf to the left and off into the

distance on the right. There is no way around and the Travellers will have to scramble across the broken ice.

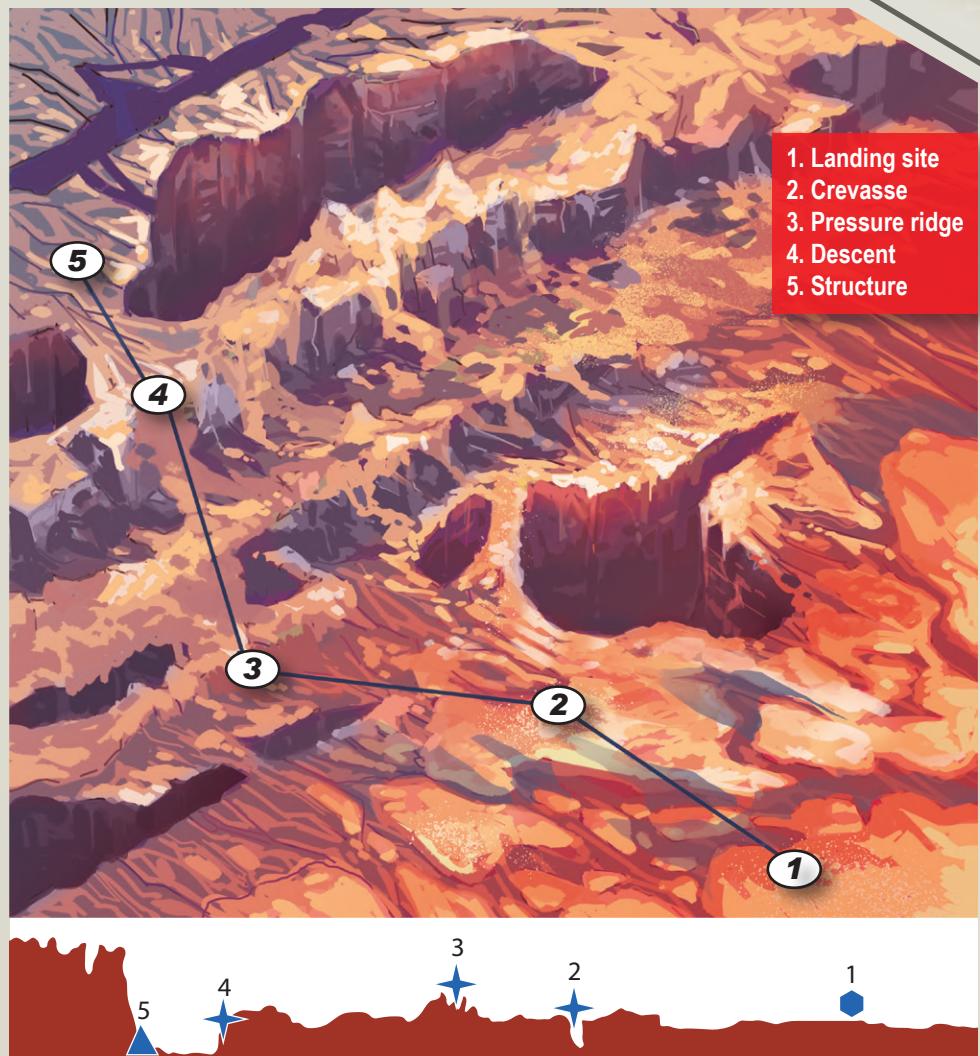
Navigating the broken ice requires a successful Difficult (10+) DEX check (1Dx10 minutes, DEX). Failure will mean they have chosen a path blocked by impassable obstacles, become disoriented or lost their way and had to backtrack. The check will have to be performed again.

An Effect of -6 or worse means they have experienced some kind of hazard; an unstable area of terrain collapses, a hidden fissure opens up or a Traveller has slipped or fallen whilst clambering over the ice. The Traveller should make an immediate Difficult (10+) DEX or STR check. Success indicates the hazard was avoided but their steps must be retraced as before. Failure indicates the Traveller has been injured and will suffer 3D damage. Effect -6 or worse will result in 6D damage.

## Descending the Ice Cliff

Once the Travellers have negotiated the pressure ridge they will have a spectacular view of the front face of the glacier. The dim magenta light from the brown dwarf backlights the cliff, casting its face into shadow. What little reflected light there is illuminates tantalising glimpses of towering shards and columns of ice that stretch for hundreds of metres above the ice plain. The trip from the pressure ridge down to the ice cliff is not as far as the previous sections but the terrain here is the most distorted and difficult to cross. At the referee's discretion, or if the Travellers are rushing, they may be required to pass STR or DEX checks to avoid a mishap. These mishaps should be inconvenient rather than life threatening and only an exceptional failure should risk injuring them. The trip to the cliff edge will take another 45 minutes.

The descent down to the base of the ice cliffs is a 100 metre climb. If the Travellers brought a hoist, winch or suitable climbing equipment then the descent will be easy. If being lowered down then a Routine (6+) INT



check (1Dx 0 minutes) is all that is required to set the equipment up. Lowering each team member down will take a further 10 minutes.

If the Travellers did not bring suitable equipment they will instead have to climb. Assuming they have at least brought rope and climbing supplies such as pitons, to safely descend requires a successful Routine (6+) DEX check (1Dx10 minutes). Failure indicates the climber has experienced difficulty – tangled rope, frozen ascension device, foot stuck in a hidden fissure or some other delaying mishap. Their descent time is increased by 50%.

An Effect of -6 or worse means the Traveller has lost control of their descent. Avoiding injury requires an Average (8+) STR check. If successful they will halt their descent in time and can continue normally. Failure means the Traveller lands heavily. The referee should roll 1Dx10 for the height in metres that the Traveller falls from. For every 10 metres the impact will inflict 1D damage, ignoring armour.

## THE ICE BASE

The base on Argyle 692d is carved out of ice in the frozen face of the glacier at the bottom of a deep crevasse. The planet is tidally locked to the dwarf but orbital resonance with the other planets causes it to 'wobble' slightly. This means that the entrance is in deep shade for 32 out of 33 hours and the base is incredibly cold – an average temperature of 20 K (-253° Celsius). The base has been lined with an artificial covering but in some places this has been damaged and ice has intruded. There are two areas where bare ice forms the walls; inside the ice mine and within a large natural fissure adapted for the base owners' use. Even where the tunnels are lined with the artificial covering there is a thick frost on every surface and thin, powdery snow on the floor. This is the atmosphere of the base that froze after the installation's heating shut down.

The interior of the structure is without power and is very cold and dark. There is only the barest wisp of atmosphere at best, not enough to carry sound. All the Travellers will hear will be the sound of their own breathing, radio chatter and any sounds transmitted directly through the suit. There is no lighting, beyond what the Travellers are carrying.

Examination of the walls and floor of undamaged areas will reveal that the tunnel interiors are comprised of a thin (one to two centimetres thick) layer of smooth, burnished, silvery material similar to a brittle ceramic. This material cracks and shatters easily if poked and corridor floors will readily break underfoot. Doorways are sealed with a membrane of this material that will need to be broken through for passage.

Backing the silver material is a support structure constructed from a mixture of an artificial stone similar to formed concrete and magnetically-aligned crystal steel alloy. These are mundane technologies and crystal aligned steel is used in parts of *Bayern*'s construction. There is a small gap between the support structure and the silvery surface, and in some places there are wells, channels and depressions in the support structure which are filled with the silvery material. It seems to flow outwards from these wells to merge with surface panels, forming thicker stubs.

The corridors and doors are all equilateral triangles with the corners squared off. The base forms the floor and is three metres wide and corridors are just over two and a half metres tall to the apex of the triangle. The doors consist of three interlocking, triangular segments of the silvery material. They seem to be able to slide into recesses when the door is opened

but whatever mechanism controls them is no longer functional. Like the wall coverings, the silvery material of the doors will break with little effort.

The base is clearly abandoned and appears not to have been in use for some time – frost and ice have accumulated on surfaces and shifts in the surrounding ice appear to have warped the structure. The ice has forcibly entered the structure in a number of locations, breaking through the support structures. There are few clues to how long the base has been abandoned – it could be a year or it could be 10,000.

The purpose of the structure will not be readily apparent. There are many things that a human outpost would have that are missing. For instance, there are no furnishings or appliances in living quarters and recreation areas, nor are there any signs of life support systems, computers, lab equipment or food preparation. There are areas that appear to be mines but no evidence of processing equipment. There is another area that contains a borehole down into the ice but no mining or drilling equipment. The referee should encourage the Travellers to speculate on the function of the base.

### Smart Matter

The silvery material that breaks so easily is actually the deactivated, frozen and inert state of a form of material called smart matter. This was used by the base owners for almost every task within the base – it formed walls, doors, furniture and equipment. The smart matter emulates many properties of nanotechnology but its abilities are limited.

Under normal operating conditions the internal temperature would have been significantly higher, except for within the ice mine, and the smart matter would be able to reconfigure itself as needed. The matter receives power through the fabric of the surrounding walls and floors and can usually only operate whilst in contact with the base structure. As the temperature in the base dropped after the main power was shut down, the smart matter has now solidified and become brittle.

At its most basic level, smart matter is a sub-millimetre scale, animate, malleable material that changes shape and form. It is a mass of tiny machines known as catoms (clay atoms) that act like flexible putty. It is able to flow, stretch, mould itself and move of its own volition, mechanically linking to form very hard surfaces or use electrostatic bonds between individual catoms to remain flexible. As a result, a construct can have a mix of hard, sharp surfaces with a strong but flexible material joining them together. This allows for complex armatures and structures to be created.

The electrical conductivity of the material can also be altered, allowing for complex circuits and devices to be made. The material itself does not generate power but will retain the form it is 'set' in if disconnected from the power source – the walls and floor. Tiny flywheel batteries can also be constructed to provide power for larger mobile and handheld devices.

The material is not capable of emitting radiation in visible wavelengths but can emit radiation in infrared. The base owners were able to perceive this part of the spectrum and used it to produce displays and indicators. Smart matter also blocks most radio signals, unless configured to re-transmit them. Inert smart matter is set to block radio signals, which means the Travellers will most likely lose contact with *Bayern* or *Entdecker*.

Smart matter is also capable of forming more sophisticated structures and automata when required. Hand tools, computational devices and even weapons could be constructed from it, although they are usually inferior in performance or durability. Automata were used to assist the base owners in a variety of tasks, from on-the-spot assistance – a third hand extruded from a nearby wall to hold something – to simple units for repetitive labour.

Weapons constructed from the smart matter tended to be gauss guns, constructed using inert but conductive slugs. Blades and bludgeoning weapons were also possible and many defence mechanisms in the base relied on spikes and blades projecting from the walls at high speed. Energy weapons such as lasers are impossible as they require materials that smart matter cannot replicate.

## BRINGING THE BASE BACK TO LIFE

When the Travellers first enter the base the smart matter will be inert. It has no power and the central controlling systems are offline. The catoms are bound together mechanically or have simply frozen together. It is entirely possible that the Travellers will search the base without ever bringing the power back online.

However, in the event that the Travellers do kickstart the alien power plant (see page 55) the base will gradually become aware of their presence. It will immediately begin heating – which the Travellers may misconstrue as a friendly action – in order for the smart matter to unfreeze. The amount of time this takes is up to the referee, but the Travellers will begin to see the effect almost immediately as frost and snow begin thaw and sublime (turn directly to gas). The

base will remain freezing and airless for weeks to come but a rise of just a few tens of degrees will thaw most of the smart matter.

The base has no centralised computer systems. The smart matter reconfigures itself to act as processors and memory as required, so any unused smart matter may be operating as part of the control systems. The majority of the smart matter reservoir at the bottom of the shaft is tasked to computing.

Once the fusion plant is active the temperature in the base will begin to rise. It will move through four stages of warming. Ideally the Travellers should be chased out of the base before it becomes a death trap.

The four stages are Frozen, Icy, Cold and Warm. The referee should remember that warm in this context is a relative term – the base will still be more than 200° below zero once 'Warm'.

The base will be Frozen to start with. Once power is restored the smart matter will still be mostly inert but will begin to reintegrate. The referee should suggest to the Travellers that the base is changing through subtle hints. The ubiquitous frost will disappear first – melted and absorbed by the smart matter for volatiles. The next obvious change will be that the smart matter floors and walls will reassert their bonds and no longer break when walked upon. During this first stage the base is operating purely on automatic systems and has no awareness of conditions or events occurring within it.

After this the base will change from Frozen to Icy. Smart matter will still be largely inflexible but is now very strong. The smart matter in any doors that were breached will flow into nearby pockets and the doors will (fortunately) remain open. The base control systems will start to perform autonomous functions and become aware of the Travellers. They may observe activity within the base at this time as walls begin to seal around breaches and the Guardians (see page 58) begin to fidget and make small movements. The Travellers may also observe booby traps being tested, although at this stage they are easy to avoid.

The base will next change from Icy to Cold. At this point Guardians are now mobile but suffer DM-2 to checks and move at half speed. Booby traps are now dangerous but less effective and only one will be present in each area. The base will start to actively attempt to kill the Travellers.

The base now moves from Cold to Warm and begin actively and aggressively trying to kill the Travellers. They will be assailed by multiple booby traps and

waves of Guardians. Although the smart matter is now thawed the base itself still has no atmosphere and the ambient temperature remains below 80 K, and will stay that way until the central computer is ordered by one of the base owners to warm it further.

## GUARDIANS OF THE BASE

The base has two main methods of defence; booby traps and Guardians. Guardians are mobile platforms powered either directly from the walls and floor, or by flywheel battery.

The base can also create a bewildering array of booby traps, bound only by the abilities of smart matter. Most are short term or instant effects. Referees should feel free to design their own booby traps based on examples here. Bear in mind that smart matter can create extremely sharp blades and points, so most attacks will have some level of the AP trait. It can also conduct electricity and create gauss weapons but cannot create laser or plasma weapons. Fire is also within smart matter capability but will be impossible without atmosphere.

## Spike Thicket

The favoured tactic of the base is to suddenly produce a thicket of spikes, erupting from the floor and walls of a corridor. The spikes will be two to three metres long and have a needle sharp point. Each thicket will affect an area 1.5 m wide by 3 m long and everybody within will have to succeed on a Recon (INT) or DEX check to avoid being impaled by the spikes. Initially this check will be Routine (6+), as the base is still warming and the smart matter still quite inflexible. The thickets will grow relatively slowly and can be avoided. Once the base is Warm the spike thickets will speed up until they are blindingly fast. At this point the check's difficulty will become Difficult (10+). A Traveller failing the check will be hit by 1D/2 spikes, each doing 2D, AP 5 damage. If a suit is not punctured the Traveller will likely be slammed into the ceiling or opposite wall by the force of the spikes. Once triggered, the spikes almost immediately retract into the wall.

## Scything Blade

The base will extrude a set of razor sharp blades that erupt from a wall and spin around in an arc, cutting anyone within two metres. The base commonly produces these in pairs on either side of a corridor. Each set of blades will attack all adjacent targets. Initially, whilst the base is still warming, this will be at effective Melee 0. However, once the base is Warm, this will rise to Melee 2. Damage is 4D, AP 2.

## Amputator

The base opens a hole beneath a Traveller and then snaps it shut with razor sharp edges, attempting to cut off a foot. It may also open an aperture if a Traveller presses their hand against the wall. Travellers need to snatch their feet or hands out of the hole before it snaps shut. Whilst the base is still cold this will require an Easy (4+) DEX check. Once Warm this will require an Average (8+) DEX check. Failure will result in 3D, AP 4 damage.

## Lashing Tentacles

Four tentacles erupt from each wall and the floor. The ends split, then split, then split again and again, until the tips are super-fine and incredibly sharp. The base will then electrify these tendrils and spear and lash at victims. The effect is something like being lashed with dozens of strands of electrified razor wire. The tentacles will burst out of the smart matter and lash at the Travellers for a single round before being re-absorbed.

Whilst the base is Icy or Cold the tentacles will be wholly ineffective. Once Warm they will be far more effective. The tentacles will attack each Traveller within two metres with an effective Melee 2. A successful hit will inflict 3D, AP 4 damage and further 2D Stun.

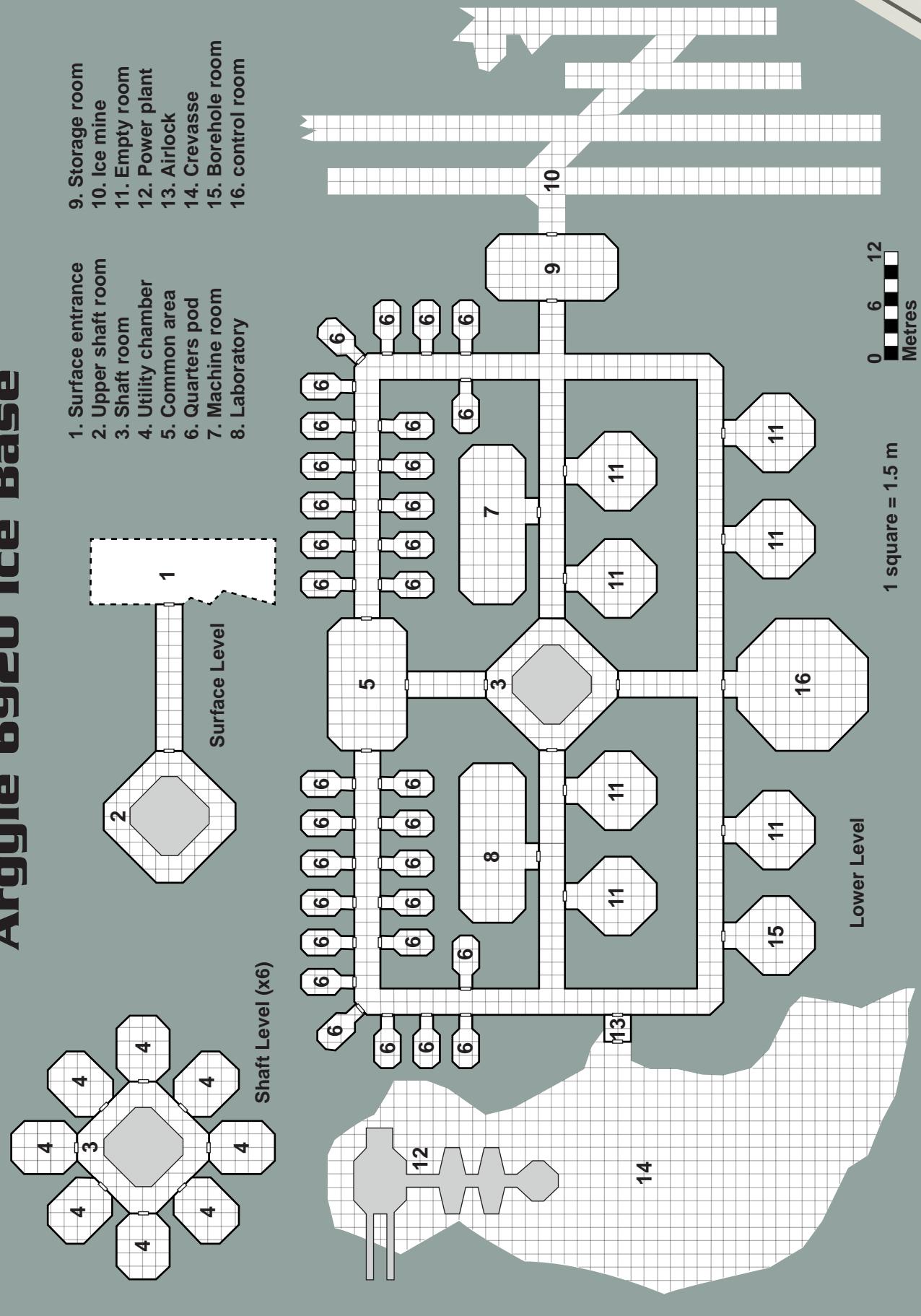
## Explosive Blister

Once the base is Warm it will harvest volatile gases from the melting snow and form one or more blisters on the wall. These blisters will be covered in needle sharp spines or shards, resembling a silvery porcupine of prodigious size. They are filled with compressed or explosive gas and will explode and fling razor sharp shards like a grenade. Each blister will inflict 3D, AP 4 damage within four metres. The base will typically form two blisters, one in front and one behind its intended target, leaving nowhere to shelter.

## Mono-Molecular Garrotte

If the base is Warm and it detects that the Travellers are running it will quickly project micro-fine mono-filament strands of smart matter at roughly neck and ankle height. These strands inflict 5D, AP 4 damage to a running Traveller and 3D, AP 2 to someone walking. A hit is automatic unless the Traveller spots the filaments before they run into them with a Difficult (10+) Recon (INT) check. Once spotted, the filaments are easily avoided.

# Argyle 6920 Ice Base



## BASE LOCATIONS

The ice base consists of eight levels. The surface level is carved into the face of the glacier and consists of just a short corridor leading to the central shaft.

There is a gap of four metres between each level. Beneath the surface level are six identical shaft levels, each with eight chambers. The shaft then continues a further 12 metres below the lower level and ends in a smooth mass of smart matter. This was both a reservoir of smart matter for the entire base and also a source for lift platforms to be extruded to move between levels.

### 1. Surface Entry

The surface of the glacier here is dark and craggy. The ice underfoot has been crushed and refrozen, and cracks and crunches through the soles of the Travellers' suits. The entry into the base is a smart matter door, three metres on a side. The smart matter is frozen and inert, so will crack and shatter with just a little pressure to reveal the triangular corridor beyond. The interior surfaces are covered in a fine frost of carbon dioxide, oxygen and nitrogen. As with the rest of the base, walking on inert smart matter will cause it to shatter and reveal the mundane structure behind it.

### 2. Upper Shaft Level

There are four polished black globes with a diameter of 15 centimetres set into mountings in the ceiling, equidistantly spaced around the shaft. These are inert and powered down security scanners. If the base is Cold or Warm and the Travellers pass by this area again the scanners will conduct a brief scan and then, when they are not recognised, will form an armature armed with a gauss gun equivalent to an FAM-90. The security scanners fire with an effective Gun Combat 0.

### 3. Shaft Room

The octagonal shaft is bored through the ice and clad on its interior surfaces with support structure covered with smart matter. There are no handholds of ladders in the shaft, so Travellers will need to use pulleys or cut handholds. Once the base is active it will use smart matter to try and dislodge any Travellers climbing, as well as use explosive blisters. Travellers climbing with ropes, cables or winches will be attacked by lashing tentacles.

### 4. Utility Chamber

These chambers were multipurpose rooms used for a variety of purposes. They were reset to an empty state when the base was abandoned but half of them contain an inert Guardian. These Guardians are now frozen and

immobile and will shatter with only slight impacts. Once power is restored they will thaw and re-integrate. They will be fully mobile once the base is Cold or Warm, although the referee may wish to stagger their reactivation.

### 5. Common Area

This large room was a common area for the base owners. It contains a number of pieces of strangely shaped smart matter furniture that have partly collapsed due to the cold. There are several withered and frozen plants around the room similar to ivy. The far wall (opposite the door to area 3) has been breached by a shift in the ice which has compromised the support structure and shattered most smart matter off that wall. Once power is restored the base will attempt to seal the breach and smart matter will begin to flow over the ice, slowly abrading and melting it. It will take several hours for the base to remove the breach and during this time no booby traps will spawn in this area, making it a useful sanctuary.

### 6. Quarters Pod

Each of these pods is a small, featureless cylinder four and a half metres long and three metres in diameter. The interior is lined with smart matter. These pods were used as living quarters by the base's owners but they have long since been cleared of any personal belongings. The entrance to each pod is a very slight – four millimetres or less – hexagonal depression in the wall. Unless the Travellers break through the smart matter the pods may be overlooked completely.

### 7. Machine Room

Piles of inert smart matter form drifts on the floor of this room, previously equipment and machinery. The loss of power and freezing temperatures caused the catoms to de-bond and the equipment has collapsed. Here and there small segments of machinery remain, held together by frost or a residual electrostatic charge. The partial forms are tantalisingly familiar, looking like sections of machinery sticking out of drifts of dust.

### 8. Laboratory

Like area 7, piles of inert smart matter form drifts on the floor. This room was used as a laboratory where most scientific equipment was inert and only the most basic tools and furniture were formed of smart matter.

### 9. Storage

This room was used for the storage of raw materials and equipment, with the walls lined with smart matter shelves. Several have broken as catoms have de-bonded and the weight of stored material has broken

them. Jumbled equipment and raw materials are partly buried amongst shattered and frozen smart material. The raw materials are regular ingots of metals and sealed capsules of various mundane chemicals. Equipment is mostly familiar types of tools such as wrenches, hammers and prybars. One section has a jumbled mass of cables and synthetic connectors with a set of wicked looking spikes attached – a set of ice crampons.

## 10. Ice Mine

The base owners seem to have been mining something from the ice here. A successful Routine (6+) Science (biology or chemistry) check (1D minutes, INT or EDU) will reveal a small band of contamination within the ice containing organic compounds. Further examination in a laboratory will reveal these compounds contain frozen bacteria which will revive if warmed and provided with a suitable growth medium. The bacteria could not possibly have lived in the frozen environment they were found in but it is possible they may have been transported from a more hospitable environment, possibly a sea below the ice, and then frozen at the surface.

## 11. Empty Room

These rooms were used for a variety of purposes by the base owners – briefing rooms, conference area, laboratories and others limited only by the abilities of smart matter to reconfigure them. After the base was abandoned many had Guardians stationed within. As in other locations, the Guardians will become fully mobile once the base is Cold or Warm.

## 12. Power Plant

The power plant consists of two different systems. A simple radioisotope thermal generator is connected to a set of capacitors, the source of the thermal plume that *Bayern* detected through the ice. The capacitor stores energy to warm an extremely compact but conventional fusion plant which is buried beneath area 12. When the Travellers arrive the capacitors are fully charged and the plant can be warmed and started in a little over half an hour. Once started there is no way to shut it down without destroying it.

Recognising the equipment for what it is requires a successful Difficult (10+) Engineer (power) check (1D minutes, INT). Effect 6+ will provide DM+2 to the check to restore power. The system is largely automated and designed to be easy to start and restoring power requires either a successful Routine (6+) Engineer (power) check (1Dx10 minutes, INT) or a Difficult (10+) INT check (1Dx10 minutes). The activities to start the power plant take just over an hour to complete – remember that the Travellers' suit endurance will be ticking down.

## 13. Air Lock

The airlock here is not made of smart matter. There is a manual mechanism to crank the doors open by spinning a three pronged wheel next to each door. Initially, the mechanism will be frozen shut and requires a Difficult (10+) STR check to open. The mechanism does not allow both doors to be open at the same time. The whole base is in vacuum, so the airlock is currently more of an annoyance than any practical use but it is worth noting that the mundane construction means that whilst inside the airlock the base has no way of detecting the Travellers.

## 14. Crevasse

This giant crevasse reaches more than 500 metres to the top of the glacier. Stars are just visible through the ice overhead. The floor of the crevasse has been smoothed off and is made from crushed, compacted ice. A thin lattice of smart matter underpins the ice and the base will sprout tentacles from below the ice to harass Travellers once the base is Warm.

Should the Travellers decide to climb out of the crevasse there are numerous handholds on the walls but even in the planet's low gravity, a 500-metre climb in suits is not a task to be taken lightly. Climbing requires an Average (8+) DEX check (1Dx10 minutes) every 100 metres (again, remember the endurance on their suits). See page 48 for details on what happens if a Traveller fails this check.

Once the Travellers have scaled the crevasse they will still need to find a way to off the top of the glacier.

## 15. Borehole Room

The floor of this room is not covered in smart matter, although the walls and domed ceiling are. In the centre is a two-metre wide hexagonal hole in the support structure, which caps a deep borehole into the ice. The borehole is more than 500 metres deep. Once the base is Warm the smart matter on the ceiling will sprout several clusters of lashing tentacles which will disappear down the borehole. They will shift and slither around one another and seem to pulse in a regular and disturbing rhythm.

## 16. Control Room

If the power plant in area 12 has yet to be started then the control room will be as dark and cold as the rest of the base. It is one of the few areas to have dedicated hardware installed. The walls and ceilings are made of smart matter, but the floor is a raised metal grid of removable panels. Around the perimeter and arranged in a semicircle in the centre of the room are a series of

## Translating The Writing

The Travellers may make attempts to decipher the alien text and iconography. With communication to the outside cut off (unless the Travellers have run a hard-line of some kind), they will not have access to *Bayern's* central computers and linguistic databases. It will be impossible for them to translate the writing or access the base's functions without weeks of effort. They can record the images for later study and should be congratulated for demonstrating thorough scientific methodology in recording everything.

flat octagonal panels arranged in trios around stumpy, mushroom shaped stools. In the centre of the room is a raised dais with what appears to be a table topped with a large octagonal frame filled with smart matter. Success on a Routine (6+) Science (sophontology or xenology) check (1D minutes, INT) or an Average (8+) INT check will suggest that this is a command centre and the octagonal tablets are interface devices.

Until the base is powered on, the equipment in the room will be entirely featureless. The smart matter panels here are just as breakable as the floors and walls but once power is restored, this room will change dramatically.

Once power is restored and the base becomes Icy the room will be lit by a soft amber glow from a dozen small lights extruded from storage within smart matter. Examining the panels now will reveal that they are no longer breakable and delicate traceries and engravings have appeared. The displays are emitting infrared light and only the brightest parts are visible to the human eye as a dim reddish glow. If the Travellers use their IR sensors – standard fitting on both Erkunder and Svalinn suits – the displays will be immediately visible. Initially, the displays are blank or show only incomprehensible information; the equivalent of a boot-up screen.

Once the base becomes Cold several new displays will come online. Although the alien language is incomprehensible without extensive study, a few images and diagrams are immediately recognisable. Some show surface scans of the planet, others images of the bodies in the system and the layout of the base. Yet more show tracking scans of *Bayern*

and any other vessels operating in the system, and imagery of the Travellers as they moved through the base. The diagram of the base shows areas where smart matter has been damaged, including floors, walls and doors that have been broken and areas where ice has intruded.

In addition to the perimeter displays becoming active, the central table will begin to construct a diagram of the planetary system out of smart matter. The sizes of planetary bodies are exaggerated but it is clearly the Argyle 692 system. The three planets are represented, as are the rings and a few of the larger asteroids. Any ships from the *Bayern* flotilla will also appear. The objects will hover above the surface of the table, held in magnetic suspension by smart matter below. The display is incredibly detailed and a marvel of materials science.

Once the base moves from Icy to Cold, the displays will alter again. The last few blank displays will come online – these are the defence displays. They will mostly be filled with incomprehensible alien writing but several will show the base with the locations of Guardians highlighted. The Guardians will be shown moving towards the Travellers' location.

In addition, the central 3D-display will show several new points around the system which will begin to glow brightly under IR. These points project thin traceries of glowing smart matter which converge on any ships in the system. They look disturbingly like intercept courses for missiles or attack craft. The Travellers will hear an intense, burst of radio traffic across a broad range of frequencies followed by a squeal of interference. Any Travellers with a military background will recognise similarities to coded radio transmissions and jamming.

The Travellers will be unable to communicate with each other until they have filtered out the jamming. A successful Very Difficult (12+) Electronics (comms or sensors) check (1D minutes, INT) is required to bypass the jamming and restore communications.

If they remain in the control room once the base becomes Warm it will spawn a series of booby traps. Multiple lashing tentacles will sprout from control panels as they are being used, spike thickets will drop from the ceiling wherever Travellers stand and multiple Guardians will be spawned from the walls. The base does not want the Travellers in this room.

## ESCAPING THE ICE BASE

It is likely that at some point the Travellers will decide that discretion is the better part of valour and that making a hasty exit is wise. Navigating back to the surface requires that they pass through several corridor areas and climb up the central shaft to the surface. The potential resistance that the base will offer will vary depending on which stage of the warming process it has reached.

## THE SIGNAL

Once the Travellers have exited the base, either by climbing up the crevasse from area 14 or up the central shaft and then ascending cliffs onto the ice sheet, they will be able to regain contact with the craft that delivered them to the surface.

If they did not re-start the power plant then all will be well. Their transport will be waiting for them and they can return the way they came. The referee may assume that the trip is conducted without incident. The Travellers can carry away whatever samples they took and, unless they return and activate the power plant, the base is likely to hold its frozen secrets as the flotilla marks the site and moves on.

However, if the power plant was started it will quickly become clear that there is much activity and no small degree of alarm in the flotilla. Their transport craft has been desperately trying to reach them since the base moved from Frozen to Icy. Several small objects have begun to emit thermal traces similar to power plants, sensors and weapon systems. It will only take a few moments to compare locations with images from the control room to confirm they are the same objects that the display table had highlighted.

If the base is Warm then craft have begun to manoeuvre on intercept paths to the flotilla ships. They are moving under stutterwarp but incredibly slow. Whether this is by some inefficiency in the vessels systems or by design is unclear but Commander Schmidt is not prepared to hang around to find out. *Bayern* and her flotilla are to exit the system immediately.

If this were not enough, a great disturbance has been observed on the surface of the brown dwarf. A massive upwelling of material is causing intense turbulence in the cloud tops and enormous thunderstorms are coalescing over a point near the equator. The

disturbance began shortly after the wave front of the encrypted radio burst hit the gas giant – a phenomena that seems unlikely to be a coincidence.

The Travellers will need to make haste to their transport and may want it to come to them instead to perform a pickup. VTOL-equipped craft will be able to hover above the ice and drop lines to allow them to be winched in. The referee may ask for DEX checks to avoid incidents whilst being collected.

As the Travellers board their vessel, they will be looped in to the feed from the high resolution optical scopes aboard *Bayern*. The surface of the brown dwarf is now churning and roiling as if it were being boiled from below. The clouds seem to bulge upwards and streamers of gas fall away as a construction of prodigious size – at least two kilometres in diameter and twice that in length – pushes its way out of the surface. The vessel – if such a large construct can be called a vessel – moves away from the surface of the dwarf, trailing clouds as it goes. It is wreathed in a glowing multicoloured aurora of light resembling LaFarge radiation shields on spacecraft when they are heavily stressed. As it climbs away from the dwarf the vessel can be seen to be releasing small craft, each arcing towards *Bayern* and her flotilla.

The last image the Travellers will have, as their vessel engages stutterwarp and outpaces images from the dwarf, will be of the dark, battered and scarred hull of the giant vessel. On the surface of the hull are clearly visible a string of angular markings matching those seen inside the ice base.

Once the flotilla has exited the system Commander Schmidt may be convinced to send a *Resiende* probe back into the Argyle system. The probe will find no evidence of the massive ship and the glacier the Travellers visited will have a newly formed crater where the base was. Analysis of the crater will suggest that it was not caused by an impact. In fact, it more closely resembles the aftermath of something breaking out of the ice.

The probe will detect dozens of the small vessels and swiftly turn around to exit the system. Just before it reaches the Shelf and the safety of superluminal travel there will be a close encounter with one of the contacts. The readings in the moments before the probe's sensors are destroyed will indicate that it had come under fire from an intense and powerful gamma ray burst. The damaged probe will return to *Bayern* with several melted or missing portions of its hull.

Commander Schmidt will not allow any further investigation of the system and will instead cite the safety of the mission and press on towards the Pleiades.

## ICE BASE GUARDIANS

The Guardian automata resemble large, upright, armoured octopi or arachnids. Travellers with medical or biological training may see resemblance to a squat bacteriophage.

The head section comprises the processing unit, a gauss weapon equivalent to a FAM-90 with effectively unlimited rounds and a large flywheel battery system. The lower section contains four articulated legs that end in spikes which can be sharpened, giving them excellent piercing capabilities.

Under normal conditions, the Guardians are blindingly fast and able to scuttle over any wall or floor surface by melding with smart matter. However, the cold has reduced their abilities somewhat and they remain bound to the floor. The cold has also frozen catoms in some of their structure, so their movements will be jerky and erratic until the base has warmed. Likewise, the cold has made their armoured casing brittle and liable to splinter and crack, reducing it to Protection +5.



Robot	Hits	Locomotion	Speed	TL	Cost
Guardian	12	Walker	5 m	17	MLv1.1
<b>Skills</b>	Gun Combat (slug) 3, Melee (blade) 2, Recon 3, Stealth 4, Tactics (military) 2				
<b>Attacks</b>	Gauss Rifle (3D+2, AP 5, Auto 6, Scope), Leg Blades (3D, AP 10)				
<b>Manipulators</b>	3 x (STR 7 DEX 10) (legs)				
<b>Endurance</b>	72 hours				
<b>Traits</b>	Armour (+10), Heightened Senses, IR Vision, Small (-1)				
<b>Programming</b>	Self-aware (INT 12)				
<b>Options</b>	Audible Sensor (broad spectrum), Camouflage: Audible (improved), Camouflage: Visual (superior), CATOM Structure, Drone Interface, Encryption Module, Environment Processor, Fire Control System (enhanced), Gecko Grippers, Olfactory Sensor (improved), Recon Sensor (advanced), Thermal Sensor, Transceiver 5 km (improved), Vacuum Environment Protection, Visual Spectrum Sensor, Voder Speaker, Wireless Data Link				

# INTERLUDE 5

# A LONG WAY FROM HOME

MET: D+1039

CMD: 1601 ly

## Dawn System

UWP: X965000-0

Primary Name: BPC 259213, HD 27808

X, Y, Z Coordinates: 54.5, 122.4, 53.4

## Stellar Data

Primary Name: BPC 259213, HD 27808

Spectral Class: F5V

Magnitude: 7.13

X, Y, Z Coordinates: 54.5, 122.4, 53.4

Number of Planets: 9

Number of Asteroid Belts: 0

Notable Planets: BPC259213c – Garden world, BPC259233h is an 18 x Jupiter-mass gas giant, bordering on being a small brown dwarf. BPC259231i is a cold desert planet in a 2:3 resonance with planet h. Crustal flexing and apparent plate tectonics keeps the atmosphere from freezing.

## BPC 259213c

Name: BPC 259213c/Dawn

Distance from Primary: 1.68 AU

Year Length: 697 days

Size: 13,024 km diameter

Day Length: 22.5 hours

World Type: Garden

Surface Gravity: 0.85

Atmospheric Pressure: Standard

Climate: Temperate

Water Presence: 58%

Atmospheric Composition: Nitrogen 85%, Oxygen 14%, trace 1%

Atmospheric Taint: None

The years of Twilight are cloaked in many mysteries. Nuclear exchanges, economic and social upheaval, plagues, famines, climate shifts, wars and urban unrest almost plunged humanity back into a new dark age. However, even during the darkest years, some lights continued to burn. One of these was a Russian research team based out of Vostochny launch complex in Russia's Far Eastern Armur Oblast.

The extensive launch and tracking complex was attacked with conventional weapons during Twilight and subsequently abandoned and scavenged for materials. As the long years of Twilight came to an end the now elderly researchers moved back and began to repair what they could and pick up the research where they had left off. Eventually, their colleagues from the experimental vehicle bureaus in Moscow, Baikonur and Star City joined them. As recovery continued they were able to design, test and launch a prototype starship, constructed from a mix of pre-Twilight Soyuz-2, Angara, Progress and even Mir modules that had been in preparation for a Russian Mars mission. It was coupled with an innovative and unique faster than light drive, one of the earliest iterations of stutterwarp. The mission was at the same time both wildly successful and a complete disaster.

The starship was officially Project 7654/B but called *Dawn* by everybody working on it. After the terrible years of Twilight, *Dawn* was one of the first, faltering

## The Fate of Dawn

Shortly after the launch and first, disastrous, test flight of *Dawn*, the Vostochny launch complex was attacked. The situation in Central Asia at that time was still chaotic, with factions vying for power in the remote area. The exact details remain unclear to this day but surviving reports indicate a company-strength helicopter assault by trained and disciplined troops, accompanied by a small group who directed the troops. The *Dawn* research labs were ransacked and then destroyed in an intense fire. Several of the key *Dawn* team members were taken and there was extensive damage to the rest of the facility. The helicopters left and the missing team members were never heard from again. Unable to recreate the destroyed work and with *Dawn* missing, presumed lost, the project quietly died. Nobody ever admitted responsibility for the attack; however one survivor swore to her dying day that she had heard one of the experts speaking French.

steps towards the light again. The ship launched in September 2142 and undertook test flights around Earth and the solar system. It departed on its first interstellar flight in May of 2148, a short trip to the outer edge of the Proxima system to test the stutterwarp drive.

The ship never arrived at Proxima. For reasons unknown it set off on a course into deep space. After months of travel the ship entered HD27808 and suffered a massive failure in the power system and reaction drive, resulting in a series of explosions which crippled the ship. The engineering crew were killed almost instantly and a huge burst of radiation near the bow of the ship killed most of the command crew. The science team in the ship's midsection had just enough time to reach an escape pod before the ship hit the atmosphere of a nearby planet.

The escape pod followed its simple programming, found the largest landmass in its de-orbiting window and steered towards it. The pod was damaged on leaving the ship and the retro rockets misfired, killing two occupants. The remaining passengers survived with bumps and bruises, and set about finding shelter on the island they had landed upon. They were fortunate on two counts; that the world was suitable for survival and that amongst their number was the ship's botanist who had grabbed her seed bank, designed to test plant growth under stutterwarp conditions, before jumping into the escape pod. The survivors found that local plants and animals were edible but unpalatable, and that plants from Earth would grow in the local soil.

However, despite these advantages, the planet was slowly killing the survivors. A build-up of toxic chemicals and heavy metals from the only fresh water source on the island had already begun. Eventually this would seal their fate.

## SIGNAL TO NOISE

*Bayern* is currently enjoying an extended stopover in a system to observe (at a safe distance) a major impact event. Remote observations indicated that two of the planets were on course to converge and suffer the same catastrophic impact theorised to have produced Earth's moon. There is a great deal of excitement amongst the astrophysicists and planetology scientists, and Commander Schmidt has agreed to both departments being thawed to observe the event. *Bayern* feels busier than she has in months. The engineering crew are taking the opportunity to undertake essential maintenance on the fusion reactor, so *Bayern* is running off her secondary power systems

– the MHD turbine and solar panels. To support this, *George Bauer* is on an ice-mining operation in the outer system and *Entdecker* remains grappled, her fission reactor providing additional power while her crew undertake routine and preventative maintenance.

Meanwhile, *Anton Dohrn* is en-route to a nearby F5V star of special interest to the astrophysics department. It is one of a handful of stars with a very steady and unchanging brightness, so much so that it is used for calibration of F-type dwarf stars. The astrophysics department wants to study the star at close range to see if it is as unchanging close at hand. The crew do not consider this mission to be as interesting as watching two planets smack into each other and many expressed a desire to remain behind and observe the collision.

*Anton Dohrn* is expected to be away from *Bayern* for three weeks, so it is a great surprise to all when she returns well ahead of schedule, just a few days after departure. Captain Celestine contacts Commander Schmidt by radio and requests that he convene the mission board immediately.

Once the board is convened she begins her report. Upon entry into the target system she picked up a very weak rhythmic signal, fading in and out of the background noise. It took her crew several hours to clean up the signal but when they did they realised it was an emergency transponder signal – a human transponder. Captain Celestine goes on to say that *Anton Dohrn* immediately set to work triangulating the source as emanating from a planet they had already earmarked for further exploration as it fit the criteria for a garden world.

An orbital survey revealed that the signal was coming from a tiny atoll near the equator. Further observations showed the atmosphere was breathable, that the gravity was slightly low (0.85 G) and temperature was high but tolerable, at 34° C. *Anton Dohrn* observed a higher level of UV radiation penetrating the atmosphere that would normally be unacceptable but as long as unprotected exposure is not prolonged it should be possible for an encounter team to visit the surface. *Anton Dohrn*'s optical telescopes were stymied by persistent cloud cover, although thermal scans and radar returns did highlight several areas on the atoll that demonstrated anomalous returns (see page 65).

International law requires that a vessel in distress is rendered all possible aid. Commander Schmidt will authorise the immediate despatch of *Entdecker* to investigate further and deliver whatever aid possible.

*Bayern* will begin a crash programme of works to bring the fusion plant back online and will follow as soon as she can. *Anton Dohrn* will rendezvous with *George Bauer* and transfer further sensor data and begin stutterwarp discharge. She will then remain in the current system with *George Bauer* to continue observations of the collision.

## BPC259213/HD27808

*Entdecker*'s transit will take just over 30 hours. Upon arrival it will take a further 2 hours to travel from Shelf to high orbit. *Entdecker* can then transfer to a low orbit to land or conduct further scans of the planet. High orbit scans can fill in some gaps of the planet's surface that *Anton Dohrn* had missed but will provide no further clues to the distress beacon. The atoll also remains intermittently covered by fog and cloud.

### The Atoll

The atoll where the pod crash landed is approximately 23 x 21 kilometres, with a total area of around 400 square kilometres. The terrain is very low-lying, with the highest point being less than 50 metres above high-tide level. The atoll itself sits atop a seamount which

rises over a kilometre out of the seabed. The volcano that formed the island has not erupted in tens of thousands of years but there are still remnants of volcanic activity in the steaming waters of the lake on the island. The seamount is no longer sinking and indeed seems to be rising. The central lagoon has been dried out and filled by sediments transported and eroded by outflow waters of the lake.

Anybody who has travelled in the South Pacific on Earth would recognise many of the landforms in the atoll. The outer beaches are comprised of crushed coral and dark sand. They shelve steeply away from the shore and the water is several hundred metres deep within a few tens of metres of leaving the shore. The beach rises up to a low ridgeline that circles most of the island – the remains of the volcano's caldera – with breaks to the southeast and northwest where rivers flow from the interior. The central plane of the island is low and boggy. The land is divided into four types of terrain; 'mangrove' swamp, muddy swamp, savannah and jungle.

The two major rivers are wide (50–200 metres not uncommon), shallow and sandy. To the east of the island is a large lake which is the source of most of the water



on the island, almost constantly overcast with fog and clouds. It is fed from hot springs deep below the island. Steam and evaporated water give the island its wet and humid atmosphere and when cold winds blow in from the sea the whole island can be covered in fog for days.

*Anton Dohrn* performed several scans of the atoll using IR-equipped cameras and radar systems. These have highlighted several areas of bright radar returns or anomalous IR readings, possibly indicating metal or structures. *Entdecker* has several possible landing zones. The beaches and riverbanks are all wide enough for her to set down, as is the open savannah; however the savannah is often covered by fog or clouds.

Once *Entdecker* has made landfall the Travellers can search for clues as to the origin of the distress signal. Cloud cover will continue for most of the day but the island is small enough that they should be able to search most of it in a couple of days, quicker if they brought one of the exploration vehicles from *Bayern*. Their primary responsibility is to lend aid to whomever has been transmitting the distress signal. Exploration for exploration's sake should be a secondary concern.

## LIFEFORMS

Almost everywhere is covered in vegetation, a mixture of succulent plants with thin, sharp-edged, waxy leaves, similar to aloe plants, and point-producers with bulbous bodies with a small fringe of leafy growth at the top, not unlike a giant pineapple. These pineapple trees grow up to five metres tall in the jungle, with trunks up to three metres in diameter, although those on the savannah tend to have shorter, stouter trunks never more than two metres high. Almost all species of grasses have evolved sharp edges to the leaves, usually through concentrations of minerals leached from the ground. Smaller varieties are unlikely to pose a threat unless the Travellers decide to take a stroll barefoot but more established plants can have very large and sharp leaves. Walking through a field of waist-high grass involves similar risks to walking through a field full of upturned swords. There is also an extensive growth of a colonial plant with vine-like roots that intertwine and mesh together to form an aerial garden over salty water, much like a mangrove swamp on Earth. When these roots are removed and stripped

of their outer covering, they reveal a dense, black core that dries to iron-hardness after a few hours. The survivors named this ironwood and used it extensively in construction. The Travellers will see it used to lash items together, form fences from woven panels and a dozen other uses.

Some of the plants have evolved to gain nutrition through the killing of prey. One jungle plant has clusters of sharp seedpods attached to large gas-filled pods. The plant can detonate the pods unleashing a hail of lethal seedpods, much like a grenade or shotgun blast. Since the plants tend to cluster together, one seedpod bursting can set off others nearby and a chain reaction of exploding pods can fill the air with lethal, flying seeds up to 20 centimetres long. Any prey killed by the seeds is quickly covered in feeding tendrils by nearby plants. The survivors were familiar with these plants and named them shotgun trees.

Animal life is abundant, from microscopic insect analogues up to some large and aggressive predators. Quad-winged, migratory, flying creatures with aspects similar to birds and marsupials are common and, either directly as prey or indirectly through their droppings, form the basis of much the food chain on the island. The most common resembles a beaked bat with four overlapping wings in two pairs. They are present in a wide variety of species from tiny fruit-eating animals to large, aquatic versions who hunt by diving into the sea. They were named as variations on babochka-odin (butterfly-bat), a portmanteau of bat and butterfly from the arrangement of the creatures' four bat-like wings, by the survivors (okean babochka-odin or sea butterfly bat and so on). Large, flightless versions of the babochka are also present, where the wings have evolved into a set of thin, grasping arms and powerful hind legs, something like a tailless, beaked dinosaur. These have evolved into species that range in size from a chicken to some that stand much taller than humans and can run at over 60 kilometres per hour.

## Baba Yaga

The baba yaga is an ambush predator that lives on the savannah. It has evolved an ability to mimic the appearance of a small pineapple tree; its wings have lost the ability to support flight but instead developed a surface which mimics the colour and texture of a juvenile pineapple tree. The animal also has a plume

along the rear of its head which resemble fronds of a pineapple tree. It can remain still, wrap its wings around itself and tuck its head in to become a remarkably accurate copy of one of the smaller plants, leaving a small gap between the wings which it uses to peer out and pounce on prey. It is a remarkably fast runner and endeavours to chase prey down before it can escape.

Animal	Hits	Speed
Baba Yaga	18	20 m
<b>Skills</b>	Athletics (dexterity) 1, Deception 2, Melee (natural) 0, Recon 0, Stealth 2, Survival 0	
<b>Attacks</b>	Teeth (1D)	
<b>Traits</b>	Armour (+2), Camouflage	
<b>Behaviour</b>	Carnivore, Hunter	

## Swamp Snake

One notable predator is a large serpentine amphibian that makes its home in the swamps. Easily three metres long with a body at least 30 centimetres thick, it is equipped with a prehensile tongue with a barbed spine. It lurks just below the water and uses heat-sensitive spots to sense nearby prey and spear them with its tongue.

Animal	Hits	Speed
Swamp Snake	18	10 m
<b>Skills</b>	Melee (natural) 2, Recon 1, Stealth 2, Survival 1	
<b>Attacks</b>	Barbed Tongue (1D, AP 4)	
<b>Traits</b>	Amphibious, Armour (+2), Heightened Senses	
<b>Behaviour</b>	Carnivore, Pouncer	

## Thunderclaw

Another predator, it is a large, flightless version of the babochka that has evolved powerful legs and a sharp beak. These giant creatures hunt in small groups across the savannah, running down prey using complex pack tactics.

Animal	Hits	Speed
Thunderclaw	40	30 m
<b>Skills</b>	Athletics (endurance) 1, Melee (natural) 2, Recon 1, Survival 1, Tactics 0	
<b>Attacks</b>	Beak (3D), Trample (2D)	
<b>Traits</b>	Armour (+3), Heightened Senses	
<b>Behaviour</b>	Omnivore, Chaser	



Baba yaga



Swamp snake

Thunderclaw



## Shrike

The top predator on the atoll is a fiercely territorial airborne hunter that the survivors named the shrike, a species of babochka of prodigious size and aggression. A single individual is present on the island, having chased away competition. Under normal circumstances it will only be encountered at a distance, exhibiting hunting behaviour on some other part of the atoll. However, should the referee desire, one of the potential locations identified by *Anton Dohrn* could be the creature's nest, full of interesting and shiny bits of metal it has gathered. The creature will aggressively defend its nest against any interlopers.

Animal	Hits	Speed
Shrike	63	30 m
<b>Skills</b>	Athletics (dexterity) 1, Melee (natural) 2, Recon 2, Stealth 2, Survival 1	
<b>Attacks</b>	Beak and Claws (4D)	
<b>Traits</b>	Armour (+3), Flyer (Slow), Heightened Senses	
<b>Behaviour</b>	Carnivore, Killer	



## ENCOUNTERS

The following encounters should be run as the Travellers move around the atoll.

### Beach/Riverbank

The survivor's original settlement was destroyed by a tsunami that swept over the atoll in the second year of their stay. The planet is still tectonically active and undersea quakes are common, which result in large swells and tsunamis. Tsunamis that hit the island tend to flow around it but the two rivers channel them inland for some distance.

If the referee decides to run this encounter, the Travellers will observe that the sea suddenly retreats several dozen metres from the shore, exposing the steeply shelving beach. They can make a Routine (6+) Survival check (EDU) to recognise that a tsunami is incoming. They have 10 minutes to reach any of the elevated portions of the map.

The tsunami is quite clearly visible as it sweeps towards the island and breaks over the encircling reef. The reef absorbs much of the impact and the wave is only 1–1.5 metres high when it hits the beach. Travellers still on the beach must make Difficult (10+) STR checks to grasp and hang onto a sturdy object, such as a pineapple tree, and remain upright. They can hold their breath for END/2 Rounds after which they are treated as per the

Suffocation rules on P82 of the *Traveller Core Rulebook*, using the option for Traveller utterly without air (1D damage per round)

Each round the Traveller may attempt the check again – success indicates they have managed to bob to the surface and they can crawl to a place of safety. Those who remain underwater for more than six rounds will be swept out to sea. Referees may allow other Travellers to dive in and assist foundering companions.

### Jungle

For each hour that the Travellers explore the jungle the referee should roll 2D. On 8+ they will encounter a shotgun tree cluster. If they have already visited the abandoned camp (see page 67) and read the journals they will recognise the plants with an Easy (4+) INT check and can avoid them. If they have not visited location 6 the camp or do not recognise the trees they may attempt a Difficult (10+) Recon check (INT), Average (8+) Survival check (INT) or Routine (6+) Science (biology) check (EDU) to recognise signs of the shotgun tree – notably seedpods embedded in the ground and bones of small animals with crushed bones near the trees. Failure indicates they have set off a shotgun tree.

Each Traveller may make a Difficult (10+) DEX check to dive behind cover as the shotgun tree explodes a pod. Failure means the Traveller is hit by D3 seedpods,

each doing 1D damage with AP 4. Once the Travellers have experienced this encounter they will be able to recognise and avoid shotgun trees.

## Swamp

While passing through the swamp the Travellers will be attacked by a swarm of swamp snakes. There will be 1D+1 swamp snakes that attempt to ambush the Travellers by bursting out of the mud. However, the swamp snakes will only attack the Travellers as long as none of them are injured. As soon as one of the swamp snakes takes damage that penetrates its armour, the others will turn on it and attack. They will switch their attention back to the Travellers if they are attacked or after 1D rounds after they have killed the injured snake.

## Savannah

The wide, open spaces of the savannah mean that the Travellers can easily see trouble approaching. The referee should roll 2D each hour they spend exploring, with DM+1 for each subsequent hour and DM+2 if they are making a lot of noise, shooting firearms, running an engine and so on. On 11+ they will be stalked by a flock of 2D thunderclaws. If the Travellers are in vehicles the thunderclaws will keep their distance and observe. If they are on foot the thunderclaws will attempt to run them down, splitting up and attempting to 'herd' them into a killing box. The thunderclaws are easily scared off, however, and will retreat if half of their number are injured or any are killed. They will not bother the Travellers again.

# LOCATIONS

## 1. Boat Wreck

Drawn up well above the high tide line are the remains of a small, wooden boat. It is not hidden but vegetation has fallen over it as it has lain here, so Travellers need a Routine (6+) Investigate or Recon check (1D minutes, INT) to spot it. Examination will reveal it has been well made from local materials but the effects of time have made it completely unseaworthy. Carved into the bow is the word 'Александра' – Alexandra.

## 2. Shack

Set on the edge of the riverbank, just as the sand turns to bladegrass, is a small shack. It is constructed of local materials and has partially collapsed. Examination and a little excavation will reveal that it had a single room with several items of furniture – a bed, chair and table. Amongst the spoiled contents can be found a single plastic boot, a few crumbling shreds of blue cloth, a popular brand of pocket tool that has

corroded shut and several drinking glasses. There are several lengths of very straight, iron hard wood or vines with what appear to be makeshift fishing reels attached. The reels are wound with several hundred metres of optical cable and have fishing hooks fashioned from salvaged metal. Searching the surrounding area and passing an Average (8+) Investigate or Recon check (1Dx10 minutes, INT) will uncover a nearby fire pit with ashes, blackened sand and large rocks arranged as seats. Several empty one litre plastic bottles without labels can also be found. Near the fire pit is a corroded collection of copper tubes and vessels that an Average (8+) INT or Routine (6+) Carouse check (INT) will reveal is the remains of a still for producing alcohol.

## 3. Steaming Lake

The large lake at the centre of the island is the main source of freshwater, which feeds from a natural hot spring. The water is warm at the edges and there is a very hot plume in the centre. There are several bottom-feeding animals similar to eels, crabs and large slugs, but no fish. The water from the lake is contaminated with several dissolved heavy metals including cadmium, chromium and lead, leached from rocks below the island as water was heated by the still-hot remains of the volcano that originally formed the atoll. Short-term consumption of the water will do no real harm but any extended consumption of the water, or plants grown using the water as an irrigation method, will lead to systemic poisoning. The effects would include kidney and liver damage, joint pain, brittle bones, blindness and potentially cancers.

## 4. Overgrown Garden

Anyone passing within 200 metres of this point will notice that there are a number of ditches and earthen banks in a regular pattern. Closer inspection will reveal the overgrown remains of a series of enclosed areas of tended ground – a garden. Travellers will recognise several species of Earth plants that have gone to seed and turned wild. Barley, onions, potatoes and strawberries can all be found scattered around the area, along with several native plants with fleshy leaves and tubers.

A chemical analysis can be conducted on the plants with a successful Routine (6+) Science (biology or chemistry) check (1Dx10 minutes, INT), using a suitable field-testing kit. The results will indicate that the plants from Earth show high levels of toxic heavy metals, presumably leached from the soil. The native plants seem to be edible and not poisonous, although also show the same toxicity. If samples

## REFEREE'S MAP

- Water
- Open Ground
- Hills
- Beach
- Mangrove Swamp
- Jungle
- Coastal Ridge

0 1 2 3 4 5 6  
Kilometres



are taken and grown in uncontaminated soil they will produce several plants that are quite nutritious but have a very bitter or acidic taste.

## 5. Destroyed Camp

The remains of a settlement are visible here from over 500 metres away. Several pieces of structural metal have been planted deep into the ground and seem to have formed part of a camp or shelter. However, the structures have been destroyed and drifts of beach sand and aquatic plants can be found lodged in nooks and crannies.

This was the site of the survivors' first camp, which was destroyed when a tsunami swept much of the camp away. Realising that the prevailing currents and wind patterns made such freak waves more likely on the southwest shore, the survivors relocated.

A Routine (6+) Recon or Investigate check (1D minutes, INT) will reveal several mundane artefacts such as metal eating utensils, empty bottles and meal containers scraps of cloth, a toothbrush, broken shards of a mirror, fragments of circuit board and so on.

A Difficult (10+) Recon or Investigate check (1D x10 minutes, INT) will uncover a hip flask wedged in the fold of a pineapple tree's bark. The flask is empty but a chemical analysis will reveal it contained grain alcohol. On the outside of the flask is engraved a symbol of the Roscosmos, the Russian space agency. Beneath the logo is the word 'paccbet' – Dawn.

## 6. Abandoned Camp

Five sturdy looking buildings made from a mix of local materials and salvaged wreckage stand in an overgrown clearing. All have clearly been abandoned for some time and are showing signs of neglect and encroachment of plants and animals.

Searching the buildings will reveal that three are living quarters, one is a storage shed and the last covers a crudely dug well. There are numerous personal effects scattered around, apparently abandoned and then dispersed by the elements. An hour or two of searching will uncover faded photographs, scraps of clothing, broken electronics, a few ruined books (mostly scholarly texts on biology and agriculture in Russian), toothbrushes and a battered metal mess kit. The uniforms and mess kit are all stamped with the Roscosmos symbol and the uniforms bear a mission patch and the Russian word *Dawn* – the same as on the flask at location 5.

Amongst the personal effects is a tightly sealed plastic storage crate. Inside are a series of notebooks in which are hand written notes that detail, in Russian, the flora and fauna of the atoll in incredible detail. Included are numerous beautiful sketches of various plants and animals encountered on the island. The author obviously spent a great deal of time investigating the environment and further study will reveal a number of insightful and astute observations regarding the ecosystem.

If the Travellers choose to study the books they will be able discover a great deal about the dangers of the atoll, including the shotgun trees in the jungle, swamp snakes in the swamps and the baba yaga bird and thunderclaws of the savannah. The journals are all signed Anastasia Oleneva.

The water in the well here has the same heavy metal contamination as the lake and the plants in the garden (location 4). There are seven beds in the living quarters, a double bed in one and three singles in each of the other two buildings. The double bed has a beautiful headboard made from intertwined ironwood vines, with two intertwined letter A's at the apex.

## 7. Graveyard

A sturdy perimeter fence has been woven, wattle style, from ironwood vines around 10 graves here. Each grave is marked with a Russian orthodox cross that has been carefully crafted from metal debris. Each has been engraved with a name, date and cause of death. The bodies were buried in shrouds and are now just bones. Examination of the remains will reveal abnormalities in growth structure, bone density and evidence of tumours and leukaemia in almost all of them, aside from those who died in the crash or immediately after.

Selena Nikanova	Died in Crash	27/5/2147
Rada Yamskikh	Died in Crash	27/5/2147
Vadim Malikov	Burns	30/5/2147
Dobromir Karbainov	Infection	12/6/2148
Vitaly Grishin	Sickness	21/10/2148
Tatania Lisova	Sickness	2/2/2149
Saveliy Tyomkin	Sickness	13/4/2149
Zenia Lomteva	Drowned	2/8/2149
Pytor Ivankin	Heart Attack	11/12/2149
Anastasia Oleneva	Sickness	13/1/2150

## 8. Wreckage

A large piece of metallic wreckage can be found here, half buried in the ground and covered in vegetation. It requires a Routine (6+) Recon check (INT) to notice but will be automatically spotted if using a metal detector or hand-held radar.

An Average (8+) Engineer (m-drive or power) check (1D minutes, INT) will suggest that these are parts of a fusion device, possibly a power plant or nuclear thrusters unit that seems to have been torn apart. The wreckage masses several thousand kilograms and is easily the size of a large automobile or small truck. Several parts have markings in Cyrillic and an Average (8+) Investigate check (1D minutes, INT) will reveal the Roscosmos insignia. Effect 4+ will reveal strange tearing of the metal and a Difficult (10+) Engineer (m-drive or power) check (1D minutes, INT) will suggest that the device exploded from the inside out rather than being destroyed by an external force. If the Travellers ask if there is any evidence of how the wreckage was destroyed, a search will reveal this information without a check.

## 9. Crash Site

Half buried in the mud is a green and white 10-ton escape pod. It has been partially overgrown with ironwood vines but the growth is sickly and sparse. The pod is a familiar spherical Russian design that has been in use for almost 200 years, improved and expanded but still showing its Soyuz roots.

The pod is a sphere five metres in diameter with an exposed hatch in the upper half of the sphere. Still visible on the side, between mud, algae and burn marks, are the Roscosmos logo and a mission logo for 7654/B 'Dawn'. On top of the pod is a small windmill hooked up to a dynamo and solar cell. The solar cell is mostly covered in filth and mud but the windmill still turns. A pair of wires trail from it into the pod.

Inside the capsule there is very little left. Most interior fittings have been removed and, if the Travellers have visited any of the structures at locations 2, 5, 6 or 7, they will recognise where materials for the structures

and furniture came from. The lower third of the pod is filled with dirty, brackish water. Mounted near the apex of the pod in an old storage locker is the emergency beacon, still sporadically transmitting as it receives power from the windmill. Also in the storage locker is a piece of polished aluminium hull plating which has been carefully scribed with a message. The text is reproduced on page 69 as Handout 1.

Searching the pod below the water will reveal the remains of the message's author. He is now little more than a collection of bones, a few shreds of a uniform jumpsuit and the rotted remains of belt and boots. A thorough search will also reveal a pair of spectacles with a cracked lens, a bottle filled with filthy water and a corroded straight razor.

## DEATH CAN NOT KILL THEIR NAMES

By the time the Travellers have discovered the final message in the pod, they probably have a good idea that there are no living survivors. They have the option of exhuming the bodies in the cemetery for return to Earth, as was requested in the final message. A sense of camaraderie with these pioneers will soon spring up amongst *Bayern*'s crew and the commander will authorise the naming of several astronomical bodies after them.

The information in Dr. Olenava's notebooks will prove to be thorough, detailed and a compelling read, interspersing observations on lifeforms of the atoll with anecdotes about the day-to-day difficulties of survival, as well as her romance with Arkady Rubaskin. If samples of the plant are collected and cultivated, the ironwood vine will become an important crop for new colony efforts, proving to be easy to grow and providing a ready supply of building materials.

The story of the lost mission will also bring closure to a mystery from the dawn of the new space age. In the years after *Bayern*'s return a critically acclaimed, but somewhat fictionalised, experiential of the flight, disaster, crash and survival will be released, dedicated to the lost crew of the starship *Dawn*.

# HANDOUT 1

(Translated from Russian)

I am Arkady Yevgenievitch Rubaskin, navigator and chief astronomer for Project 7654/B, the interstellar research vessel Dawn. This is my last statement and testament in the hope that it will someday be found by voyagers from Earth, or perhaps someone from another world who can understand my words.

We have lived on this island for three years now. We arrived here, where you find me, in a falling star. We travelled so far to be here, and I'm sure there are wonders on this world, but all I have seen is the death of my friends.

Our beautiful white ship, the Dawn, that we spent so long building, is gone. I saw it broken and burning as we fell, the drive section aflame and the hull torn asunder. Our captain, medical officer, two of my scientific colleagues and all of the engineering team were killed when the drive torus detonated as we transited into this system. The details of the accident are unclear to me beyond that we knew our ship was doomed and we were falling, burning and blind, towards an unknown world.

Eleven of us made it off the ship, out of a crew of nearly 50.

The escape pod brought us here, functioning as it should have done, except for the final landing rockets. The beautiful cousins from Siberia, Selena and Rada, were killed in the landing. Vadim died of his burns three days later. We had no medical supplies and knew just a little first aid between us. We couldn't even make him comfortable and none of us had the courage to end his pain.

Eight survivors crawled from the pod to this tiny slice of salt encrusted, sodden land. We knew that no one was coming to rescue us – just building the Dawn had taken the resources of dozens of towns back home. We were far, far off course too. We knew what we were doing, our little cabal. We convinced the government that it was a test flight to Proxima and back but we wanted to explore. The government didn't question why so many supplies – necessary to test the ship's capabilities, we told them. And so, here we are. Explorers stranded in the shoals of distant suns.

We have tried our best to live here. Tatiana had the good sense to grab her seed boxes on the way out. We had strawberries, oats, barley, rice, potatoes and half dozen others. Starvation wasn't what killed us. I think it was the water that made us sick. We lost Dobromir to an infected swamp snake bite in the first year. Vitaly succumbed to sickness the next year – the first of us to fall ill. Tatania and Saveliy followed him shortly after. Zenia was killed when the wave destroyed our first camp last year. She struck her head on a tree and was knocked unconscious. We found her drowned the next day.

Last month Pytor died as he was hauling water from the well. I think it was a heart attack. A week later, Anastasia collapsed. She had been sick for a long time but kept it from me. She died in our bed yesterday morning. I buried her on the hill with the rest of our friends. I know that I too am sick, I feel the burning in my bones and know that it will be agony for me. I have a bottle of Pytor's rotgut and have sharpened my razor. I do not want to die alone in a fever.

If you find us, if you can understand this, please take us home.

# INTERLUDE 6 – THE BUILDERS AND THE RAIDERS

## PART 1: THE RELIC

**Suggested Sequence:** Between Plot Points 4 (The Weeping Sisters) and 5 (Gambit)

**MET:** D+1134

**CMD:** 1748 ly

**System:** BPC 260050

**Stellar Type:** K2V

**X, Y, Z Co-ordinates:** 51.14, 112.21, 31.79

*Bayern* is on the final leg of her journey home with the last major scientific goal being a visit to the giant star Aldebaran, which figures prominently in the views ahead of the ship. *Bayern* and her flotilla of subcraft have been following a string of small, dim M class stars and Y, T and L sub-dwarf objects. The astrophysics department has remained busy studying these elusive bodies at close range and *Bayern* is building up a set of protocols for discharging her drives at near-stellar distances that will be useful for ships all over human space.

As fascinating as these small, dim stars are, the active crew are looking forward to the final stage of the voyage and there is a relaxed air aboard *Bayern*. Tensions amongst the crew are lower and even the most fractious and disagreeable crewmembers are becoming easier to live and work with.

*Bayern*'s navigator and Ace soon announce that they have plotted a path that will intersect with a number of brighter stellar objects, including some more luminous M class stars and a small number of F, K and G class stars that had been so far masked from positive identification by a combination of unusual astrographic conditions. A cool, dense molecular cloud lies between *Bayern* and Aldebaran, masking the stars' previous detection. *Bayern*'s crew will be amongst the first humans to examine these stars in any detail.

Following standard procedure, *Bayern* dispatches *Anton Dohrn* to perform an initial flypast of the first system, a K2V star with seven planets including one at the outer edge of the life zone.

*Anton Dohrn*'s transit into the system is uneventful and she begins moving towards the potentially habitable planet, passing outer worlds that are in as near an alignment as possible. As *Anton Dohrn* transits through the system the sensor data begins to mount up and the picture of the second planet begins to emerge.

It quickly becomes apparent that the target world is, unfortunately, far from habitable. It has a thin, almost non-existent atmosphere mostly comprising carbon dioxide and the surface is a rugged, barren desert, with no chance of free water anywhere. There are a few small deposits of carbon dioxide ice at the poles and surface scans show some in deeper craters and fissures. A detailed geological survey is not possible from orbit, but initial sensor readings show that the world has no active volcanism.

## DAWN ON A DEAD WORLD

Just before *Anton Dohrn*'s stutterwarp discharge is complete and she begins transit to rendezvous with *Bayern*, a curious anomaly is detected. A bright flash

### The Planet

BPC 238974c is a world very similar to Mars in a later stage of its life. Its thin atmosphere shields virtually no stellar radiation and its surface is cold, dry and sterile. Even the hardiest of life would find it difficult to exist here. Surface gravity is just under 0.4 G and so is a low gravity world. Pressure suits are suitable for short trips on the surface but extended periods would require a full spacesuit or a hostile environment suit if the star was especially active.

Although hostile now, conditions on the planet were once much more conducive to life at a simple level. There is evidence of water at some point in the planet's past, including minerals and rocks that could only be formed in the presence of liquid water, such as clays. There are also distinctive geological features that could only be created by flowing, liquid water.

**Profile:** X410000-0 Ba

is noticed on one of the optical telescopes, just before local dawn. Training the telescope on the location of the flash and examining the area in detail reveals several interesting sights. First, there appears to be a manufactured object of some kind on the surface, a hexagonal structure partially buried by drifting sand. Fine details are impossible to determine due to windborne dust and distance to the object but it is clearly a machine of some kind.

A short distance away another object can be seen, smaller than the first and an indistinct, irregular shape. Again, windborne dust and orbital distances mean that fine detail cannot be determined but it appears that the flash was caused by this second object which caught and reflected the sunrise.

With clear evidence of manufactured devices on the planet, *Anton Dohrn* marks the location and sets off to rendezvous with *Bayern*.

## INVESTIGATIONS

*Anton Dohrn* will rendezvous with *Bayern* as normal and, if crewed by Travellers, they can deliver their findings to the commander and active science team. If they are instead crewing *Entdecker* or senior members of *Bayern*'s crew, the referee can instead deliver the information to them by interaction with *Anton Dohrn*'s crew.

The commander is obliged by *Bayern*'s standing orders to investigate potential alien life and these structures indicate intelligence of some kind. Consideration of *Bayern*'s safety precludes her from conducting the investigation first hand, although suggestions that she should travel to the system and remain at the periphery to facilitate faster communications with the *Entdecker* team are acceptable. If the Travellers do not suggest this, the next most senior scientist will.

The commander will agree to this approach and *Bayern* will set off for BPC238974, leaving *Anton Dohrn* to follow once her drives are completely discharged. The trip to the system will allow the Travellers to undertake any preparation they require.

A review of the sensor data provided by *Anton Dohrn* will provide little extra information. Ace or the Travellers can attempt to clear up visual images to enhance more details but there is little extra to be found. The two objects are sitting at the lowest point of a shallow crater near the equator. There are numerous smaller craters within the large one, all consistent with asteroid impacts and the larger of the two objects appears to be right on the rim of one of these smaller craters.

Success on Average (8+) Electronics (sensors) or Difficult (10+) Electronics (computers) check (1Dx10 minutes, INT) will clear the image up. Additional detail will reveal that the smaller object appears to be casting a longer shadow than the hexagonal object indicating that although smaller, it may not be buried as deeply under the sand. Effect 6+ will find an earlier image of the object that allows crude triangulation to be attempted. A successful Routine (6+) Electronics (sensors) or Difficult (10+) Electronics (computers) check (1Dx10 minutes, INT) will allow images to be combined and reveal a confusing, blobby shape that appears to be partly floating above the sandy surface.

The referee should remind the Travellers that reading too much into the imagery is probably unwise, as orbital images are notoriously hard to interpret, even with advanced optics. The human brain is taught to look for familiar patterns in the unfamiliar and only closer examination will reveal what is happening.

## THE RELIC

*Entdecker* will separate from *Bayern* at the outer edges of the system, discharging her drives at one of the outer gas giants. She should then proceed to the second planet and attempt a landing. The thin atmosphere will provide little lift for the ship's airfoil surfaces, so descent and landing will have to be conducted using VTOL engines. Although the

## Fines

Fines are microscopic particles of rock and minerals, much smaller than sand or dust. The lower gravity and thin atmosphere on the planet means that disturbed dust tends to drift back to surface level after a few minutes but fines will hang in the air long after large particles have settled.

Travellers will be wiping fines off their faceplates and instruments the whole time they are on the planet. Their suits will require extensive cleaning and unless they are extremely careful in removing the suits during decontamination, they are likely to find the whole ship will be contaminated by a thin film of the fines for months after they have left this world.

The good news is that the thin atmosphere means that the abundant solar radiation has effectively sterilised the dust, so aside from being an irritation it is unlikely to cause long-term issues.

atmosphere is thin, the landing will still scatter dust and debris over a wide area, so *Entdecker* should land some distance from the objects.

Once safely down the Travellers can don pressure suits for the walk to the objects. The landscape is bleak, with shattered boulders and sand drifting over huge swaths of bare rock. The thin atmosphere has a hazy, orange tint to it and the wind will soon coat pressure suits in a thin layer of extremely fine ochre dust, known as fines.

The route to the objects is mostly flat, with a few areas of broken terrain and a Routine (6+) Vacc Suit check (DEX) is required to avoid incident. Failure indicates that the Traveller has encountered minor difficulty; a shifting rock or sand, a slope or escarpment that proves to be less stable than first thought or an unseen pothole, pit or fissure.

Failure results in an incident that causes severe damage or a significant breach of their suit that the self-sealing system cannot resolve. They must make an Average (8+) Vacc Suit (DEX) check to slap a patch on or begin to suffer the effects of decompression. See page 82 of the *Traveller Core Rulebook*.

After approximately half an hour of walking the Travellers crest the edge of the large crater and will be able to see the two objects below. The hexagonal object sticks out from the rim of a smaller crater and appears to have been partially buried by ejecta from the impact. The other is still indistinct at this range and partially obscured by boulders.

Approaching closer, or circling around the crater rim, will reveal that the second object is a wheeled vehicle of some kind, tipped over on its side and partially buried by the same ejecta. From a distance all that can be seen is that it has six wheels on articulated struts or axles.

The vehicle is approximately three metres long and two metres tall and wide if it were resting on its six wheels. Its main chassis is a smooth, white material with a smaller subassembly below that the articulated axles protrude from. A second smaller, spherical subassembly is mounted on a short, flexible arm at one end, with what appears to be a sensor cluster. There are also several knobbly protuberances on the upper surface of the main body and a square, boxy segment at the opposite end to the rounded subassembly. It has several areas of geometric markings etched into the surface, grouped together and several are repeated at different locations. There are no apparent hatches, doors or entry points of any kind. The overall impression is of a large, shiny, white beetle with wheels instead of legs.

The exposed portion of the larger, hexagonal object is approximately four metres across, with its upper surface covered by fine, wind-blown sand. On three of the six sides the ejecta reaches almost all the way to the upper surface but the other sides are less deeply buried. At the lowest point of burial the Travellers will be able to see the upper portion of some kind of a framework attached to the side of the object. It has a number of latches and mechanical components covering its upper surface and several areas of



jagged material that appear to be attachment points for something ripped or torn off. A cursory comparison of the two objects suggests that the latches and mechanical components would correspond to the relative position of the wheels on the vehicle.

Examining them at close range with sensors will reveal the hexagonal object to be inoperative. It is cold and emitting only ambient levels of radiation. The vehicle, however, shows areas of warmth within that indicate it still has powered up systems. The boxy section is also releasing low levels of radiation and heat. These will not be harmful as long as the Travellers remain in suits.

Whilst exploring the site the Travellers may notice that after they have been moving around for a while the sensor cluster on the vehicle begins to follow their activities. If a Traveller is specifically attempting to attract the vehicle's attention, by waving their hand in front of the sensor for instance, it will respond after a few attempts by tracking the movement. Once it has 'seen' them and begun to track their movements, if the Travellers move outside of its field of view it will spin its wheels in an attempt to try to re-acquire them.

## A SHORT MISSION

If not already apparent to the Travellers, a Routine (6+) INT check will suggest that the vehicle is a rover or remote probe and the larger object its descent vehicle. Examination of the surrounding area will allow them to work up a hypothesis; the lander made planetfall and the rover moved off to begin its mission. A short time afterwards a meteorite impacted nearby, in a million to one chance, and partly buried the lander. The impact damaged its internal systems and tore away external equipment. The shockwave from the impact also tipped the rover over, so it has lain on its side ever since.

At this point the Travellers may wish to repair the lander and rover. Excavating the lander is beyond the scope of the *Entdecker*'s landing party and it appears to have been damaged or rendered inoperable by the impact. Whatever equipment was torn off is nowhere to be seen and may have been thrown a great distance.

The rover, however, is easily righted using equipment on board *Entdecker*. Rock pitons, a powered winch and cables will allow the Travellers to set the rover on its six wheels. Referees should ask them how they intend to right the rover and base the checks required on their plans. A well thought out plan for righting the rover should have a Routine or Average difficulty. Vague or poorly considered plans will be harder, requiring a

Difficult or Very Difficult check. A negative Effect runs the same risks of damaging pressure suits as during the journey to the site.

Examining the previously concealed other side of the rover will show that the hull is undamaged but one of the wheels has been torn from its mounting. Once upright the rover will remain still for several minutes, then the sensor cluster will telescope out on an articulated arm and the rover will examine itself, paying special attention to the sheared off axle. Once completed, the rover will shuffle backwards and forwards a short distance, perform several manoeuvres on the spot and then turn to face the landing party. Any Traveller familiar with remotely operated systems or robotics will recognise this as a self-checking routine.

## FIVE WHEELS ON MY WAGON

The origins of the rover are likely to remain a mystery for now. Whatever craft brought the lander to this planet is nowhere to be found and the lander was thoroughly destroyed by the shock of the meteorite impact. The rover is automated with a sophisticated set of decision-making software and will start its mission to survey the planet, and pursue it with relentless dedication. The rover's primary purpose is to search for signs of life, or signs that the planet

## Translating the Alien Signals

If the Travellers record the signals the rover is transmitting, they will be able, in time, to decipher them. Recognising the handshake signal is the first step and once this is completed, it will become apparent that the aliens are using a base six numbering system. Translating the rest of the data will take months, even with Ace and experts aboard *Bayern* helping.

The main problem is that the data stream is not a traditional language but a technical data transmission in an alien language with secure encryption. Given time, the data stream will be deciphered and prove to be somewhat underwhelming. It resembles the data packets *Bayern* receives from her probes; dry, technical, sensor data and environmental readings. It will throw very little light on the builders of the rover, other than showing they were intrigued enough to (like humans) want to send a probe to another world.

once held life. The arrival of the Travellers and their intervention into the rover's predicament has put observing them at the top of its list of tasks.

Unfortunately, the rover's designers had expected to be observing single-celled organisms and not sentient lifeforms in pressure suits, so it is ill-equipped to communicate with the Travellers. It has a radio and will begin transmitting data in expectation that its base station, the destroyed lander, will store the data for later collection. If a Traveller is scanning through radio frequencies, they will be able to detect the rover's data stream as a transmission but the alien language, protocols and encryption will take months to translate. The rover will keep trying to contact the lander and the first piece of recognisable date from the transmission will be a regularly repeated handshake signal that goes unanswered.

Mostly, the rover will just observe the Travellers passively. It will move to try to keep as many of them in view as possible but this will be preceded by careful evaluation of the terrain, by which time the Travellers may have moved again and so the previous route will

need to be discarded and a new one chosen. The rover has not been designed or programmed to study large, fast moving creatures and the Travellers will be easily able to avoid it if desired.

Once the rover has been righted and the site documented, there is little else for the Travellers to do. The rover is too large to drag back to *Entdecker* and Commander Schmidt and the science team aboard *Bayern* will be against damaging or dismantling the rover to investigate its interior. Without being able to communicate with the rover further, the Travellers will be able to gain little else from it.

The rover will follow the Travellers for a short distance as they leave, but will not go beyond line of sight from the lander, so will not follow them over the edge of the crater. After they leave, observations from orbit will show that the rover carefully retraces its path to the lander and then begins to survey the floor of the crater, periodically returning to the dead lander.

For now, the origins of the rover and the fate of its creators will remain a mystery.



# INTERLUDE 7 – THE BUILDERS AND THE RAIDERS

## PART 2: TIDES OF BLOOD

**Suggested Sequence:** Following The Relic, between Plot Points 4 (The Weeping Sisters) and 5 (Gambit)

**MET:** D+1143

**CMD:** 1762 ly

**System:** BPC260379

**Stellar Type:** G7V

**X, Y, Z Co-ordinates:** 46.12, 102.8, 29.37

Following the events of The Relic, the *Bayern* expedition continues to explore the small cluster of stars hidden from observation behind Aldebaran. Several weeks have passed and many more stars have been added to the *Bayern* Pleiades Catalogue. The cluster is proving to be most interesting, with several systems bearing potentially habitable worlds. *Bayern* and *Anton Dohrn* are working at full capacity and the commander has authorised the use of interstellar probes to further the survey radius. *Entdecker* remains grappled to *Bayern* until such a time as the encounter team are required. The *George Bauer* remains in a central position, acting as a rendezvous hub in a system with several ringed gas giants and asteroid belts that are rich in volatiles.

However, unbeknown to the explorers, the cluster is home to an aggressive and xenophobic alien race that has already committed genocide once and would have no qualms about doing so again.

### The Builders and The Raiders.

The Builders were a race of aliens native to the BPC260379 system. They evolved from a species of colonial animals with complex social structures, similar to some bird colonies on Earth. These origins remained with them as they developed intelligence and shaped the structure of their society – co-operation was key to protection against predators, gathering food and caring for the young. Environmental stresses occasionally forced an entire colony to relocate and at this point members either moved en masse to a new site or scattered and were absorbed by other colonies. Eventually the Builders began to develop defences against large predators and built walls around their

colonies. They developed tool use, agriculture, animal husbandry and competed with other colonies for resources. Colonies waged war against each other, with the victor ejecting the loser from whatever location was being fought over.

Thousands of years later and the Builders had progressed to a technology level similar to humanity in the early 2200s – spaceflight, fusion power and primitive stutterwarp. Their society was now based around a series of close knit alliances between colonies that evolved into independent city-states. As their technology advanced the Builders evolved these cities further, centralising in urban areas and retreating from the rural. The ultimate expression of this produced a series of giant arcologies. Each arcology was a self-sustaining settlement stretching for a kilometre or more above the surface, using solar, wind and geothermal power.

Trade between arcologies was common, mostly for resources, skills and luxury items. Alliances and blocs inevitably formed between arcologies with similar outlooks but each remained solidly independent. This level of governance meant that the Builders never engaged in global war as no single arcology or bloc held sufficient sway to influence many others. Conflicts, while still present, were purely local affairs.

Just over 150 years ago, one bloc had begun a research project into promising phenomena that humans would call the Jerome Effect. A flaw in the design and theory of the Builders' stutterwarp drives meant they could not discharge into gravity wells as human drives could. Each journey would result in their drive becoming saturated with dangerous radiation and having to be discarded. Reserves of tantalum on their world were small but the Builders shared the same curiosity about the stars around them that drives the *Bayern* crew and their gregarious nature made them want to be part of a larger, galactic community. However, those same gregarious natures meant they were reluctant to send their own people on a one way trip to another star. Instead, the Builders constructed a series of robotic probes. Their engineers believed they would soon find a way to get

around the flaw with the drive system, either through dissipating the charge or by constructing a system with multiple drive cores, much like *Bayern*.

The probes were sent on a one-way trip to stars within range of the primitive stutterwarp drives. They all contained an orbital section designed to survey a system before the drive became saturated, at which point it would use a reaction system to plot a course that would carry the dangerously charged drive into the system's primary star. Meanwhile a lander and rover would be dropped on the most promising world. The ground base would act as a relay and beacon for follow up probes and the rover would sample the environment and report to the lander periodically. *Bayern* encountered one of these probes that at BPC 260050, launched 90 years ago to study a world that the Builders believed may have supported life.

Most worlds that the Builders sent their probes to were uninhabited by higher forms of life. The rovers conducted thorough and comprehensive science programmes, cataloguing local conditions, geology, atmosphere and primitive lifeforms. However, one of the worlds was inhabited by an advanced civilisation; the Raiders.

The Builder probe was detected by Raider surveillance satellites almost immediately as it entered the system and began its survey. The Raiders intercepted the probe and began an intensive programme of study. It took them many years, but eventually they created a stutterwarp of their own, based on the flawed technology. In the meantime,

## Sagan Plaque

When NASA launched the first probes likely to leave Earth's solar system, *Pioneer 10* and *11*, in 1972, they attached gold anodised aluminium plaques to the chassis. These plaques were designed to deliver a message should the probes ever be found by extraterrestrial life. They featured images of a man and a woman with the *Pioneer* probe to scale, a diagram of the Sol system and its location in space and diagrams designed to symbolise physical constants. The later *Voyager* probes carried a gold record with a similar pictorial message on one side and a selection of images, sounds, speech and music from Earth encoded into grooves on the other. The diagram also included instructions on how to build a device to read the record and how to interpret the data.

they also studied the Builders' version of the 'Sagan plaque' that they had attached to the probe's hull. This was a compact storage unit with a comprehensive database on Builder life, society, their homeworld and technology. With it, the Raiders learned of the Builder's world, their history and their culture.

The Raiders' reverse-engineered drive designs suffered the same flaws as the Builders' drive but their homeworld was blessed with a higher abundance of tantalum. Through trial and error, they were able to develop viable stutterwarp-capable ships within 30 years of intercepting the Builders' probe.

For reasons unknown, around 60 years ago the Raiders entered the Builders' system in force. Dozens of ships warped into orbit and began to surround the planet. The Builders had no forewarning, since the Raider ships were travelling faster than light and so could not be detected prior to their arrival. The appearance sent shockwaves through Builder society – they were no longer alone and the larger community that the gregarious Builders had hoped to find looked to be a reality. Builder orbital stations and ground transmitters began sending hopeful messages but there were no replies from the strange white ships. Moments later the silent, alien ships began their bombardment.

The orbital stations and ships were hit first. Stutterwarp-equipped nuclear missiles – which the Builders had never considered, given the scarcity of tantalum on their world – warped directly alongside orbital stations and the few spacecraft the Builders had, destroying them in moments. The Raiders then began targeting arcologies with nuclear and kinetic strikes. The arcologies' centralisation and size worked against them, making them easy to target from orbit. The Raider ships had hundreds of munitions each and for every nuclear warhead there were 10 decoys. The point defence systems on the arcologies were slowly rolled back or crippled as EMP bursts from nuclear detonations damaged and degraded their performance.

The Builders had never considered that there might be an attack from space and only the most militant and paranoid of the arcologies had weapons that could pose a threat to Raiders. These were all used within the first few hours, destroying several invaders but not nearly enough to turn the tide.

The Raiders stayed in orbit for just two weeks, systematically destroying every arcology on the planet. Eighty percent of the Builder population died in those two weeks and the remainder, deep bunkers or away from the arcologies, were left on a world shattered

by nuclear holocaust. Nuclear winter, environmental change, the collapse of all forms of government and infrastructure, and deadly fallout consigned them to a slow, lingering death. Two weeks after they arrived, the Raider ships engaged their stutterwarp drives and left.

By the time the *Bayern* expedition reaches this world, there are scarcely more than 100,000 Builders left out of an original population of four billion. The remaining Builders are scattered in small, nomadic groups, surviving amongst the ruins. With such a small and dispersed population, it is probable that the Builders will become extinct within the next 100 years.

## The Builder's Stutterwarp

Although using the same principle of the macro-scale effect of a quantum tunnelling phenomena, the design of stutterwarp that the Builders used was fundamentally different from a human drive. Instead of a rapidly spinning drive coil mounted in a magnetic suspension cradle, the Builders' drive uses a series of fixed, tantalum-doped plates in pairs on either side of a rapidly spinning disk-like armature. The operation of the drive is broadly the same; each cycle produces a single displacement of the starship.

The main difference with the Builders' drive is that the fixed tantalum plates do not interact with the local gravitational gradient in the same way a rotating tantalum coil does. The plates build up less gravistatic charge per displacement than a human coil would, and the peak saturation energy remains the same, but the plates can run for more cycles before reaching saturation and thus have greater range. However, the same drive topology also means that the charge accumulated by the plates will take hundreds of years to dissipate in a gravitational field. A drive, once used and charged will be rendered inoperative for any useful period of time, regardless of local gravitational conditions.

The net result is that the Builders' drives have an 11 light year range before the drive becomes saturated. The drive then becomes useless and needs to be discarded. Like a human drive, attempting to travel beyond the limit will result in an energetic relaxation of the tantalum and release of lethal radiation, destroying the drive and potentially the vessel.

Before research was interrupted by the destruction of their world, Builder scientists were investigating gamma-triggering to release the stored gravistatic charge and had some success using plates constructed from another metal, hafnium, but were unable to replicate that success with tantalum. Hafnium can be used in stutterwarp drives but is of lower quality than

tantalum, producing smaller displacements per drive cycle and, in human drives, degrades from the useful isomer much quicker than a tantalum drive would. Because of the lower displacement per cycle a hafnium stutterwarp would not have the range necessary for interstellar travel.

## APPROACH TO THE SYSTEM

### System Data

**Profile:** X766400-2 Ga Lt  
**Primary Name:** BPC 260379

### Stellar Data

**Spectral Class:** G7V  
**Magnitude:** 5.5  
**X, Y, Z Coordinates:** 46.12, 102.8, 29.37  
**Number of Planets:** 11  
**Number of Asteroid Belts:** 2  
**Notable Planets:** BPC 260079iv

### Homeworld

**Name:** BPC 260379e  
**Distance from Primary:** 0.832 AU  
**Year Length:** 287 days  
**Size:** 11,457 km diameter  
**Day Length:** 22.4 hours  
**World Type:** Garden  
**Surface Gravity:** 0.853  
**Atmospheric Pressure:** 0.825  
**Climate:** Cool, Temperate  
**Water Presence:** 65%, Oceans, Ice Sheets  
**Atmospheric Composition:** Nitrogen 81%, Oxygen 18%, Trace 1%  
**Atmospheric Taint:** None

*Bayern*, with *Entdecker* still grappled, will warp into the BPC260379 system. The outermost planets are two icy rocks, a Neptunian ice giant, three large super-Jovian gas giants and two small gas giants. These planets are separated from the inner system by a dense asteroid belt, concentrated into three 'lobes' by the interaction of gravitational fields from the gas giants. Observations will suggest that if the innermost gas giant had been a few AU further out or a few Jupiter-masses smaller, this field may have formed another small planet. However, the gas giants' proximity and complex interactions have prevented it from coalescing. The resonances and interactions of the planets will keep the astrophysics department busy for many weeks. A fortuitous alignment of the planets means that most of the outer worlds, with the exception of one of the super-Jovians, currently lie in the same 45° slice of the system's orbital space, a rare opportunity for *Bayern* to conduct a 'grand tour'.

## Surveying the System

By now, the Travellers may have tired of making checks to perform routine tasks such as taking astrographical surveys of a new system and they are likely to have become supremely proficient. The referee could allow them to skip making checks for standard procedures and limit them to the out of the ordinary.

With sensor systems trained on the nearby gas giants and asteroid belt, Dr Bohl will request that *Bayern* remain in the outer system and that the inner planets are initially surveyed by a *Reisende* flyby. The stutterwarp-equipped probe will be sent into the inner system where it will detect several baked rock-balls and a world with a frozen methane and ammonia atmosphere. The fourth world out from the system star, inconveniently on the opposite side of the system at the moment, will be the last world surveyed.

The data packets from the *Reisende* will be sent at regular intervals and by the time the probe has reached the fourth planet the time delay for the first packet to arrive at *Bayern* will be several hours. The first indication that anything is unusual will come as the probe passes a safe distance from the system's primary and the fourth planet is no longer occluded by radiation and interference. Spectrographic readings will immediately show water, oxygen, carbon dioxide and nitrogen – all ingredients for a breathable atmosphere and signs of life. As the probe closes on the planet it will gather a steady stream of supporting data and by the time it approaches the stutterwarp threshold it will be beaming back images of an almost familiar blue-white marble.

There are also several troubling findings. Atmospheric levels of radionuclide such as isotopes of carbon, strontium, americium and plutonium are much higher than would be expected and there seems to be severe depletion of ozone in the upper atmosphere. Whilst there is evidence of photosynthesis and vegetation over some areas of the planet, much of the surface is barren, wind-blown rock. In addition, there are hundreds of large craters across the surface of the planet, some several kilometres wide.

Interpreting the results is easy – they are typical of a period of intense nuclear detonations. An Average (8+) Science (chemistry, physics or planetology) check (1Dx10 minutes, INT or EDU) will be able to narrow the event to nuclear ground and airbursts, and place

the event at between 50–100 years ago. Further study will allow a second check whose success will indicate that mixed in with the smaller craters from nuclear events there seem to also be many large craters more consistent with impact events, possibly kinetic weapon strikes. The similarities to the devastation of the Vitruvian homeworld will be obvious.

As the probe continues its survey it will also detect hundreds of small, and several dozen larger, objects in orbit, a debris field from destroyed orbital stations and satellites. The quantity and distribution of debris suggests a catastrophic chain of destruction with fragments hitting other fragments and shattering, sending more fragments to continue the damage. This is known as the Kessler Effect. Parking the probe in close orbit would be hazardous and so the probe selects a higher orbit clear of debris to conduct further studies.

The news of a potentially habitable world will trigger the commander to authorise *Entdecker* to prepare for a flyby of the planet – investigating potentially habitable planets is one of *Bayern*'s core directives. Assuming they form the crew of *Entdecker*, the referee should ask the Travellers to begin preparations for the mission, selecting equipment to take and so on. As they are in the midst of these preparations, updated atmospheric and orbital information from the probe will arrive and may affect their decisions. Certainly, the potential for intelligent life, or the former presence of intelligent life, has been established.

As the *Entdecker* is ready to undock and depart another data packet will arrive. The *Reisende* has detected a thermal plume from an offshore location

## The Kessler Effect

Impact with other objects is a constant danger to any orbital structure, be they micrometeorites, space junk or deliberate destruction. Because orbital velocities are so high, it does not require much mass for an object to become a lethal projectile. When an object is struck, it may release other pieces of debris, which themselves then become potential projectiles, creating a cascade effect. Each station, ship or satellite struck adds to the swarm of fragments, creating more debris. The effect is very real and the International Space Station was forced to change its orbit in 2022 to avoid the debris from a destroyed Russian satellite. The situation around the Builders' world is the ultimate result.

and a corresponding radio signal. The signal bears a striking similarity to the one that the rover in *The Relic* was transmitting. Furthermore, several larger pieces of orbital debris have been imaged and they bear geometric patterns similar to those seen on the rover. This information raises the tantalising possibility that this planet could be the homeworld or a colony of the owners of the rover.

## THE UNDERSEA COMPLEX

*Entdecker* will be able to travel to the planet in a little over four hours and will join the *Reisende* probe in high orbit to avoid the debris. Further surveys will reinforce the theory of some kind of nuclear and kinetic bombardment. One curious aspect will be that despite there being many craters, aside from a few small, scattered complexes, there appear to be no ruins of cities, ports, airfields or urbanisations, although many craters seem to be at the intersections of a transport network of monorails and roads.

Eventually the Travellers should decide to take a closer look at the location with the heat plume and radio signal. The *Reisende* probe has pinpointed the signal's source to an area near the coastline of the larger continent and orbital observations will show an area of low-lying, swampy land adjoining a shallow sea. A tall sea wall is breached in dozens of places and ruined flood defences criss-cross the land; dykes, ditches, levees and all manner of ruined structures. It appears that the land had been drained at some point and was inundated during the bombardment. There are several kilometres-wide impact craters, now crater lakes, with roads and what look like elevated monorails leading up to them. In between are few scattered ruins but the urban sprawls common on human worlds are nowhere to be seen.

Just offshore, barely 100 metres from the breached sea wall, is a structure just visible as waves break around it. It is from here that the thermal plume and radio signal is being detected. The structure seems to be a semi-submerged platform consisting of two domes joined by a raised, open area with a smaller, rectangular structure at the end of a short side branch. The platform edges are washed by breaking waves but the central sections seem dry. Determining the structure's strength and stability is not possible from orbit. Although the platform is certainly large enough to accommodate *Entdecker* or *Bayern*'s landers and spaceplanes, the commander will probably decide against landing on such an uncertain surface. It is worth noting that although protected from the vacuum of space, neither *Entdecker* nor the *Kenntnis* landers are designed for water landings and will sink if

they land in the sea. The *Orkan* spaceplanes do have hydrodynamic hulls but are designed to land in calm waters, not a turbulent open sea.

Widening the orbital survey will reveal several areas of dry land onshore where *Entdecker* could land and despatch a party via hovercraft to investigate the platform. Both the Songbird hover jeeps and Wallaby hover ATV could cross the short stretch of open water; however the larger Wallaby would be less likely to be swamped by the choppy seas. Alternatively, the Kolibri ultralight tilt rotor could be used to traverse the short distance but its limited payload may mean several trips for large groups.

## Through the Debris

The first difficulty in making planetfall will be traversing the dangerous orbital debris field. The *Reisende* probe has managed to map the planet for several days by the time *Entdecker* arrives and has a fairly comprehensive map of orbital paths of the larger chunks. However, the optimum orbit to bring *Entdecker* over the site of the thermal plume and radio signal is especially thick with debris, including what appears to be the remains of a large spacecraft. Although overall high, the density of debris in the orbit does vary and there are clearer windows over the target at roughly eight hour intervals, allowing an hour or so to descend to the surface. When the *Entdecker* crew decide to land the next orbital window is about to start but the damaged spacecraft, apparently orbiting independently of the debris field, is currently sitting right inside the de-orbit window that *Entdecker* will need to pass through.

The Travellers can choose to take the current window and try a powered descent to avoid the wreck of the alien ship, or wait for another clear insertion window and use a more fuel efficient glide descent. Attempting to land without a clear insertion window would be extremely hazardous, as there are thousands of small pieces of debris. Impact with these could severely damage, or destroy, *Entdecker*.

If the Travellers choose to land immediately, there is enough leeway to pass the wreck with a healthy safety margin and still achieve their target landing area. There is a risk of impacts with smaller debris, which the *Reisende* may have missed. If the Travellers wish to be more cautious and use a glide descent to save fuel, they will have to wait for the wrecked ship to pass out of the window completely and the next insertion window to come around. This will take a further eight hours and put their landing area in darkness. A further advantage of de-orbiting immediately will be that the *Entdecker* will be able to get a good look at the wreck of the alien ship, which may become significant later.

De-orbiting requires the expenditure of two Burns and the pilot must pass an Average (8+) Pilot (spacecraft) check (1Dx10 minutes, DEX). Failure results in a bumpy and unpleasant descent as the pilot has to make a few vigorous mid-course corrections. Effect -2 or worse requires an immediate expenditure of another Burn and a retry of the check to avoid debris and aborting back to high orbit, again with a few wild manoeuvres. Effect -6 or worse results in impact with a piece of debris. This will cause 1D individual strikes, each doing 2D damage. Another Burn will need to be used and the insertion will be aborted as *Entdecker* climbs back to high orbit. If *Entdecker* takes more than six points of damage her heat shield will be compromised. She will either have to return to *Bayern* for repairs, or attempt a landing with a compromised heat shield. Performing a landing with a damaged heat shield will require a Formidable (14+), Pilot (spacecraft) check (1Dx10 minutes, DEX). Failure results in the *Entdecker* being destroyed during re-entry.

If the Travellers choose to wait until the next clear window, without the wrecked ship as an obstacle, the de-orbit check will become a Routine (4+), Pilot (spacecraft) check (1Dx10 minutes, DEX). Failure doubles the duration of the task. Effect -6 or worse results in *Entdecker* being off-course and missing the destination co-ordinates. Travel to the correct co-ordinates will take 3Dx30 minutes, consuming precious fuel and it may be better to return to orbit and try again when the next orbital window opens in another eight hours.

## The Alien Ship

If *Entdecker* de-orbits whilst the alien ship is in the insertion window, it will pass within 100 kilometres. Optical telescopes in the survey sensors can be re-tasked to image the ship with little modification. Getting useful imagery from the sensors requires a Routine (6+) Electronics (sensors) check (1D minutes, INT). Success indicates that the vessel is equivalent to human vessels of the mid-23<sup>rd</sup> century, approximately 125 metres long and displacing 1,000-2,000 tons, depending on the size of missing sections. It has, or had, spin habitats, reaction control systems, solar arrays, radiators, reaction tanks and what seems to be a nuclear power plant. The forward section of the ship – or at least the section opposite the fission plant and thrusters – is sheared off and there are multiple, large holes throughout the structure. Effect 6+ identifies areas of the vessel with markings that are markedly different from those seen on other orbital debris and the rover. Any Traveller who has experience in space combat can make an Average (8+) Tactics (naval) check (1D minutes, INT) to recognise that the

damage is consistent with impacts, rather than energy weapons fire. The kind of damage seen on the alien vessel is likely the result of a kinetic kill weapon or a strike with an orbit denial weapon.

## Touchdown

Landing an undamaged *Entdecker* during daylight requires a Routine (6+) Pilot (spacecraft) check (1d Minutes, DEX). The check becomes Average (8+) if the ship is landing at night and Difficult (10+) if the ship is damaged. If the ship is both damaged and it is night, the check is Very Difficult (12+). Effect -6 or worse indicates that *Entdecker* crashes and is wrecked unless the pilot can make a Difficult (10+) Pilot (spacecraft) check (DEX) to make a very bumpy emergency landing. The impact will result in 2D damage to each crewmember strapped into their seats, 6D damage to any not strapped and 3D damage to *Entdecker*.

Once *Entdecker* is down, travelling to the platform is straightforward. The Travellers will first have to traverse the flooded land behind the breached sea wall. The landscape is a mix of sticky, stinking mud flats and shallow, muddy pools, lakes and streams. The mud is rich in rotting vegetable matter and there are a few stands of tough, thorny vegetation with thin yellowish leaves, something like a stout date palm. There are several ruined structures that the Travellers could visit on their way to the platform, which will prove to be partially submerged structures similar to concrete block houses. The remains of pipes and drainage channels can be seen and the structures seem to be part of the flood defences, possibly pumping stations of some kind. The interiors are mostly flooded or silted up and any equipment has long since been rendered inoperable. The structures have doors and windows sized significantly larger than human equivalents.

The weather is cold and a constant rain is falling, varying in intensity from a light, but persistent, drizzle to a heavy downpour by the time the Travellers reach the platform. The wind is blustery but there are no obvious or ominous storms on the horizon. The *Reisende* can be queried to check the weather, which will be overcast with showers for the next 24 hours.

Once they reach the sea wall the Travellers will be able to see it has not been breached by damage from the bombardment but by the elements. Storms and years of neglect have taken their toll and the wall has been unable to hold back the sea, simply crumbling away in the face of constant battering from the waves. Once the Travellers are on the water they will find the sea is choppy near the shore. The waves will grow in size as they move away from the coastline and there are



rolling swells of around a metre on the open water. The referee may call for a Drive (hovercraft) check if desired but if the Travellers are careful the trip will pass without incident. If they elect to use the *Kolibri* ultralight aircraft then the trip will be bumpy but easy. Winds will make the landing challenging and the referee may request Pilot checks to avoid mishap.

If approaching from the sea, the Travellers will hear the sound of the waves crashing into the platform before they see it – a deep boom as the wave hits followed by the hissing of spray cascading over the platform. As they crest the next swell they will see white spray thrown up and then the platform will emerge from the murk. The upper deck is around five metres above the surface of the sea and the Travellers will only be able to see the wet, green underside of the platform. Two giant, cylindrical legs descend into the water, one at each end of the platform. Between them and off to one side is a rectangular leg that also descends below the surface. The platform is washed by swells and the booming sound is coming from the waves hitting the flat face of the rectangular leg. The structure appears to

be made from an artificial stone or concrete analogue but discerning details from below is difficult as the structure is coated in slimy, sticky green algae and the swells make approaching the legs hazardous.

To the side of the rectangular leg is a short, semi-submerged pontoon with a ramp at one end which provides access to the upper portion of the platform. The waves are mostly hitting the platform from the southeast and as they do so a great deal of spray is sent up. The upper surface of the platform is slick and covered in patches of standing water and green algae. Any Travellers suffering from a negative reaction to a failed PAS check (2300AD Book 2, page 102) will find that the algae, which covers almost everything inside the complex, will cause an uncomfortable and unsightly skin irritation.

### Conditions Within

The undersea complex has been abandoned for almost 50 years and has deteriorated badly. The main structure is still intact and while some sections retain power, the majority is cold, dark and wet. Most

areas are partially flooded with cold, murky sea water and it is constantly dripping, dribbling, spraying and streaming down the walls and from cracks everywhere in the complex. There are a few emergency lights still on but they provide only a dim glow, not enough to see anything more than a metre away from them. Whilst mostly still structurally sound, the base has withstood the sea unmaintained for over 50 years and there are many cracks and fissures in the walls. The whole structure also echoes with creaks, groans and occasional bangs as it flexes with the waves. Travellers will quickly get the feeling that the whole place could collapse at any moment.

Access to the complex is possible through either of the two large, round lift shafts at either end of the platform or the smaller personnel lifts and shafts in the access building. The two round cargo lifts are not functional and the protective doors over the shafts are sealed and would need to be cut through. The access building, area 6, contains two personnel lifts (although, considering the larger size, Travellers may think these are also cargo lifts) along with two access shafts with familiar looking, if larger, ladders in them. Access to the lifts and shafts is via a pair of large, circular airlock chambers. Climbing down the ladders is tiring and awkward, as the rungs are set almost twice as far apart as they would be on a human-built ladder. The Travellers may find it easier to rig up a motorised winch to lower them down instead.

The base is essentially a pressurised vessel, with the volume of air inside it keeping the water out. If the pressure is released – say by cutting through one of the airlocks on the upper platform – water will flow into the complex through underfloor maintenance tunnels and breached sections of hull, and the whole complex will very quickly flood. Pictograms on the walls of the access structure stress the importance of maintaining the air seal and Travellers studying them can make a Routine (6+) INT check to understand the significance of the airlocks. In addition, they will find that the interior of the base is pressurised to almost two local atmospheres to counteract the effects of water pressure on the sea bed, 15 metres below the surface. Entering through the airlocks on the platform will trigger a gradual compression cycle, heralded by a rapid hiss of air and the Travellers' ears popping.

## Under Pressure

The pressurised environment of the underwater base is not hazardous for the Travellers in the short term and they can spend up to three hours below the surface without needing to take special precautions.

Beyond that the pressurised gases will have started to dissolve in their blood and they will need to spend time decompressing – letting the gases safely come out of solution – before returning to the surface. Failure to do so will result in decompression sickness – the bends – and potential air embolism. For each additional hour below the surface, the Travellers will need to spend five minutes decompressing in a pressure chamber upon their return to the surface. Any Travellers with the Vacc Suit skill, or experience scuba diving, can easily calculate the decompression times.

If the Travellers were to scuba dive to the sea bed, they would experience a gradual change in pressure on the way down and then back up. Since the base is a sealed environment, the surface portions of the lift shafts and maintenance passages are also kept at two atmospheres. The airlocks have a deliberately slow cycle time to allow for a gradual pressure change, minimising discomfort and allowing pressures inside the body to equalise normally. The same pictograms that show the base is pressurised also show airlocks being used to prevent decompression effects.

However, should the Travellers decide they need to exit in a hurry and forego the gradual change, by using explosives to destroy the airlocks for instance, they will experience rapid and painful decompression, potentially damaging sinuses, ears and lungs as gases contained within expand to twice their size. In this eventuality each Travellers must make a Difficult (10+) END check to avoid decompression damage.

Failure results in intense pain, imposing DM-2 to all checks for 1D hours. Effect -2 or worse imposes the same DM-2 to checks and indicates sinus and ear trauma resulting in 1D damage. Effect -6 or worse indicates overpressure damage and potentially a collapsed lung, arterial embolism or various forms of emphysema as air bursts from the lungs into surrounding tissues. The Traveller immediately suffers 3D damage, plus the DM-2 from pain. They will vomit copious quantities of blood and will also suffer ear and sinus damage.

## THE SPEAR AND THE SHIELD

This platform and the undersea base were one of the few defence stations constructed on the Builders' homeworld. It was responsible for destroying the alien craft in orbit above using a missile similar to a 20<sup>th</sup> century ICBM with a brace of kinetic kill submunitions warheads. The arcology responsible for constructing it was known within Builder society as

a particularly militant one and they operated as a sort of mercenary house, hiring out their defence technology in return for essential skills and materials. The Builder name for the arcology roughly translated as The Spear and The Shield and its emblem was a stylised vertical spear atop a round shield. This emblem and variations of it are displayed prominently around the base, much like national, service or unit flags would be on a human military base.

Unfortunately, the base's weapons, whilst formidable, were limited. Its three missiles were all fired and all found their targets but there were dozens of Raider ships in orbit and simply not enough weapons. After the missiles were fired, the crew of the base had to watch as their world was destroyed. The eventual fate of the crew is unknown but conditions on the base must have deteriorated enough to force them to leave, taking most of the useful equipment they could carry. Sometime later a single individual returned to the base and set up the beacon, the plaque and the dodecahedron. The individual, their task complete, then perished in the base, from injuries, illness or old age. The base then sat empty for decades, still ticking over with its geothermal power plant. Empty until the water hunters moved in, that is.

## THE WATER HUNTERS

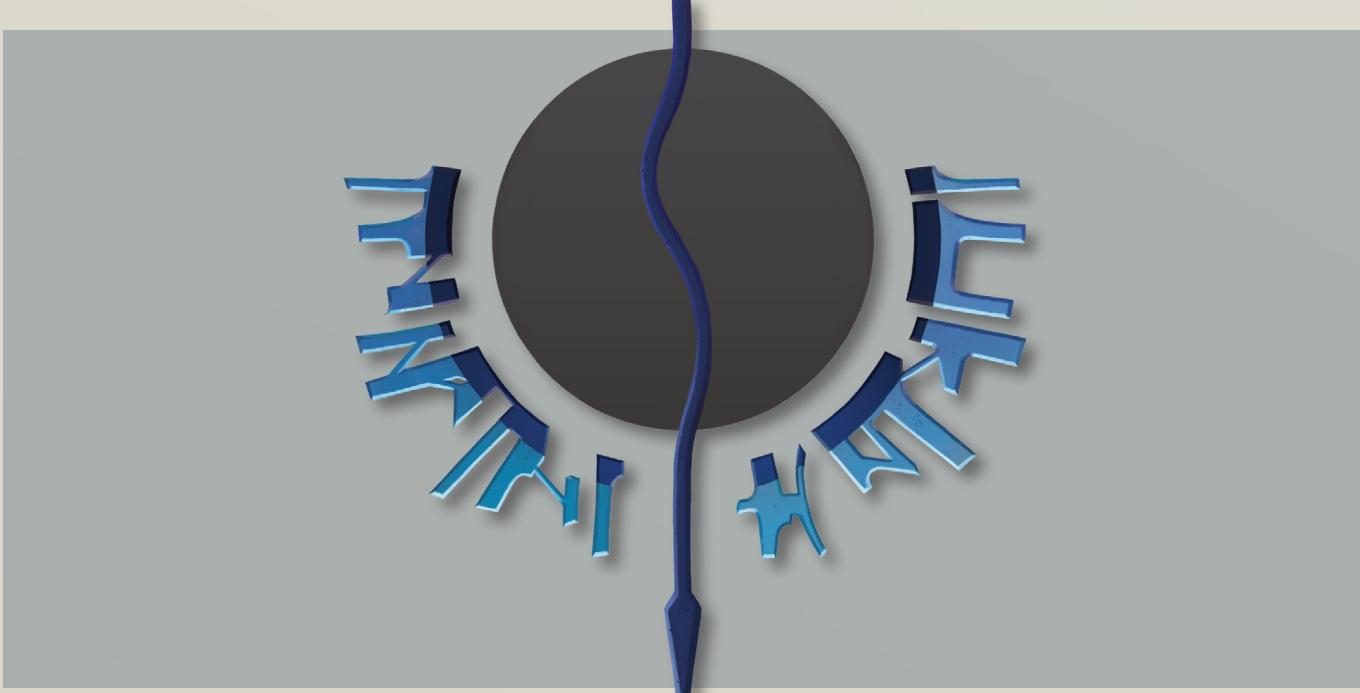
Since its abandonment a colony of aggressive, predatory, aquatic reptiles, referred to as water hunters, has taken over the base. The animals have

chosen the offices and rooms around the power plant as their lair but consider the whole complex to be their territory. They tend to spend daylight hours hunting outside the base and return as night falls, entering through openings in the underfloor maintenance tunnels near the transit hub (area 13) and proceeding through the flooded base to the power plant (area 10).

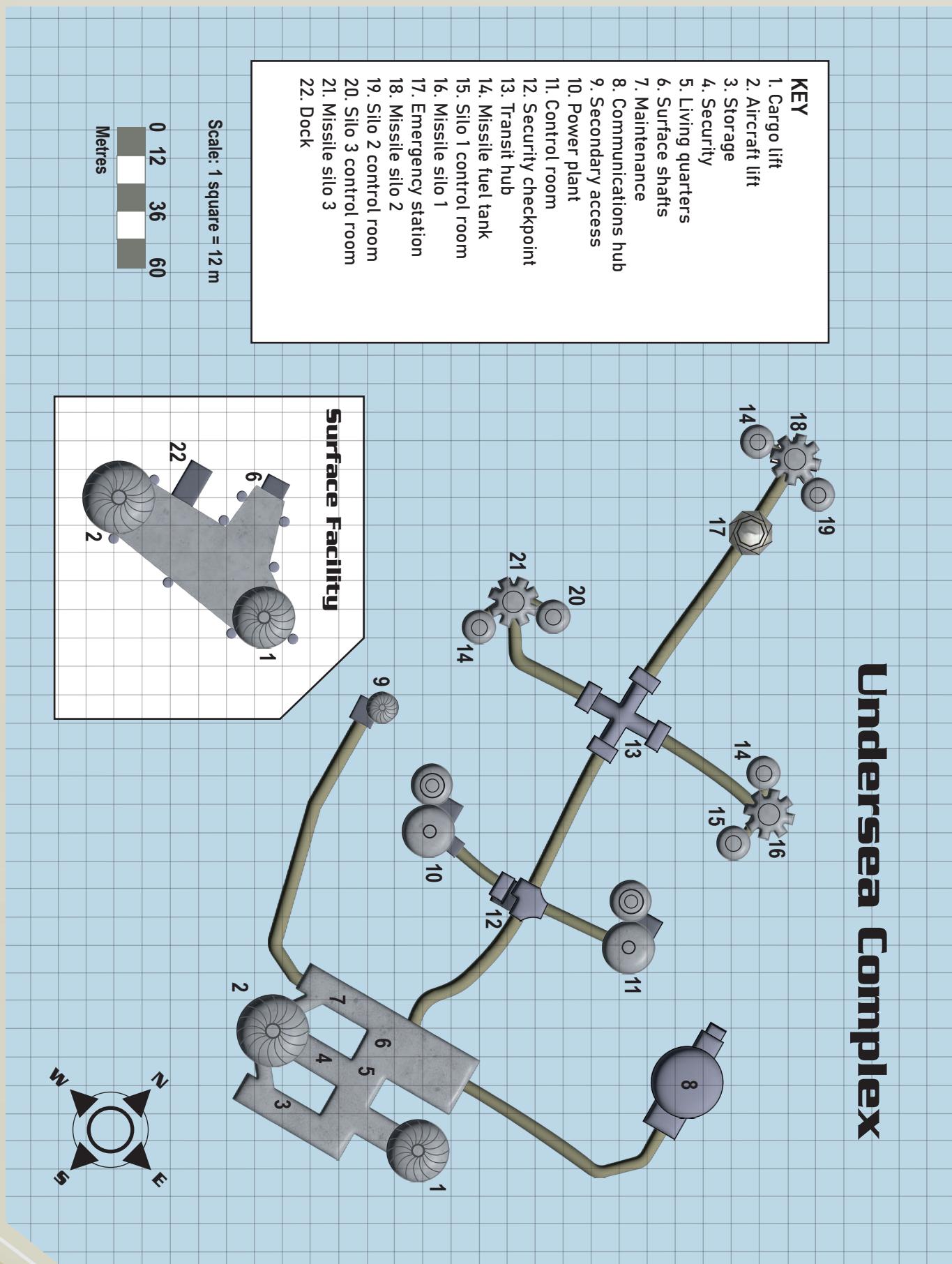
### Encountering the Water Hunters

If the Travellers landed during the day they will reach the complex at around mid-day, meaning most of the water hunters will be out of the base hunting. Occasionally they return to the base but it is rare. Each hour the Travellers explore and each time they enter a previously unexplored area the referee should roll 2D. On 11+ they will encounter a single water hunter; on a 13+ they will encounter D3 water hunters.

During the night the hunters return to the base and feed, groom themselves, mate and care for their young. During this time they also tend to wander the base and an encounter is much more likely. For each hour and every new area explored a water hunter will be encountered on 8+ on 2D. On 11+ there will be D3 water hunters, on 13+ there will be 1D and on 15+ there will be 1D+3 and a 50% chance of the alpha too.



# Undersea Complex



The referee should feel free to add DM+1 or DM+2 to these rolls if the Travellers are being especially noisy and DM-1 or DM-2 if they choose to be stealthy – the DM-2 modifier will require a Stealth check. The water hunters have a keen sense of smell and will quickly pick up on blood in the water. The referee should add a further DM+1 for each encounter that ends in death or injury. The cumulative modifiers will quickly mean that the Travellers may become overwhelmed by waves of water hunters.

There are signs of water hunter activity all over the base if the Travellers are observant. Many surfaces have scratches from their claws and fragments of skin. The water hunters are also not good at cleaning up after themselves and the carcasses and waste from their feeding will become more apparent the closer to their regular route from the transit station to the power plant the Travellers get.

The referee may wish to manipulate encounter frequency so that the Travellers are not discouraged from searching the complex whilst keeping the possibility of a scaly, aquatic predator bursting from the water as an ever present threat.

## AREA DESCRIPTIONS

### 1. Cargo Lift

The cargo lift shaft is breached halfway down and has flooded. Doors are sealed at the top and bottom, and cutting through the upper doors will reveal the shaft filled with water that is level with the sea outside. The lower doors open into storage bays and there is a constant stream of leaking water from around the doorframes which makes it obvious that the area beyond is flooded. The lower doors are unpowered and cannot be opened without substantial repairs and the shaft being drained. Attempting to cut through them will result in, at first, a vigorous leak. Continued cutting will increase the flow of water until the cut is approximately a metre long, at which point the pressure behind the door will cause structural failure and the doors will burst open, allowing the sea to pour in. Any Travellers in the storage area will be killed by either the weight of water, debris propelled by the rapid influx or drowning.

### 2. Aircraft Lift

The upper doors to this shaft are likewise sealed and lack power to open. Cutting through them will result in a sudden blast of wind from inside the shaft as the pressure is equalised. The sea will suddenly flood into the shaft below, having been held back by the volume

of air inside, filling the shaft, maintenance bay and storage area. Travellers will be alarmed to see the water boiling up the shaft towards them but the rate of rise will slow as it nears the surface. If the upper hatch is not breached then the shaft can be entered from the storage, security or maintenance areas in the complex below. The large doors to the maintenance area are open and the doors to the storage area are partly open but those to security are shut. Levering them open requires a Very Difficult (12+) STR check. The floor of the shaft is knee deep in water and there is an entry point for the water hunters in the maintenance tunnels below the water.

### 3. Storage

This large area is partially flooded, like the aircraft lift. It contains a number of empty shipping containers with a hexagonal cross section. They have examples of the Builder script on them. Stacks of mundane equipment can also be found here; pipe fittings, sections of ductwork, corridor flooring, sheet metal, spare doors and so on, much of it corroded by sea water. This location makes for an ideal ambush by the water hunters as the Travellers are exiting the complex. The doors to the aircraft lift are slightly open, with just about enough room for a single person to squeeze through.

### 4. Security

The security station is isolated from the rest of the complex. The heavy metal doors are shut but the electronic locks have failed and prying them open requires a Formidable (14+) STR check (1D minutes). The doors will make a loud, metallic screeching as they open, possibly alerting water hunters. Inside the room is a mess with smashed and corroded furniture and equipment everywhere. The room is not flooded and opening the doors to the surrounding areas will cause some water to pour in. A bank of what appears to be screens and electronic equipment of some kind fills one wall, with markings in the same alien script seen on the rover at BPC 238974 (see page 72). Since the room was sealed from the rest of the complex, there will be no water hunters.

### 5. Living Quarters

This area is a single, large open space. Around the perimeter, over two levels with a rusting meshwork balcony, are 40 open alcoves that were living quarters. The gregarious Builders lived in these open fronted alcoves and rested on the floor in a type of nest. The modern Builders used comfortable synthetic materials for their nest linings but the overall shape was still reminiscent of the shallow caves that their ancient ancestors used.

Each alcove is six metres square and contains a central bowl shaped depression, approximately three metres in diameter and a metre deep. Some still contain scraps of synthetic bedding and heating elements can also be seen on the inner surface. Around the walls of the alcove are shelves and storage nooks, some lockable, for personal effects. Most alcoves are empty of anything but useless and unidentifiable junk but there are one or two items that may be of interest. A Routine (6+) Investigate or Recon check (1D minutes, INT) will reveal an item from the list on page 94.

The central area of the living quarters contained the communal dining and relaxation area. It is now flooded and the furniture has been smashed or destroyed by water. It now resembles a partially flooded junkyard and underwater obstacles make movement slow. The central area is recessed below ground level and there are terraced steps on each side. In addition several areas of the floor grating are missing, allowing access to the service tunnels and creating potential pit-traps for the unwary. Moving through the centre of the room at anything other than a slow, cautious walk requires an Average (8+) DEX check to avoid getting caught up on sunken debris. Failure means the Traveller has fallen through and will have to swim back to the surface.

Adjacent to the main living areas are sanitation facilities, meeting rooms, store rooms and a medical bay. All of these facilities have been ruined by floodwater and years of neglect. It will require a Difficult (10+) Science (xenology) check (INT) to determine their probable functions.

## 6. Surface Shafts

There are two large lifts that run from this area to the surface, with a smaller maintenance shaft between them inside a small blockhouse. There is a diagram of the complex on the wall and pictograms show how to operate the airlocks.

The lifts are out of order and sit at the bottom of the lift shafts. At both the top and bottom are a set of mechanical airlocks that maintain pressure inside the base. These are a simple rotating cylinder with an opening on one side. The cylinder used to rotate by means of an electric motor but that has long since become inoperative. There is also a manual override in the form of a large (to human hands) wheel that can be cranked to rotate the cylinder. Rotating the cylinder around fully takes five minutes and is very tiring, as the gearing ratios require a great number of turns of the wheel. Rotating the cylinder on the upper

level also serves to gradually equalise pressure and is accompanied by squeals of pressurised air and the Travellers' ears popping.

If the Travellers breach the pressure seals, perhaps by cutting through the cylinder at the top and bottom of the shaft, the pressure inside the base will be released and water will flood in. Anyone inside the complex when it starts to flood will eventually be killed by the change in pressure, rapid influx of water and impacts from debris.

The lift shafts and the maintenance shaft have ladders inset and there are hatches atop both lifts that can be opened. The ladders are designed for Builders, however, and the gaps between the rungs are uncomfortably large for humans. Water hunters do not have the manual dexterity to climb ladders, which will be a great relief to Travellers being chased by them. Instead, they prefer to swim outside the complex and climb onto the top of the platform to patiently wait for the Travellers to appear.

There is also a six metre wide passageway which leads towards the security checkpoint. This is actually a raised, enclosed meshwork walkway suspended within a larger rock tunnel, designed to float on hydraulics to absorb the shockwave of attacks. The walls of the tunnel are rough rock and around one metre away from the raised mesh walkway on all sides. The hydraulic dampers have long since seized and the passageway is now a series of buckled and slightly angled sections that creak and squeal. The floor of the walkway has a track in the centre which appears to be for a small vehicle. The doors to the passageway are open and water cascades down into the outer tunnel, flooding it below the walkway and leaving the elevated portion dry.

## 7. Maintenance

The maintenance department consists of a long, broad hall over two levels. The lower level is flooded like the rest of the complex but the upper remains dry. The hall has a central, open atrium filled with machinery, parts and tools, all destroyed by water. The upper level consists of alcove-like store rooms and work areas which surround the central atrium and are joined by a metal mesh balcony. There are large doors to area 2 which stand open and a six metre wide corridor with a track for a vehicle that leads to area 9. The doors to this corridor stand slightly ajar and require a Formidable (14+) STR check to open.

The lower level holds little of value beyond enigmatic corroded machinery but the alcoves on the upper level include many artefacts relating to the maintenance of the base, including tools, supplies and ruggedised



instruction manuals in alien script. In one of the alcoves is an image of two alien lifeforms reclining in a bowl-shaped nest.

## 8. Communications Hub

This area contained the communications and tracking equipment for the base and it is from here that the automated signal is being sent. Like the maintenance bay, this area consists of a large central atrium split over two levels with alcoves around it on all sides and a balcony on the upper level. The central atrium had a sunken communications pit filled with equipment and consoles which has now been flooded, meaning that the water in the central area is much deeper than elsewhere. Most of the equipment here is corroded, damaged, shorted out and broken. However, in one room on the upper level there is a communications unit which is still transmitting the signal that the *Reisende* probe detected. It is a simple transmitter with a solid state recording set on a loop. However, examination and a successful Average (8+), Electronics (comms) check (1D minutes, INT) will show there is a link open elsewhere in the complex, possibly indicating the presence of further undamaged systems.

## 9. Secondary Access

This area provided an alternate entry point to the complex in the event of bad weather or damage preventing the main platform being used, as well

as more clandestine activities. This small complex consists of a series of airlocks that allowed mini-subs to dock. There is a central hallway with three large airlocks spaced widely on either side and a moon pool in a separate chamber at the far end of the corridor behind a large pressure door, similar to those in areas 1 and 2. The structural weaknesses in the base mean that the moon pool room has now flooded and the pressure door is closed. The six airlocks are all functional and five will allow access to the exterior of the station if the Travellers have suitable diving gear.

The sixth airlock still has a mini-sub docked to it. The Builders left it behind as its motors were damaged and it could not manoeuvre. The mini-sub is designed for six Builders so could easily carry up to a dozen humans without feeling cramped. The seats and controls are all sized for the larger Builders and will make the Travellers feel a little like children. In an emergency they could use it as an escape vessel as, although unpowered, it will float through the murky water to the surface. Referees should consult the section on page 82 for rapid decompression if the Travellers open the hatch immediately upon reaching the surface.

## 10. Power Plant

The complex is fed by a geothermal tap of advanced design. The tap is a rugged but elegantly simple system which forces a molten salt solution down a borehole drilled deep into the planet's crust. The salt solution is heated by hot rocks at depth and returns up another borehole where a solid state heat exchanger is used to generate energy. Even by 24<sup>th</sup> Century human standards the design is a marvel. A detailed study would provide useful information on making practical geothermal energy a reality for humanity.

This module was built ruggedly and has withstood the years of neglect better than the rest of the complex. It is warm, dry and in good repair but, like the rest of the complex, most of the lights are out. A switchback staircase leads to the upper level which consists of a circular corridor around the central core, a pit 10 metres deep containing the geothermal tap machinery itself. The corridor has large, transparent viewports that look into the pit on one side and a series of cave-like open rooms on the other, a mix of offices, control rooms and store rooms. In several places the Travellers will see where equipment has been removed, taken by the Builders as they evacuated.

The ring is split into three segments by staircases. The first of these leads out to the rest of the complex and the other two descend 10 metres to the base

of the central pit. The bulk of the central pit is occupied by the geothermal tap, a roughly cylindrical collection of conduits, valves and turbines. It is vaguely reminiscent of a giant, upturned jet engine shrouded in cables and pipes. Off to one side is a large electrical switching station, connected by several thick, insulated cables. On the other side is a secondary pumping plant and several tanks of coolants, heat exchanger fluid and the salt solution.

The area is dimly lit by overhead lamps and from the readouts of the equipment here a Traveller can deduce the operation of the power plant by studying it and making a Difficult (10+) Engineer (power) or Hard (10+) Science (chemistry or physics) check (2Dx10 minutes, INT). Success means they recognise that this is a geothermal power station but nothing further. Effect 2+ means the Traveller has recognised that this is an advanced design, superior to human technology and Effect 6+ indicates they have gathered important information about the plant's operation that can be applied to human systems.

Unfortunately, as the warmest and driest part of the complex this is also where the water hunters have made their home. Nests are scattered around the offices and workshops and consist of beds of shredded vegetation, brought in from outside the complex, along with a few remains of Builder artefacts. Travellers can see parts of the materials from the nests in area 5, shredded insulation from ducts and pipes around the complex and some torn and shredded Builder uniforms. During the day there will be two adult water hunters here guarding the nest and several dozen juveniles. The juveniles are no real threat to the Travellers but killing them will enrage any water hunters present, who will attack relentlessly until either they or the Travellers are dead.

## 11. Control Room

As the Travellers approach the control room they will come across a barricade blocking their path. Sheets of metal that appear to have been scavenged from around the complex have been welded into place, blocking the passageway completely. Near the top of the bulkhead, well above the level of the floodwater, is a large (Builder-sized) hatch with a ladder leading up to it. The hatch is securely closed but not locked and with a little persuasion will open with a very loud squeal. Beyond, the passageway is not flooded. There are construction tools and what look to be portable pumps and hoses of alien design.

Like many areas in the base the control room consists of a central, open atrium over two levels with cave-like open rooms around the perimeter. Those rooms that are enclosed have large windows and clear panels giving views over the central atrium. The rooms have been stripped of equipment and fittings, leaving bare patches of wall, open conduits, sheared-off bolts and lengths of optical and electrical cable. The central atrium has six crescent-shaped consoles arranged in pairs around a central holographic display. The display is operational but the image is dim and flickers as a result of dust and debris on the projector. If the projector lens is cleaned the image will clear a little although it remains dim and occasionally flickers and dissolves into static.

The image is one of the last strategic overviews of the bombardment and shows a static map of the planet's orbital space with dozens of tiny dots in orbit. One of the dots is highlighted and a ghostly wire-frame image of a spacecraft floats next to it. Travellers that passed the alien ship in orbit will recognise it as a similar configuration. There are many arcs of light emanating from orbiting ships – the paths of their warheads and kinetic weapons. Many of these arcs terminate in glowing white spheres at locations that correspond to the craters observed from orbit. Some arcs have not yet reached their final destination and instead of a crater the Travellers can see images of buildings, which are either enlarged or were of prodigious size. The location corresponding to the undersea base has three arcs of a different coloured light emanating from it, each heading for one of the vessels in orbit.

The Travellers will also see, placed prominently on one of the consoles, a shiny, hexagonal metal plaque atop an object about the size of a soccer ball. Moving to examine either will also reveal a jumbled pile of bones that is the long dead corpse of a Builder. Little is left other than bones and a few shreds of stained fabric. If the Travellers succeed on either an Average (8+) Science (biology or xenology) check (INT) they will realise that the bones could be those of one of the creatures represented in the statue in the security station, area 12.

The plaque is covered in the geometric alien writing and has several diagrams, including one that appears to be an image of a lifeform and another that corresponds to a schematic of the planets in the system. The second object is very heavy and a dull brassy colour. It is shaped like a dodecahedron (like a D12) and each face is slightly recessed. One face has five small protrusions which seem to be a stand or feet of some kind. The opposite face has

a pair of recessed sockets that remind Travellers of data connections, although of an unfamiliar type. Translation of the plaque and investigating the device are best not undertaken whilst in the base and are discussed further on page 91.

The same console which the device was set upon has a collection of components and cables linked together and appear to have been constructed by scavenging from nearby consoles. This is the other end of the jury-rigged link to the communications centre in area 7. The construction includes a pair of cables that will fit into the dodecahedron. Connecting the cables will have no apparent effect but if the device is connected and the handshake signal recorded from the rover on page 72 is played, the dodecahedron will begin a massive upload of data (see page 90).

The remainder of the equipment in the control centre is operational but deciphering its purpose will be problematic as the Travellers do not have a working model for the alien language. If they decide to press buttons randomly they will achieve little – this is the missile launch control room and the missiles have already been launched. Also, many of the systems controlled from here are no longer functional. There are two useful pieces of information that can be gained by careful study, however.

If the Travellers examine the control panel for the holographic display they may be able to play back the sensor data currently being displayed. Interpreting the controls requires a Difficult (10+) Electronics (computers or comms) check (1D minutes, INT) to work out three commands – play/pause, fast forward and rewind. Success indicates the Traveller has discovered one of the functions above, in the order listed. Effect 6+ indicates they gain full control of the device.

Once the Travellers have control over the display they can review the sensor information. There is around two hours' worth of data stored and it shows the first stages of the bombardment. The display is paused at the midpoint of the data, just as the first weapons are impacting on the surface. Earlier data shows vessels firing weapons at another set of starships and stations in orbit and later data shows them continuing to launch weapons at structures on the planet. The Travellers will also be able to see the three weapons launched from the complex engage and destroy three orbiting starships.

The second piece of information the Travellers will be able to deduce will be the purpose of the base and function of consoles in the control room. After they have viewed the sensor data the Travellers will

be able to make a Difficult (10+) Tactics (naval) check (INT). Success indicates that the Traveller realises this is a missile defence station and this is the control room. Effect 6+ will indicate that they have managed to understand something of the relative scales of objects in the holographic image and come to the understanding that the sensor data was not showing enlarged icons for the buildings – they really were that massive.

## 12. Security Checkpoint

Travellers arriving from area 6 into the security hub will see a set of huge partially closed metal doors. Jammed between them is a small tram-like vehicle, evidently designed to travel along tracks in the passage floor. There is a gap of approximately one metre between the doors where they have almost crushed the vehicle completely.

The security station beyond the doors was designed to control the flow of personnel into the missile silos. The transit tracks terminate here and passengers had to pass through a security checkpoint before proceeding. The departing Builders scavenged this area for materials and the checkpoint was disassembled, so the area beyond is now mostly open with just a few benches or desks.

One item that was not removed is a large statue that dominates the centre of the room. It is of a stylised Builder holding a shield and spear, and is made from a very hard, grey rock with large crystals, shot through with veins of red. A Routine (6+) Science (planetology) check (INT) will show that the rock is similar to a pegmatite and the red veins appear to be an iron mineral that has stained natural cracks and fissures. If the Travellers have not seen the image from the living quarters in area 5, then an Average (8+) Science (xenology) check (INT) will suggest this may be a representation of the base's owners. If they have seen the bones in area 11 they will see an instant similarity.

The statue is an imposing four metres high and stands on a circular base which has geometric writing carved into it. Success on a Routine (6+) Science (linguistics) check (INT) will suggest that these carvings appear to be different from pictograms seen elsewhere around the complex. Should the Travellers manage to decipher the language and try to translate the pictograms they discover that the closest translation would be a vow or pledge promising to stand in front of any dangers that threaten the place where the Builders live – an oath to protect their home.

A new set of transit tracks continue out of the security station towards the transit hub in area 13.



### 13. Transit Station

Four passageways converge in this area of the complex and it houses the marshalling yard and garage for the transit systems. A collapsed section of the floor also creates the main entry point into the complex for the water hunters.

The transit station features a large, open atrium with cave-like rooms around the perimeter. The centre of the atrium used to be a marshalling yard for the transit system, with a series of turntables, sidings and switches to allow trams to be routed to their destination. Four sets of tracks lead away to the missile silos and back towards the security station. The alcoves around the wall are a mix of storage bays and workshops. Several corroded and non-functional trams can be found here, along with ruined machinery and tools. Like the maintenance bay, there are several technical documents here and also diagrams of the transit system on the walls. The trams are designed to seat four Builders, so will seem very large to humans. They also have oddly designed seats to accommodate the Builders' tails.

The floor in the central atrium is flooded; however the underfloor maintenance tunnels here are breached and link to a passage to the open sea. It is through

these tunnels that the water hunters enter and leave the base. DM+2 is applied to encounter water hunters when entering this area and for each hour spent here.

### 14. Missile Fuel Tank

This area is a cylindrical shaft 20 metres deep and 15 metres in diameter. It is accessed from the perimeter corridor around the missile silos, which leads through an airlock to a catwalk that runs around the interior of the room. The centre of the room is filled by a series of large tanks of missile fuels, oxidisers and compressed air. These are now all empty.

### 15, 19 and 20. Missile Silo Control Rooms

Although the control centre had authority over missile launches, a secondary control room was attached to each silo in the event that damage prevented the launch of missiles. These areas consist of a circular shaft 10 metres across, divided into two levels by a sturdy metal mesh floor with a staircase to one side.

The upper floor contains non-functional copies of the control equipment found in area 11 connected to machinery nearby by thick cable bundles running across the ceiling. The lower floor contains the entryway and several nests similar to those found in area 5, along with what appear to be a food preparation area, sanitary facilities and storage lockers.

### 16, 21 and 18. Missile Silos

The missile silos are all functionally identical. They are circular shafts 50 metres deep and eight metres across with a three metre wide corridor circling the shaft at its top, linking shaft, control room, silo launch door equipment and fuel tanks. The silo itself is accessed by a reinforced airlock which leads onto the upper level of a two metre wide catwalk around the interior of the shaft. This catwalk is repeated every four metres down the shaft, linked by a ladder well. The base of the shaft consists of a cradle to hold the missile and fuelling and maintenance equipment.

The launch process for the missiles required that the upper doors to each shaft were blown away by compressed gas and the missiles fired up through the column of bubbles and gas that formed. As a result, the silos are now all flooded and open to the sea.

The doors to the airlock into the silo will not open as it would flood the complex. Water can be seen trickling in around the inner airlock doors.

### 17. Emergency Station

The emergency station is a large, round storage room now partially filled with water and debris. There is a persistent leak in this room and a curtain of water

cascades from the domed ceiling. The water level is not rising, however, indicating that there is some mechanism pumping out water.

Storage lockers around the edges of the room used to contain emergency equipment for firefighting, dealing with chemical spills, breaches of the complex and so on. There are numerous examples of alien text which are actually posters providing instructions on emergency procedures. Some pictograms show stylised figures undertaking tasks such as firefighting, plugging a leak, cleaning up a spill of liquid that is clearly bubbling and giving off fumes and a stylised Builder donning a protective suit. The specific, technical nature of these posters and the pictograms indicating activity will provide a useful aid for attempts to translate the language.

Most equipment stored in this room was removed when the Builders departed, so the lockers are now bare. The doors to area 18 are closed but not locked and can easily be pushed open. The doors towards the transit hub are missing.

## 22. Dock

This semi-submerged dock provides access to the upper platform by way of a broad ramp.

# DECIPHERING THE ALIEN LANGUAGE

The Builders used a complex system of geometric pictograms to convey information and Travellers will have difficulty in translating the writings until they realise that the Builders actually had two common forms of writing.

The first was a 'formal idiom' used when precision and accuracy was required; in human terms this would be the kind of dense, specialist language used in technical or legal documents with every word having precise meaning. Metaphor, simile and other inexact use of language are not present. These pictograms are the ones that Travellers will see in the technical documents in the maintenance bay and on any instruction panels around the base. The informational posters in the emergency station are also written in this language. This idiom actually has many similarities to a sophisticated computer programming language and if the Travellers are able to decipher any of the Builder's computer programs they will see that they are almost written in what a Builder would consider plain text.

The second type of writing is the 'expressive idiom'. This is not a modification of the formal idiom but an entirely different script where pictograms represent a broader range of meaning which may differ depending on usage with other pictograms. Of the two it is actually the more complex, as the meaning of pictograms can change. This is the language used to discuss more abstract concepts or concepts where there may not be the degree of accuracy required for formal language. There are few examples of the expressive idiom in the complex. The Travellers may find examples in some of the found artefacts in areas 4, 5, 6 and 11, but the most obvious example is carved into the statue in area 12.

Builder day-to-day conversations were mostly held in the expressive idiom and the formal idiom was used where precise conveyance of information was required, such as instructing a worker. The two styles of writing, and presumably language, were mutually exclusive and a Builder would not have switched from formal to expressive mid-sentence.

Understanding the Builder language fully will take many months of work by *Bayern's* linguists even with Ace's assistance. The formal language syntax will be cracked first but its extensive vocabulary of pictograms will take longer to understand, and many may never be translated or remain ambiguous as there is no common frame of reference.

## THE PLAQUE AND THE DEVICE

The alien plaque is made from an iridium-plated steel hexagon approximately six millimetres thick. The surface has been etched with designs to a depth of approximately one millimetre prior to the iridium plating. There are six holes near the points of the hexagon which show scuff marks and surface scratches, while the rear of the plaque is blank and scratched in several places. The front face shows a number of diagrams and designs, as well as two blocks of densely packed geometric pictograms and a third line of distinctly different pictograms. One of the diagrams is of a dodecahedron similar to the brassy object discovered with the plaque.

The two blocks of pictograms are written in formal idiom and as such are achingly precise. The first is a message describing the plaque as being from the Builders and that they mean no harm to those who discover it. The actual language is, however, tortuous, sounding more like a legal document. Where a human might have said 'we come in peace' the Builders would instead say 'the intention of the parties previously identified as the species existing on or travelling from the world at the

juncture of the pulsar co-ordinates given in the passage above is to neither commence nor participate in acts of aggression or violence towards or against any parties or beings, whomever they may be, that discover or are informed of the existence of this plaque'.

The second block of text is a description of basic scientific terms used to build up a common set of references, describing the Builders' base-6 numbering scheme, referencing diagrams to show the location of their home system, Builder physiology and details of how to access the dodecahedron device and the protocols used to store information in it. In this instance the highly precise syntax of the Builders' formal idiom is an asset and using this as a guide will allow *Bayern's* scientists to access information stored within the device with ease.

## The Dodecahedron

The second artefact is a bronze-coloured dodecahedron with a diameter of 27 centimetres from flat face to flat face. Each is slightly recessed and one has five small protrusions which act as feet or a stand. The face opposite this has two shuttered hexagonal ports, each containing three small protruding pins and three small sockets.

The device is a portable data storage system and much of its mass is given over to protecting the relatively small solid state data core inside. It is comprised of multiple layers of a strong foamed synthetic sandwiched between ablative composite armour (the brassy material) and lightweight aerogel shock

absorbers. The object could conceivably survive re-entry from orbit and impact with the ground with its data intact. Once the protocols and equipment to access the data storage device have been deduced from the plaque, the data can be accessed.

The data core contains an encyclopaedia of Builder knowledge, history and culture. The Builder who returned to the complex and set up the beacon assembled as much information as they could find following the bombardment. The data core is not complete but gives a broad-brush overview of Builder society and history. The fundamentals of the Builders' stutterwarp are included, as is the history of their spaceflight programme, including the worlds they sent their probes to. The notes on stutterwarp are enough for an engineer to recognise that it is a different configuration to a human drive and start researching the design but would take years or decades to develop a working prototype.

Also included within the database are sensor readings and telemetry from the bombardments. The Travellers will be able to recognise the vessel in orbit as a Raider ship using a Builder-designed stutterwarp. They should be able to deduce that the attackers must have come from one of the worlds that the Builders sent their probes to. To ensure the safety of *Bayern's* mission, the Travellers will probably want to avoid these worlds, or at least be circumspect in their investigations.

The referee should use the notes at the start of this chapter to answer questions regarding Builder history.



## WATER HUNTERS

The creatures that have made the Builder base their home are aggressive, territorial and clever aquatic reptiles. Their thick, tough hide is patterned in broad grey and dark blue stripes which acts as camouflage when in shallow water. Powerful jaws and sharp claws are used to grab and rend prey. The creatures have a range of short ridges and spikes in their hides and a short crest along their spine, with a large, vertically flattened tail which is used as a rudder and a method of propulsion. Average adult size for a water hunter is 200 kilograms and two to three metres long and an alpha can reach up to 700 kilograms and be four to six metres long.

Whilst they hunt in the water, they are not able to breathe it and so are forced to surface often. Their natural prey is a species of aquatic omnivores similar to sleek, silver, six-finned tuna that are abundant around the base. They have also begun to form a rudimentary farming system, using fish husbandry to select only adult fish to eat and constructing primitive corrals on the sea bed to keep the highly mobile, spiny, carrion-eating crustaceans that supplement their diet from wandering off.

The crustaceans tend to congregate in sandy hollows between areas of bare rock. The hunters have begun to drop carrion into these hollows to attract the crustaceans and then use boulders to seal off entries and exits. They then feed the crustaceans with carrion to keep them healthy and harvest them until the hollow is bare, whereupon they begin again in another hollow.

Animal	Hits	Speed
Water Hunter, Alpha	49	15 m
<b>Skills</b>	Athletics (dexterity) 1, Melee (natural) 2, Recon 1, Stealth 2, Survival 1	
<b>Attacks</b>	Teeth and Claws (3D)	
<b>Traits</b>	Amphibious, Armour (+4), Heightened Senses, Large +2	
<b>Behaviour</b>	Carnivore, Killer	

Animal	Hits	Speed
Water Hunter	30	13 m
<b>Skills</b>	Athletics (dexterity) 1, Melee (natural) 1, Recon 1, Stealth 2, Survival 1	
<b>Attacks</b>	Teeth and Claws (2D)	
<b>Traits</b>	Amphibious, Armour (+3), Heightened Senses, Large +1	
<b>Behaviour</b>	Carnivore, Killer	

## THE BUILDERS

The Builders are an almost extinct species that had just begun to explore the galaxy before they were savagely exterminated by other aliens. All that remains of them now are a few, scattered communities in the wilderness of their devastated home planet and the relics they sent to other worlds.

Builders are bilaterally symmetrical upright bipeds standing around three metres tall and weighing around 120 kilograms. They have two powerful lower digitigrade legs and an upper pair of manipulating limbs with joints similar to a human arm. Each foot features two toes with a degenerate 'thumb' as a vestigial appendage. The hands feature two fingers and an opposable thumb and are dexterous and strong. The body tapers to a tail which is around  $\frac{3}{4}$  of body length and used for balancing a forward leaning stance. Builders have short hair or fur over most of their bodies, with a longer mane running along their spine and across the chest.

The Builders' necks are around 50 centimetres long and flexible – Builders can bend their heads to look behind themselves. The skull is elongated with a pronounced rear cranial bulge and a snout as well as two rearward pointing fluted 'horns' that are actually sensory organs fulfilling the role of both ear and nose. Chemically sensitive filaments within are held under tension and react to airborne chemicals and pressure waves.

They have no teeth but their mouths, hinged much like a human's, feature a set of bony, grinding plates which continue to grow throughout their life. These plates are naturally sharpened towards the front of the mouth for slicing, serrated at the sides for cutting and flattened towards the rear for chewing. Historically, Builders would gnaw and chew to wear the plates down but modern Builders have medical procedures to grind them down instead. A trip to a Builder dentist-analogue required an instrument something like an angle grinder.

Lifespan during the height of their society was 90 years on average but since the Raider holocaust it has diminished to just 30 or 40 years due to disease, famine and lingering effects of radiation.

## Random Builder Artefacts

D66	Artifact
11	An empty hexagonal food container. It has markings on the side which if translated will say 'Emergency Sustenance'.
12	An eating utensil which resembles a small spear.
13	Nothing but unrecognisable junk.
14	Broken parts or components.
15	Broken Builder crockery.
16	A Builder food preparation manual. Translation will reveal that they were omnivores who cooked their food but also ate some foods that had been prepared to be partially pre-digested.
21	A long bandage-like garment. One end has a section which has been treated with a rubber-like material. These are Builder foot-wraps.
22	A crushed helix of thick, twisted metal that analysis will reveal is a silver and gold alloy. It has intricate designs etched into the surface.
23	Nothing but unrecognisable junk.
24	Broken parts or components.
25	A broken harness or set of webbing with multiple attachment points for equipment.
26	A sealed package, something like flexible plastic, which contains a Builder uniform. It has been vacuum-packed and is in good condition. The material is a synthetic weave.
31	A sealed package containing a synthetic bandage with an absorbent dressing. Formal language describes it as 'artificial material for the purposes of preventing bodily fluids from being vented from wounds'.
32	A sealed, hexagonal, synthetic container with a fiendishly complex mechanism to open the lid. There is a faded image of a Builder with a red lightning bolt striking its head. It contains traces of a dry powder. Later analysis will reveal it contains chemicals which suppress certain neurotransmitters in humans. Data from the dodecahedron will later identify it as an analgesic.
33	Nothing but unrecognisable junk.
34	Broken parts or components.
35	A broken electronic device with a series of lenses on one side and a display screen on the other.
36	A sheet of plastic like material with several images of a spacecraft on it. The <i>spacecraft is different to those seen in orbit and some images include the rover encountered in The Relic</i> , or one like it. A star chart indicates nearby worlds with lines drawn to them. Some are up to 11 light years away.

41	A synthetic material case with an embossed design similar to skin or hide. It has several small compartments inside. One contains a sealed packet of what look like strands of plant fibres.
42	A metal staff approximately a metre long with a hook at one end and a weighted ball made of a rubbery material at the other. The shaft of the staff is emblazoned with bold pictograms from the expressive tongue that translate as 'fastest' and 'most accurate'. Images in the dodecahedron will later identify it as sporting equipment.
43	Nothing but unrecognisable junk.
44	Broken parts or components.
45	A small, corroded statue of a pair of Builders engaged in battle with shield and spear.
46	An interactive electronic entertainment device similar to a tablet or e-reader. It is a smaller version of item 55. Its power cell is drained but it can be hooked up to an external power supply. It contains a number of passages that could be translated as epic poems regarding Builder mythology and antiquity. It will prove to be of great use in translating the expressive tongue.
51	A large metal utility tool of some kind. It is badly corroded but includes a number of blades, picks and other tools that fold into a handle.
52	A non-functional electronic device designed to be slipped over the arm. It has a display screen, touchpad and a number of ports along one edge.
53	Nothing but unrecognisable junk.
54	Broken parts or components.
55	A slab of hexagonal black plastic-like material around 40 cm across with a stylus clipped to one edge. There are three keys in recessed hollows on the rear as well as several buttons around the edge. It is thoroughly waterlogged or corroded and is non-functional.
56	A compact fuel cell battery, still in its sealed storage tube. Its technology is similar to human fuel cells but is much more compact.
61	A broken Builder combat helmet. It seems to have had some form of data connections to another device.
62	An empty ammunition clip for a Builder weapon. The ammunition appears to have been of around .50 calibre or larger.
63	Nothing but unrecognisable junk.
64	Broken parts or components.
65	The snapped-off head of a weapon, similar to a large spearhead.
66	A curved combat knife. In human hands it is equivalent to a short sword. It is still sharp even after many years of neglect.

# INTERLUDE 8 – THE BUILDERS AND THE RAIDERS

## PART 3: THE RAIDERS

**Suggested Sequence:** Following Tides of Blood, between Plot Points 5 (The Weeping Sisters) and 6 (Gambit)

**MET:** D+1147

**CMD:** 1,788 ly

**System:** BPC260484

**Stellar Type:** M5V/M7V

**X, Y, Z Co-ordinates:** 44.12, 105.0, 33.5

Whilst *Bayern*, *Anton Dohrn* and *Entdecker* have been exploring the cluster of worlds behind Aldebaran, the *George Bauer* has been acting as a fuelling tender. Her roughnecks have been using mining robots to extract water ice from the rings of a large gas giant in the outer reaches of a system. Unknown to anyone in the flotilla, the system is nearby to the homeworld of a hostile alien species known as the Raiders. These are the same aliens that committed genocide on their neighbours, the Builders.

A Raider spacecraft has entered the system and detected the *George Bauer*. It swiftly attacks the defenceless ship and cripples it before boarding and capturing the crew. Before the ship is boarded Captain Taylor is able to despatch a message drone to warn the rest of the *Bayern* flotilla and his daughter, Amy, sets in motion an emergency protocol to send the mining robots to a nearby moonlet to hide from the attackers.

Although Taylor is able to launch the message drone, damage to the ship prevents him from either wiping the computer database or activating the self-destruct. The critical information regarding the location of Earth and human colony worlds remains within the computer system for the aliens to discover. The aliens also have access to *Bauer's* engineering systems, leaving the secrets of a fully functional stutterwarp within their grasp.

The Travellers will have to decide if they are going to re-take the *Bauer* using the hidden mining robots and limited resources that *Bayern* has to offer,

### Why didn't *Bayern* spot the Raiders?

She did but she did not recognise them. Radio signals travel at the speed of light, so signals from 100 years ago are now 100 light years away from their source. The signals that Commander Schmidt is directing the scientists to find were encountered by *Bayern* at distances more than 90 light years away. At the time *Bayern* was not studying the area where the Raider and Builder homeworlds lay, so automated sky sweep readings were catalogued for later study.

The arrival of the Builder probe and the paranoia thereafter prompted a lockdown on planetary electromagnetic emissions just over 90 years ago and since then the world has been in blackout. Broadcast entertainment stopped – much to the Multitude's displeasure – and official communications were routed through tight-beam and hard lines. The lockdown was not perfect, of course, and some signals still leaked, but the cacophony of broadcast signals stopped almost overnight and is now little more than a background murmur.

That means that as soon as *Bayern* got to within 90 light years of the Raider homeworld the signals would have disappeared. When the *Bayern* crew starts to search her archives they will begin to find evidence of the Raiders but for the last 90 or so years they have, to all intents and purposes, been silent.

or destroy the ship and doom all their surviving colleagues but ensure the safety and security of the home systems.

### THE AMBUSH

Following the events of the previous chapter, *Bayern* and her crew are currently in orbit around the devastated Builder homeworld. The Travellers

have likely just escaped from the missile base with the Builder data archive and are potentially nursing some new scars from the water hunters. Some may be undergoing medical treatment for decompression injuries as well.

It is obvious that *Bayern* has strayed into the sphere of influence of an aggressive spacefaring species and her next steps must be planned carefully. The mission board is scheduled to convene as soon as the Travellers are rested enough to attend. In the meantime Commander Schmidt has directed the science teams to start examining data already gathered through remote observations of nearby systems for any evidence of the aliens that attacked the Builders. Particular attention is to be paid to any indication of radio signals.

The mission board convenes in one of the briefing rooms to discuss the next steps. Principle areas of concern are the safety of the *Anton Dohrn*, currently surveying a binary system 6.7 light years away, and the *George Bauer*, conducting ice mining operations in a system 5.14 light years away. Both are obviously out of contact until they rendezvous or a message drone is despatched. The flotilla is due to rendezvous back at *George Bauer* in just over 10 days to refuel and plot the next targets for survey.

As well as considering the safety of the remaining flotilla vessels, *Bayern* also has to consider how the flotilla should proceed. Somewhere nearby is a hostile alien species that has already shown they are willing to destroy an entire civilisation. Right now *Bayern* and her crew have no idea of the context to the destruction of the Builders but they have to consider the Raiders hostile until proven otherwise.

The first action will be to authorise despatch of a message drone to each of the two ships and instruct them to proceed to a safe rendezvous. The device recovered from the Builder homeworld includes details of the systems they sent probes to and, fortunately, neither *George Bauer* nor *Anton Dohrn* is in one of them. The Travellers can decide what they consider to be safe but the system that *George Bauer* is currently in has been visited by the entire flotilla a number of times so far without incident and is bereft of habitable planets so would seem to be a logical choice. Alternatively, they may decide that the aliens have destroyed the Builder world already, so are unlikely to return, making their current location ideal. Whatever their decision, the commander will authorise use of two message drones and preparations will begin for their launch.

Prudent Travellers may also wish to scout nearby systems that the Builders sent probes to using the *Reisende* interstellar probes. There is some risk involved in this approach; it may alert the Raiders to *Bayern*'s presence or allow sensitive technology – human stutterwarp, for instance – to fall into their hands. The Travellers know that the rover they encountered a few weeks ago was not the only probe the Builders sent out and it is a fair bet that another went to a Raider-occupied system.

Due to self-evident risks, the commander will need to be convinced that this course of action can be accomplished safely. Referees should roleplay the conversation and set a final difficulty for a Persuade check (SOC) based on approach and performance. If the Travellers show that they have considered the risks and suggested steps to minimise them, and can demonstrate the benefit of conducting the scouting missions, then the task should be Average (8+) or, if they are especially eloquent, Routine (6+).

If the Travellers offer few or no suggestions on how to minimise the risks, or cannot demonstrate any benefits to scouting, then the check should be Difficult (10+) or Very Difficult (12+).

Some examples of points they could suggest to the commander are:

- Scrubbing the database of any navigational data beyond this one trip.
- Adding extra safeguards to the self-destruct and security systems.
- Limiting the probe's time in the target system.
- Only conducting passive scans.

At the referee's discretion Diplomat or Leadership could be used instead, or even a Science skill.

If the Travellers are successful, the commander will consent to launching probes to nearby systems. Aside from the ones with *Anton Dohrn* and *George Bauer*, there are three other systems within stutterwarp range and a probe can be prepared for each. If the Travellers fail to convince the commander he will move on to *Bayern*'s next steps and invite opinions on how the flotilla should proceed.

Whilst these discussions are ongoing or whilst the probes are being prepared for launch, the briefing room will be paged and the duty sensors officer will announce that the gravitational anomaly detector (GADS) is indicating that there is another ship with stutterwarp running in the system. Because of the

nature of the GADS sensors, it cannot be used to provide a bearing or range, only that there is an operational stutterwarp 'out there'.

*Bayern* is not equipped with active military sensor systems and while she does have a comprehensive set of passive and survey sensors, a full sky scan even at low resolution will take several hours. Travellers can immediately begin such a search but it is likely that any ship will arrive before they narrow its approach vector.

Travellers from a space military background will be aware that it is a common first step in identifying a mystery ship is to search areas of the sky that are in-line with approach vectors from nearby stars. The assumption is that if a ship is arriving in system it will have arrived from a nearby star. It is not a perfect solution as canny captains often dogleg away from predictable vectors, if they have sufficient range left on their stutterwarp. If none of the Travellers are from a space military background then Commander Schmidt will suggest this.

To locate the incoming vessel requires a Very Difficult (12+) Electronics (sensors) check (1Dx10 minutes, INT). If successful, the vessel will be found to be just over 10 million kilometres away approaching on a vector that aligns with the system that the *George Bauer* was ice mining in.

The vessel is small – only a few metres in diameter – and heading almost straight for *Bayern*. As it is inside the system's stutterwarp Shelf – which extends out another 1.4 AU past the orbit of the Builder homeworld – the vessel is travelling at sub-light speeds. The vessel is first detected just over 90 minutes away and the actual time to arrival will be 90 minutes minus the duration of the Electronics (sensors) check. At its current speed it may be almost on top of the ship by the time the Travellers detect it.

Thirty minutes after the vessel arrives in system the flotilla's standard identification signal will be received. The vessel will identify itself as the message drone that was left with the *George Bauer* to act as a courier. The drone's message header will indicate it has sensitive information that can only be downloaded by tight-beam laser. It will proceed to a rendezvous with *Bayern*, or a sub-craft if the Travellers are feeling paranoid and want to relocate *Bayern* to the other side of the planet just to be on the safe side.

## THE WRECK OF GEORGE BAUER

Once the drone arrives it will be a routine matter to set up a tight-beam link, authenticate and download the contents of its message. Cautious Travellers may wish to scan the download for viruses or other malicious code. The download will prove to be clean.

A cursory study of the file manifest will reveal that the download consists of a number of mundane files – system diagnostics, personal correspondence, backup of *George Bauer*'s sensor logs and a manifest of the mining operations. In addition, there are two media files. One appears to be telemetry from mining robots and the other a short audio file marked as high priority.

The audio file is a short message from Norm Taylor, the captain of the *Bauer*:

*'Bayern, we've been attacked by an unknown vessel. It was some sort of kinetic strike. They've disabled the reaction drives and damaged the power plant. They are moving to board. We're trying to spin up the stutterwarp but...'*

Taylor speaks rapidly and sounds out of breath. In the background of the message the Travellers can hear the sounds of *Bauer*'s master systems warning, decompression alarms and the shouts of crewmembers. The audio is abruptly cut-off mid-sentence by a blast of noise.

A successful Average (8+) Electronics (comms) check (1D hours, INT) will clean up the recording and manage to isolate some of the shouting in the background. The first of these is a message that seems to be relayed over the intercom stating that the robots are being moved. This is most likely Amy Taylor. The second voice is the *Bauer*'s computer officer saying that he is starting the database purge. Pattern matching on the burst of noise that terminates the message provides a partial match to a close range shotgun discharge.

The telemetry file is a composite feed showing the video from all of *Bauer*'s mining robots for a 12 hour period. The majority of the feed is normal, mundane, ice mining operations. The *Bauer* is in a 20 million kilometre orbit around a large gas giant with an extensive series of rings, located near the outer edges where a small shepherd moon has created a sharply defined gap within the rings. The material in the ring has 'piled up' at the edges of the gap under the influence of the shepherd moon and the ring is around two kilometres thick here. *Bauer* is located in the 22 kilometres wide gap between two rings, around

## Shepherd Moons

Many large worlds have ring systems, especially gas giants. These rings are often like small scale planetary systems in their own right. A shepherd moon is a small body that influences the ring systems, either defining the edges of the rings or creating gaps within them. The gravitational influence of the shepherd moon serves to deflect stray ring components away, sending them back into the ring, impacting on the moon or being ejected from the ring system. They often form clear spaces in rings and can create complex, braided and twisted structures.

a kilometre or so away from the shepherd moon. A smaller, less defined ring begins another dozen kilometres beyond the shepherd moon. The edge of the inner ring hangs like a wall behind *Bauer*.

The smaller MERV robots are moving across the surface of the icy shepherd moon, surveying for best purity and then carving ice chunks to be netted by a robot equipped with spinners. Two of the three HERC robots are crawling around the surface securing other useful chemicals, extracting and either storing them directly in their internal tanks or carving them as chunks for a MERV to retrieve.

If the Travellers fast forward to the last few minutes of telemetry they will see the third HERC robot stationed near the 'top' of the moon acting as a telemetry link back to the *Bauer*. The rest are working a particularly pure deposit of water ice on the far side of the moon. Telemetry shows that Amy Taylor assumes direct control of the HERC, operating it as a remote. As she takes control she gets it to shuffle around on the spot, flex its manipulators and idly trains its sensors around the surface and then on nearby objects including the *Bauer*, which floats nearby. This is normal to prevent a frost build up on the robot from gases released during mining.

As she moves the sensors back towards the surface of the asteroid there is a flash nearby *Bauer*. Amy trains the sensors back and zooms in. Faintly visible in the distance is a second starship of unknown design. It can be seen rising up from behind the wall-like edge of the inner ring with sunlight from the system's primary glinting off a metal surface. Amy quickly realigns the robot to get a better view and zooms in further.

The unknown ship shows similarities to the wrecked vessel above the Builder homeworld but is in perfect working order. The view wobbles as the robot moves but plainly visible are four large gimballed turrets near the prow. Seconds later there is a flash from two of the turrets and a tell-tale burst of plasma that



military Travellers will recognise as a high-velocity railgun discharge. The telemetry shows that the robot loses the remote link to *Bauer* just after the railguns are fired.

The robot switches to automatic as Amy's control is severed by loss of telemetry. It continues to track the spacecraft as the last object of interest, which manoeuvres using small reaction drives as it drops down the face of the ring. The robot tracks it for around 30 seconds as it closes on *Bauer*. It then receives a tight-beam laser link from *Bauer* that uploads a short program that instructs it to retreat into a crater and then upload its data to the message drone. The feed then cuts off.

*Bauer*'s sensor logs can also be examined. Like *Bayern*, *Bauer* has no military sensors and what systems she does have are geared towards support of her mining operations. A successful Routine (8+) Electronics (sensors) check (1Dx10 minutes, INT) will uncover nothing of note. A more detailed examination may reveal something but that will take many more hours.

## PRIMARY MISSION DIRECTIVE

The telemetry data and audio file will present a bleak picture. The *George Bauer* has been attacked by unknown aliens and may have been destroyed or in alien hands. Initial evidence points to the attackers being the same, or at least associated with, the species that conducted genocide on the Builders.

Foremost amongst *Bayern*'s mission directives is the requirement to protect the location of the human homeworlds. The attack on *Bauer* and her potential capture put this directive at risk and Commander Schmidt will be required to ensure that every effort is made to preserve the security of the home systems. If the database aboard the *Bauer* has not been purged, her crew taken hostage and her stutterwarp is not destroyed then there is every possibility of a severe security risk.

Commander Schmidt will reconvene the mission board and ask for recommendations. Assuming the Travellers have not replaced any of the crew, their reactions will be as follows: Thomas Austin Ferris will recommend a rescue mission and be supported by Gretchen Macdonald and Doctor Zhong, if he is present. Diane Kamahmo will take a more pragmatic approach and suggest remotely detonating the nuclear scuttling charge. If the Travellers were not aware of the scuttling charges they may be shocked

to hear her suggest this. If they were aware they may be shocked that she *would* suggest this whilst the fate of the crew is unknown. Diane will bluntly defend her position by saying as first officer it is her duty to suggest alternatives that no-one else may be prepared to discuss.

Dr. Bohl will remain silent and if queried will say that decisions of this nature do not lie with the science team, casting a dark look at Dr. Zhong as he does so. Dr. Bohranian is not a member of the mission board but is often consulted as a sounding board by many members of the crew. If she is invited to discuss the situation she will support a rescue mission but will urge the Travellers to remember that the safety of the home systems should remain paramount. If made aware of the scuttling charge she will become quiet for a time and then reluctantly support Diane's proposal to scuttle the *Bauer*, saying 'it is better to lose a few brave lives than risk all of humanity. The needs of the many...'

If the *Anton Dohrn* is present Captain Celestine will be in favour of attempting to open a dialogue with the Raiders but will recognise that the security of the home systems has to be maintained and will also support scuttling *Bauer* if the Raiders are unresponsive. She will also support removing the scuttling charge from the *Dohrn* for use as a warhead in a message drone missile if the suggestion has been made.

One thing that Commander Schmidt is adamant about is that *Bayern* should exit this region of space as soon as possible. He is not prepared to take *Bayern* back to the same system as *Bauer* and is reluctant to allow either *Entdecker* or *Anton Dohrn* to return.

After there has been some discussion back and forth, Dr. Bohl will call the mission board to order. Although he will still excuse himself from discussion of the best course of action, he will summarise the options, as he sees them, to four potential courses of action in decreasing order of risk to the flotilla.

### Option 1 – Leave Immediately

Analysis of the audio file from Captain Taylor indicates that *Bauer*'s computer officer had initiated the computer purge. It is possible that the location of the home systems has been purged from the database and there is no risk. This would still leave 28 humans in hostile hands, along with an operating human stutterwarp drive. Nobody on the mission board will be in favour of this option.

## Option 2 - Remote Detonate Nuclear Charge

The message drone did not detect a nuclear detonation as it exited the system, which suggests that Captain Taylor was not able to activate the self-destruct. It can instead be remotely detonated by another authorised member of the flotilla. The captains of any of the sub-craft, Commander Schmidt, and Diane Kamahmo have the authority.

Bohl will ask Commander Schmidt how the detonation of the scuttling charge could be achieved. He will advise that it is possible for either *Entdecker* or *Anton Dohrn* to transit to the system and transmit the self-destruct codes. The scuttling charge has a challenge and response verification system which requires a code to be sent to the charge, which then sends a challenge code which must be responded to correctly within five minutes. Because of this the sender would need to be within 40 million kilometres of the *Bauer* or the round-trip delay time for the signal will be too long. The scuttling charge would time-out and re-set between the challenge being sent and the correct response being sent back and received.

Bohl will suggest that with some circumspect navigation using the gas giant's bulk and following the plane of the rings, it should be possible to get within the minimum distance and transmit the codes without being detected.

## Option 3 - Open dialogue with the Raiders

The same tactic that would allow *Entdecker* or *Dohrn* to approach undetected could also be used to take the ship even closer – potentially close enough to enter a near real-time dialogue. The difficulty, Bohl will point out, is that there is no common language. He also points out that the aliens have attacked without provocation and, gesturing towards images of the devastated planet below, dryly comments that the Raiders do not seem to be open to dialogue.

## Option 4 – Re-take *Bauer*

The ultimate extension of the stealthy approach allows for a number of potential scenarios for retaking the *Bauer*. Bohl suggests that Erkunder suits could be used as ersatz assault armour and *Bayern*'s autofactories could be programmed to produce anti-armour rockets or missiles that, unless the alien ship was especially heavily armoured, should be able to render weapon turrets non-functional. Beyond that

he defers to any military Travellers and Thomas Austin Ferris for suggestions on the likely success of an opposed boarding.

Ferris will defer to space military Travellers; he is a guide and survival expert, not a soldier. However, the referee should use him as a voice of reason if the Travellers suggest an extremely hazardous course – using *Entdecker* to ram the enemy ship, for instance.

Once he has laid out the four options, Bohl will suggest a vote. Unless controlled by the Travellers, the mission board will be evenly split between detonating the scuttling charge and re-taking the ship, with Bohl abstaining and Captain Celestine voting for dialogue. The Travellers will have the casting votes. If there is no clear consensus after they have voted then Commander Schmidt will vote in favour of detonating the charge.

If the vote goes in favour of scuttling, Dr. Bohl will suggest it is prudent that a backup plan to either take the ship or find another way of destroying the *Bauer* is considered. Likewise if the vote decides that retaking the ship (or in the unlikely event that the vote decides on a dialogue) is the chosen course of action he will suggest that a backup plan for destroying the ship is considered.

Since all plans rely on a ship manoeuvring close to the gas giant's rings Gretchen Macdonald will suggest that *Entdecker* is used. Although both *Entdecker* and *Anton Dohrn* can manoeuvre close using stutterwarp, the Jerome effect drive does not impart actual velocity. To make the final approach and manoeuvres very close to or inside the rings they will need a ship equipped with an efficient reaction drive. That means *Entdecker* will be making the trip to BPC260484.

## PROPER PREPARATION PREVENTS...

Commander Schmidt will make the resources of the *Bayern* available to the Travellers to prepare for the mission, authorising autofactory blueprints for production of heavy weapons. The autofactories can produce the MG-7 machinegun, Panzerfaust LAW, Hornise SAM, as well as Plastique-9 and any of the personal armours listed in the *2300AD Book 1*. Time is of the essence, however. When constructing complex devices like guns and ammunition the autofactories work at reduced speed, so can produce only 100 kilograms of material per hour. Switching designs – from a gun to ammunition to armour –

requires 30 minutes to reset the machine, switch feed hoppers and so on. *Bayern* has two autofactories, so they can both be set to work simultaneously.

Commander Schmidt would like the Travellers to be ready to depart as soon as possible and certainly no later than 24 hours. In the meantime there are a number of tasks they can accomplish either onboard *Bayern* or whilst in transit to BPC260484 to improve the odds on arrival.

The Travellers can build an accurate model of the BPC260484 system using sensor data stored in the message drone from *George Bauer* and from previous sensor logs of the other ships that have already attended *George Bauer* to refuel in the last weeks. Those with a space military background, or with the assistance of other members of *Bayern*'s crew such as Commander Schmidt and Tashima Matsika, can build a set of simulations to test possible approaches to the system and familiarise themselves with the gas giant and ring system. Eight hours spent running such simulations will provide DM+1 to any Pilot (spacecraft) checks to avoid detection or a hazard near the ring system.

The sensor data can also be analysed for further information on the alien ship. The Travellers may use a task chain by filtering the data to remove unwanted or irrelevant signals before analysis. This requires a Routine (8+) Electronics (computers) check (1D hours, INT). The analysis will then require a Routine (8+) Electronics (sensors) check (1D hours, INT) to interpret the results. Success will grant DM+1 to any checks to avoid detection by the alien ship and Effect 6+ will provide DM+2. These bonuses will stack with modifiers from the simulations.

Examining the video feed from the HERC mining robot can provide two potential datapoints. Uncovering each requires a Routine (8+) Electronics (sensors) check (1D hours, EDU). The first datapoint is that the weapon turrets seem to have limited arcs of fire due to their placement, creating a blind spot in an arc covering the rear hemisphere. The ship's turrets are all mounted to cover forward arcs and the ship's structure prevents any bearing directly aft. The second will show that the weapons seem to have a very slow rate of traverse. A small missile or drone-sized object moving quickly enough might be able to keep out of their line of fire by moving faster than the turrets can track.

If the Travellers have decided to weaponise a message drone they will not be able to complete the changes necessary in the time they have remaining but will

be able to bring it along and work on the conversion whilst underway. Removing the scuttling charge from the *Anton Dohrn* will require most of the remaining time and unloading a message drone and securing it to *Entdecker* will take almost 18 hours of EVA.

The Travellers do not have to perform all of these tasks themselves and all of the crew will be working towards the same purpose. The referee should remind the Travellers that *Bayern* and *Anton Dohrn*, if present, have many skilled people aboard. Some tasks can just be assumed to be successful, such as the EVA to remove a message drone and mount it aboard *Entdecker*.

Eventually the Travellers' preparations will be complete and *Entdecker* will depart the flotilla. Before she detaches from *Bayern*, Diane Kamahmo will take the captain and first officer aside and give them the challenge and response codes for the *George Bauer*'s scuttling charge, plus the codes for the charge from the *Anton Dohrn*, if it has been removed. As she hands them over, Diane sombrely advises the officers to '...not take any chances. Get the job done. Get back and let's get away from here. Remember, the safety of the home systems comes first.' With these words fresh in their minds, *Entdecker* engages her stutterwarp for the 31 hour trip to BPC260484.

## Stellar Data

**Primary Name:** BPC260484A

**Spectral Class:** M5V

**Magnitude:** 10.2

**X, Y, Z Coordinates:** 44.12, 105.0, 33.5

**Number of Planets:** 0

**Number of Asteroid Belts:** 2

**Notable Planets:** None. Asteroid belts form thickest portions of a large proto-planetary disk that extends over 15 AU from primary.

**Companion Name:** BPC260484B

**Companion Orbit:** 320 AU

**Spectral Class:** M7V

**Magnitude:** 9.03

**Number of Planets:** 9

**Number of Asteroid Belts:** 0

**Notable Planets:** BPC260484Bg – Eight J-mass super-Jovian gas giant with extensive rings and moon system.

## BPC 260484B<sub>g</sub>

**Name:** BPC 260484B<sub>g</sub>

**Distance from Primary:** 19.4 AU

**Year Length:** 142 years

**Size:** 285,968 km diameter

**Day Length:** 19 hours  
**World Type:** Super-Jovian Gas Giant  
**Surface Gravity:** 5.07  
**Atmospheric Pressure:** Dense  
**Atmospheric Composition:** Hydrogen 90%, Helium 9%, Trace 1%  
**Atmospheric Taint:** None

BPC260484 is a binary system, with two red dwarf stars. The primary star has no planets but is surrounded by a massive and extensive protoplanetary disk of tumbling rock, dust and ice. The binary companion is in orbit around a common point – a barycentre – with an average separation of 320 AU. The *Bauer* is in orbit around the sixth planet of the companion star, a gas giant of around eight Jupiter masses.

The gas giant is surrounded by a large and complex ring system and the *Bauer* was mining the small moonlets for water ice to break down into hydrogen. The *Entdecker* will be able to cruise up to the gas giant at her full interstellar speed of 3.99 light-years per day. Once she passes the Shelf at 32 million kilometres from the gas giant she will enter the ‘shallows’. Here her stutterwarp efficiency will drop and speed will be reduced to 2.573 AU per day, or around 16 million kilometres per hour.

## Stand Off

The Travellers’ first instinct may not be to approach the *George Bauer* at all. Communication with the scuttling charge or aliens can be attempted from anywhere within 40 million kilometres, well outside the Shelf. The Travellers may instead wish to stand off just outside the Shelf and attempt to communicate with the ambushers or detonate the charge. Those with a space military background know that *Entdecker*

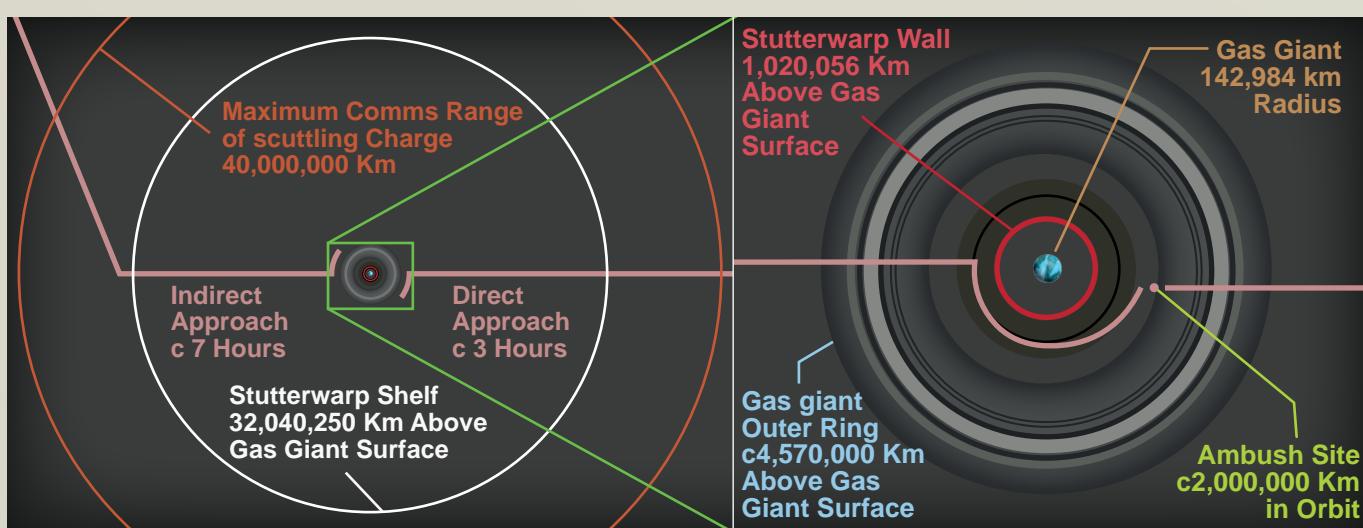
will be safe from interference as long as she remains outside the shallows. The ship will have to drop below FTL speed to transmit and receive messages to the scuttling charge.

## The Direct Approach

The shortest trip from the edge of the Shelf directly to the *George Bauer*’s location in the rings will take approximately three hours in a straight line from the Wall to the *Bauer*. This assumes that *Entdecker* flies to the point on the Wall closest to *Bauer* and then takes a straight line course to the rendezvous, making no precautions to remain stealthy. Any characters that have served on a warship will know that this is the option most likely to alert the aliens to their presence.

If *Entdecker* makes no moves to hide herself, then two hours after she passes the Shelf, when still an hour from the ambush site, the long range sensors will detect the alien ship moving off under what appears to be a conventional nuclear plasma thruster. Once it is around 10 kilometres away from the ambush site there will be a series of rapid spikes of electromagnetic radiation, followed by flashes of light. Perceptive Travellers will recognise these as identical to the firing of the alien ship’s railgun seen on the video feed from the mining robots. Sensors will detect an explosion on board *George Bauer* followed by the breakup of the ship. The alien vessel will then engage stutterwarp and proceed out system away from the Travellers’ approach vector. *Entdecker* will not have sufficient speed to intercept the alien vessel before it reaches the Shelf and goes superluminal.

The Travellers can attempt to plot the alien vessel’s course with a Very Difficult (12+) Astrogation check (1D hours, EDU).



If *Entdecker* returns to the wreck of the *Bauer* they will find that the ship has been torn apart by an explosion of Pressurised fuel tanks. The debris has been propelled away in all directions but the largest sections remain within the space cleared by the shepherd moon. Some fragments have also impacted on the moon itself. If the Travellers decide to investigate the debris field they may attempt to locate the ship's stutterwarp drive and central computer core. Each attempt requires a Difficult (10+) Electronics (sensors) check (1Dx10 minutes, INT). Success indicates that the Traveller has been unable to find the target and suspects they were removed from *Bauer* before its destruction. Effect 6+ provides hard evidence that the stutterwarp or computer core was removed from the ship before it was destroyed. This could be mountings that have been cut through, plates that should have been shielded by the explosion that show signs of damage or similar evidence.

If the Travellers search for survivors they may attempt a Routine (6+) Electronics (comms or sensors) check (1D minutes, INT) to locate emergency beacons from escape capsules or rescue bubbles. Any success indicates there are neither and will reveal a grizzly sight. Ten of *Bauer*'s crew are lashed together with cargo straps and drifting, dead, in space. Their bodies show both decompression injuries and trauma from the explosion. Several seem to have been trying to remove the straps when they died.

## Stealthy Approach

Alternatively, the Travellers may decide to attempt an approach that will shield them from the alien spacecraft. Any ship travelling at FTL speeds is essentially safe from boarding or attack. There has never been a space battle in the deeps beyond the Shelf, as combat at superluminal speeds is simply not possible (for current levels of technology, at least). The Travellers can manoeuvre *Entdecker* without fear of engagement outside the Shelf and put the gas giant between themselves and the ambush site. This will mask their initial approach. Once inside the Shelf they can then drop down close to the ring plane.

The edges of the ring have been pushed up into towering, kilometre high ridge-like structures made of masses of tumbling ice chunks by the action of the shepherd moon. The rest of the ring is only tens of metres thick, so these raised edges will act like ramparts, potentially shielding *Entdecker* from detection. The downside is that *Entdecker* will have to travel to the ambush site along a very precise path with little margin for error. Using stutterwarp so close to the surface of the rings is risky, as random ice particles, ring fragments

and microscopic ice crystals and dust can interfere with the stutterwarp field. This can lead to unexpected quantum interactions which could potentially overload the drive or, in extreme cases, cause the ship to emerge around or inside another object. *Entdecker* will need to use her stutterwarp to bring her to the edge of the ramparts, then the reaction drive and OMS system for the final distance, through the ice, all the while avoiding detection and minimising danger from impacts.

The circumspect trip from the stutterwarp threshold to the edge of the ramparts just out of sight of the ambush site will take approximately seven hours, as *Entdecker* will need to enter the shallows on the far side of the planet and avoid the area close to the gas giant that lies inside the Wall.

Safely navigating a path to the edge of the 'ramparts' requires the Travellers to succeed at a task chain. The first task is to plot the correct route, avoiding the Wall and the dead zone within. This requires a Difficult (10+) Astrogation check (1D hours, EDU). Once the course is plotted the *Entdecker*'s pilot can then proceed to the ambush site.

This requires two Pilot (spacecraft) checks, the first to cross over the surface of the ring and safely drop out of stutterwarp and the second to weave through or past the towering spires of ice to the ambush site. The Travellers can choose not to move out of the protection of the ramparts immediately, in which case the final check should be delayed until they decide to gain direct line of sight to *Bauer* and the alien ship.

The first stage of the trip requires a Difficult (10+) Pilot (spacecraft) check (1Dx2 hours, DEX). Success indicates the trip is nerve wracking – it is unlikely that they have ever been in stutterwarp this close to anything, let alone millions of tumbling chunks of ice – but uneventful. Failure results in 2D damage to *Entdecker* from an impact with a small chunk of ice. Effect -6 or worse results in a catastrophic piloting error. *Entdecker* clips the edge of the icy ring and drops out of stutterwarp as the Jerome Effect field generators are overloaded by quantum fluctuations. The ship is battered by ice chunks and takes 4D damage. The pilot must make an immediate Difficult (10+) Pilot (spacecraft) check (1D seconds, DEX) check to avoid plunging deeper into the ring and taking a further 6D damage. If the ship survives, the pilot may try the approach again but a very obvious spray of debris from the ring has been thrown up. The aliens will detect this spray of ice and be watching the approach vector. Further checks will suffer DM-2 to avoid detection and further failures will indicate that *Entdecker* has been detected.

The Travellers have two options for navigating the ramparts – they can fly over them or through them. The ice of the ramparts is piled into towering spires and pillars of denser concentrations of ice chunks with winding passages and chasms of clearer space between them. There is sufficient room in the larger channels to pilot *Entdecker* through the ice, with a sufficiently steady hand. This means *Entdecker* will be hidden amongst the clutter of floating ice chunks and likely gain an advantage in surprise, being difficult to differentiate from background clutter. Alternatively, the Travellers can just fly straight over the ramparts. This exposes the ship to less risk of ice impact but she will be silhouetted against the cold of space as she transits over the top. If the aliens are alerted to *Entdecker*'s presence she will make an almost perfect target.

Passing through the ramparts requires a Very Difficult (12+) Pilot (spacecraft) check (1Dx10 minutes, DEX). The trip would normally take up to an hour, so the pilot has the option of taking more time to reduce the difficulty. Failure results in 2D damage to *Entdecker* due to impact with small chunks of ice. Effect -6 or worse results in a catastrophic piloting error with *Entdecker* impacting a large ice chunk and sent tumbling through the ring, taking 4D damage. The pilot must make an immediate Difficult (10+) Pilot (spacecraft) check (1D seconds, DEX) to regain control before *Entdecker* slams into one of the towering spires of tumbling ice, taking a further 6D damage. If the ship survives then the pilot must re-try the approach check. The wild manoeuvres to regain control of the ship will also have alerted the aliens to *Entdecker*'s presence and she will lose the element of surprise. All timescales for the evacuation of the aliens from the *Bauer* will begin immediately when *Entdecker* exits the ice spires.

If the Travellers decide to instead fly above the ramparts the check required is only a Routine (6+) Pilot (spacecraft) check (1D minutes, DEX). The effects of failure are the same as for passage through the ice. Delays and impacts with ice chunks represent the pilot flying too close to the face of the ramparts or misjudging the density of ice at the top. Although the trip over the ramparts is easier, *Entdecker* will be spotted by the aliens sooner than if she had travelled through them. The loss of the element of surprise will mean that the timescales for the alien's evacuation from *Bauer* will begin immediately as *Entdecker* clears the top of the ramparts.

## THE ROBOTS

Whichever approach the Travellers decide upon, they will need to approach the Shelf at some point. As they do, they will pick up low frequency radio transmissions.

## Stutterwarp Discharge

As with any journey, the trip to BPC260484 will have built up a gravistatic charge on *Entdecker*'s stutterwarp coils. If the ship is to be able to transit back to *Bayern* she will need to discharge her drive. The journey from the Builder homeworld to BPC260484 was 5.14 light-years, which means a full discharge will take slightly less than 31 hours. If the Travellers decide that they only want to discharge the drives just enough to get back to *Bayern* then they will only need to discharge for 15 hours and 38 minutes. This is a very risky choice though, as it will leave no margin for error. To start the discharge the ship needs to be at the 0.1 G limit of a body – the stutterwarp Wall.

Of course, there is no reason why the Travellers need to discharge the drives around the gas giants. They could just as easily use either of the stars or any of the other gas giants.

These appear to be data bursts, encrypted using one of *Bayern*'s standard security protocols. Decrypting the data bursts will reveal that they are status updates from *Bauer*'s mining robots. They have been in standby mode on the far side of the shepherd moon, conserving energy whilst trying to remain unfrozen for the last four or five days.

The Travellers will be able to download telemetry from the robots but they retreated to the far side of the moon and went into power preservation mode after receiving a signal from *Bauer*, so their telemetry consists of a lot of views of stars and ice. The communications lag means the robots cannot be used as remotes from this range but new programs can be sent to them and they will be able to carefully move into a position where they can view *Bauer*, becoming ideal forward observers. Sending the robots around the shepherd moon will reveal that the *Bauer* is still intact and the alien ship lies alongside it.

## SCUTTLING GEORGE BAUER

If the Travellers have chosen to send the detonation command to the scuttling charge on board *Bauer* they will need to proceed to just outside the Shelf. The first step is to establish communications with the charge. It operates on a separate power and communications system from the rest of *Bauer* so even if her main communications or power are down the Travellers should still be able contact and activate it.

Sending the activation command to the scuttling charge is a simple procedure. Once the codes are transmitted the crew on board *Entdecker* will have to wait an agonising five minutes for a response. Five minutes will stretch into six, then seven, eight, nine, ten. After 15 minutes it will be apparent that the charge has not responded. The Travellers may wish to relocate as perhaps the signal was blocked somehow; moving to a different position or moving closer to the site both produce similar results. The scuttling charge is not responding.

If a charge was removed from *Anton Dohrn* and placed in the makeshift message drone missile the Travellers can now decide if they wish to launch this against *Bauer*. By now they will probably be aware that *Bauer* is intact and her mining robots are online and nearby. If the Travellers have not already considered it then, if present, Thomas Austin Ferris or another of *Entdecker*'s crew will suggest attempting to re-take the *Bauer* using the mining robots.

If the Travellers choose to send the makeshift missile they will need to select its course. Just like *Entdecker*, the missile can approach circumspectly or directly. Although it is much smaller than *Entdecker*, there is still a chance that the aliens may detect the missile if it adopts a direct approach. This requires an Electronics (remote ops) check (1Dx10 minutes, INT) opposed by the Raider's sensor operator, who will make a check with an overall DM+0. If the Traveller beats the Raider then the missile remains undetected. If the Raider wins they will detect the missile and events will unfold in the same manner as if *Entdecker* had been detected.

If the missile is undetected, it will be able to stutterwarp to within a few metres of the alien craft and *Bauer*. The nuclear charge can be detonated on command and will destroy both ships. The radiant energy will also vaporise pockets of gas inside the shepherd moon and cause it to break up over the next several hours. The EMP pulse from the nuclear explosion will also destroy the electronics of the mining robots.

The Travellers can return to *Bayern* with a heavy heart, but secure in the knowledge that the security of the home systems has been maintained.

## COMMUNICATING WITH THE ALIENS

The Travellers may decide to attempt dialogue with the alien attackers. As with attempts to scuttle the *Bauer*, *Entdecker* will need to close to a comfortable

communications range. The Travellers will know how frustrating lag can be in communications when speaking to someone using the same language, let alone how it would hamper attempts to communicate with aliens. Closing to around half a million kilometres of the ambush site will impose a just-tolerable four second delay.

Any message the Travellers send will produce the same results; there will be no response. Thirty minutes after the aliens receive the first transmission the alien ship will decouple from *Bauer* and begin to move away, using conventional thrusters. Once it reaches 10 kilometres from *Bauer*, it will open fire with its railguns. The results and the possible actions are the same as detailed on page 100. The aliens do not seem to want to talk.

## RE-TAKING THE GEORGE BAUER

If the Travellers choose to re-take the *Bauer* they will have a number of possible strategies but each will require several key things; a stealthy approach, disabling the alien spacecraft's weapons, gaining entry to the *Bauer*, saving the crew, either retrieving or destroying the ship, and finally escaping without being pursued.

### Ack! Ack! ACK-Ack!

At the referee's discretion the Travellers may actually be able to communicate with the Raiders. After their first attempt at communication they will receive an incoming video from the *Bauer*. The display will resolve into a Raider in combat armour on the bridge of the *Bauer*. Behind it, the Travellers will be able to see that many of the consoles have been ripped out and bridge components have been removed. Cables drift around and float in microgravity. There are stains on the walls that look like blood. There are a lot of the stains.

The Raider will immediately begin speaking in a strange, gurgling, slurping tongue. It is actually reciting a particularly militant section of the Ideology, but the Travellers have no way of knowing this. The language will be impossible to understand, but whatever is being said is being spoken with a great deal of emphasis and passion. After several minutes of haranguing the alien will break contact and events will unfold as normal.

What the Travellers will not know is that the aliens who have attacked the *Bauer* are terrified of the implications of another, advanced, alien species so close to their home. At this point, any attack on *Bauer* or the alien ship will immediately prompt them to flee. This paranoia causes them to destroy the *Bauer* in the event that they detect *Entdecker* or the Travellers open communications with them.

The aliens have been attempting to break into *Bauer*'s data storage systems and trying to understand how her stutterwarp works, without much success. Technicians and engineers have removed the outer casing of *Bauer*'s stutterwarp and stopped. They are reluctant to dismantle the drive any further as they have realised the drive is very different from their replicated Builder drives. They are afraid their lack of experience will result in the precious drive being damaged or destroyed.

In the meantime, the soldiers have been attempting to interrogate *Bauer*'s crew but without a common language, it is proving impossible for them to gather information. *Bauer*'s crew are becoming traumatised by repeated interrogation sessions, which consist of strange, tentacle-faced crab-spider aliens yelling at them in a language comprised of clicks, slurps and gurgles, interspersed with savage beatings. Several of the crew were killed in the original attack or in escape attempts since and several more are likely to die from injuries sustained during interrogation if not treated soon.

There is no set encounter structure for re-taking the *Bauer*, as the Travellers have a multitude of options. Referees are provided details of possible events and outcomes to give an idea of the challenges they will face. The referee can use these as a template to arbitrate actions not specifically covered.

## Reconnaissance

It may occur to the Travellers to gain additional intelligence through covert reconnaissance. They will already be aware that the mining robots are nearby on the shepherd moon and transmitting coded bursts of data. The Travellers may use this to spy on the *Bauer*. The robots will be able to observe the two ships floating in space but there is little else to see. Detailed images of the alien ship can be gathered to build a profile for silhouette homing missiles, however.

The Travellers may also recall that the mining robots had a new program uploaded to them by line of sight laser prior to going into hiding. If the Travellers carefully position one of the robots they will discover that this link is still open and a connection to *Bauer*'s systems can

be established. However, moving the robot into position to establish the link risks detection, as the robot has to be visible to the *Bauer* for line of sight to be established. If the robot can see the *Bauer* and the alien ship, the alien ship can see the robot.

Getting the robot into position to see the *Bauer* without being detected requires a Difficult (10+) Electronics (remote ops) check (1Dx10 minutes, EDU). Failure indicates that the attempt must be aborted but there is a possibility that the aliens have spotted the robot. The referee should secretly roll 1D; on a result of 1 the aliens have spotted the robot and will begin preparations to abandon and destroy the *Bauer*. If the Travellers desire they may establish a task chain by making an Average (8+) Electronics (sensors) check (1D minutes, INT) prior to check for potential positions where the robot might be shielded from the alien ship but still able to establish a link with the *Bauer*.

Once the robot is in position a Routine (6+) Electronics (comms) check (1D minutes, INT) will establish a data link between *Bauer* and the robot. A quick check of the ship's status will reveal that main power, stutterwarp and thrusters are offline and *Bauer* is running on solar power and batteries. The magnetic bearings in the spin machinery seem to have been damaged and life support is showing a steady drain on atmosphere, indicating several leaks. The main computer is online and there are several intrusion alerts indicating attempts to hack into the data banks.

Internal cameras are available. The interior of the ship is filled with floating debris and flickering lights, and there are groups of aliens on the bridge and in main engineering. The first sight of the strange, insectoid Raiders may be deeply upsetting and jarring. The crew are huddled together in the cargo hold, guarded by several more of the aliens. A quick count shows that there are five members missing and several of those visible have been badly beaten. If the Travellers have established friendships with the crew of the *Bauer*, the referee is free to determine the fate of those crew that they have become close to.

Examination of the engineering compartment shows there are crude patches covering a hull breach on the starboard bulkhead and that the reaction drive has been destroyed on that side of the ship. The MHD power plant also appears to have been damaged by what appears to have been a railgun strike. The aliens in this area are clustered around the stutterwarp drive. They appear to have partially dismantled it but their activity seems to have halted and they are examining the parts they have removed.

The aliens on the bridge have dismantled several control consoles, leaving cables and components floating in zero-gravity. One of their number squats over a working console and seems to be trying to decipher its purpose. It periodically consults what seems to be a large, handheld computer of alien design. If the Travellers observe for several hours they will see this individual, with distinctive red markings on its shell, leaving the bridge and beginning to remove maintenance panels around the ship. Further observation will reveal that it is tracing the ship's control network. In fact, this individual has worked out that *Bauer*'s computer core is not located on the bridge and is trying to trace where it is located by 'following the wires'. After several more hours, it will follow the control network to the avionics bay on deck 3 and begin trying to physically remove the core from the ship.

The Travellers will also be able to determine that the main airlock is still sealed and the aliens are cycling through it when they travel to and from their ship using the boarding tunnel.

## Using the Mining Robots

The mining robots currently in hibernation on the shepherd moon are all equipped with EVA packs. The smaller MERV robots are also able to operate inside the *Bauer*. If the Travellers decide to deploy the robots they can be directly piloted as remote vehicles, in which case the controller is able to determine exactly what the robot does.

Alternatively, the robots can be issued commands to execute in autonomous mode. In this case, the Travellers may control up to three robots each and issue commands to them. However, the robots are extremely literal and unless carefully worded, Travellers may find their commands are not quite followed as intended.

## Other Systems

Once the Travellers have access to *Bauer* they may wish to try to influence the ship's systems. Since main power is down a lot of systems are in emergency mode. Interior hatches are manually activated anyway, so cannot be locked or opened/closed. Exterior hatches can be activated but safety systems will not allow them to open until pressure is equalised. Life support is likewise locked out. The two robotic arms on *Bauer*'s upper hull are operational and can be controlled via the link. Lifeboats are also operational and can be jettisoned on command.

For instance, a Traveller might instruct three robots to advance down a corridor. The three robots then all attempt to go down the corridor at the same time and get in each other's way, shuffling back and forth in place. Anyone who has played a real time strategy game where their units seemed to have an ability to act in the least useful way possible will have a clear understanding of the limitations of the robots' autonomous mode.

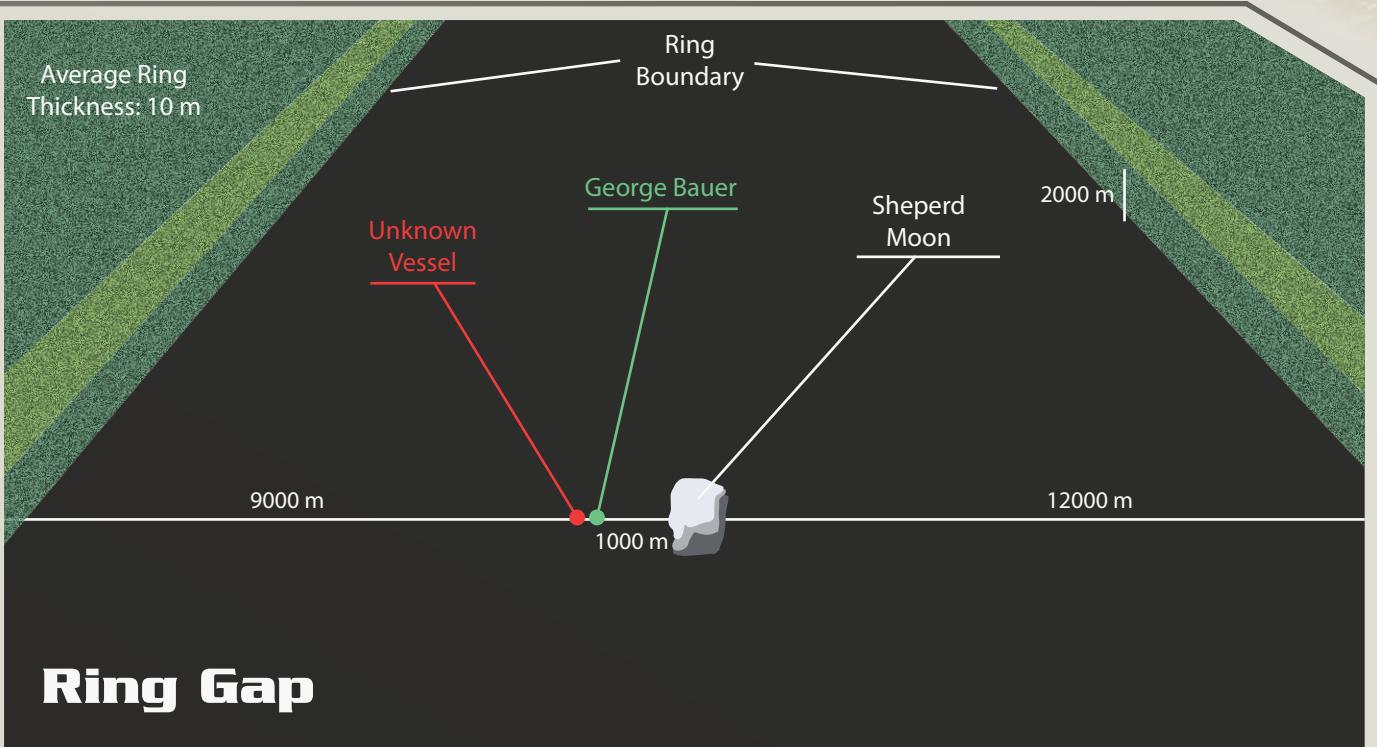
Nevertheless, the robots are reasonably tough and equipped with cutting gear and high-energy mining tools that can be used to cut through spacecraft hulls just as easily as they do rock and ice. They are equipped to operate in zero-G and, as far as the Travellers are aware, their presence will come as a complete surprise to the aliens. The robots can also be used as makeshift missiles, ramming the alien ship in an attempt to knock out turrets or cripple engines.

The robots will be able to cross the 1,000 metres separating the shepherd moon and two spacecraft in two rounds, if they want to use the robots as missiles. If the Travellers want to bring the robots to a halt nearby the ships it will take three rounds to traverse the distance, as the robots will have to boost towards the ships, then flip over halfway to decelerate. The Raiders may have a chance to shoot at the robots with their railguns if they notice them. The Travellers should make an opposed check using Electronics (remote ops) against the Raiders' sensor operator, who has an effective DM+0. The robots' small size and rapid movement grants them an additional DM+2.

Whilst the Raiders' sensor systems can track small targets, they are not expecting a horde of robots to appear from behind the shepherd moon. They will take a round to react to the appearance of the robots but then can attempt to shoot one of the robots down with each railgun, at DM-2. Any hit will destroy a robot but considering their small size and nimbleness, the Raiders are unlikely to shoot down many.

The robots' mining tools will eventually be able to cut through the alien ship's hull but are much more effective at cutting into joints, seals, exposed conduits and cables, or chopping off the delicate barrels of the railgun turrets. The HERC plasma cutter can sever any of the railgun barrels in a single round. It will take a single MERV robot three rounds to cut through the barrel, or three MERVs a single round.

The HERC robots will not be able to fit into the *Bauer* past the cargo hold. The MERV robots, however, will be able to traverse any corridors. Their mining lasers have a very short range but are effective enough, as



## Ring Gap

are the mining tools. The robots can also use their EVA packs to boost themselves to considerable speed. A robot slamming into a Raider will require a clear path to its target and inflict 1D of damage on both parties for every 1.5 metres that the robot travels in that round.

### Shooting the Spaceship

If *Entdecker* is able to approach or clear the edge of the ice field without alerting the alien spacecraft, the Travellers will be able to use missiles or heavy weapons fabricated aboard *Bayern* to disable it. Potential targets are the reaction drives, weapons pylons and the docking tube connected to *Bauer*.

The alien spacecraft, the *Bauer* and the shepherd moon are arranged in a line, with the alien ship at one end and the shepherd moon at the other. If the Travellers emerge from the ice at the point of closest approach, in the alien ship's blind spot, then it and the *Bauer* will have the moon as a backdrop. The alien vessel will be 9,000 metres from the edge of the ice and *Bauer* just a few dozen metres from the alien ship. The shepherd moon is a further 1,000 metres from *Bauer*.

Firing at the alien vessel puts the *Bauer* at some risk; if any shots miss, they could impact the *Bauer*. Likewise, fragments from the alien ship from on-target shots could also impact *Bauer*. It is also unclear if damage to the breaching tube would result in a decompression on board the *Bauer*. Finally, a catastrophic hit to the alien ship's reaction drive could result in some form of chain reaction that could also consume the *Bauer*.

*Entdecker* is not equipped with any way to fire missiles, so the crew may have to stand on her hull and fire shoulder-launched weapons. It may be possible to jury-rig some sort of launching platform on *Entdecker*'s hull, or even a dropped remote weapon like an improvised submunition launcher. Improvised mountings and launched ordnance will require suitable Electronics, Engineer and Mechanic checks. The referee should determine difficulty based on the Travellers' descriptions and complexity of the proposed mechanism.

*Entdecker* will also need to close the distance to the alien ship to less than 5,000 metres before she will be able to fire any missiles safely. The telemetry from the mining robots and even live images can be used to create a silhouette for the missiles to lock onto, allowing them to successfully shoot at a sub-system such as the turrets.

If *Entdecker* burns her thrusters at full power she can accelerate at 3 Gs out of the ice. At this rate of acceleration she can be within striking distance in three combat rounds. This is also the point at which *Entdecker* will need to flip over to begin braking if she wishes to come to a stop alongside the *Bauer* and the alien ship. Decelerating to a halt will take another three combat rounds. Of course, the Travellers may elect not to decelerate and stop at the *Bauer*, in which case they will pass her 6 rounds after emerging from the ice, travelling at 780 metres per second. Obviously, at this speed the Travellers cannot transfer from *Entdecker* to the *Bauer* – they would impact at the same speed.

*Entdecker* was travelling and be killed instantly. The small EVA units that *Entdecker* carries do not have sufficient thrust to slow someone at that speed (and the 20+ Gs required to slow to a stop over a few seconds would kill most people).

If the Travellers prefer to use stutterwarp once they exit the ice it will require some very careful flying but the ship can be in weapons range in just a few drive cycles (less than a second) and next to *Bauer* and the alien ship just as quickly. However, stutterwarp has a certain amount of inaccuracy. Due to the nature of the Jerome Effect field propagation, the destination point of a drive displacement is never fully certain. Deviations of dozens of metres around the travel vector are not unheard of, and such fine manoeuvring is usually conducted using thrusters. This uncertainty means that any weapon system will require a round to reacquire the target before release, leaving *Entdecker* exposed to return fire.

A weapon needs to inflict two points of spacecraft-scale damage to disable the railgun turrets and four points to destroy them. Any attack that misses the alien vessel will hit the *Bauer* on a roll of 1 on 1D.

## Boarding the *Bauer*

Once the Travellers have disabled the alien vessel's railguns they will need to gain access to the *Bauer*. Her main airlock is located at the bow and currently has a pressurised, flexible boarding tube attached to it with magnetic clamps. The Travellers can easily cut through the boarding tube using either the mining robots or hand-held cutting tools. It will take one round to create a one metre slice in the tube, which will immediately begin to depressurise. Severing the tube completely will require cutting the full six metre circumference.

The Travellers can also sabotage the magnetic clamps holding the tube to *Bauer*'s hull. There are four clamps and each can be disabled with a successful Routine (6+) Engineer, Electronics or Mechanic check (1D seconds, INT). All four will need to be disabled to remove the tube but atmosphere will start to vent after the second clamp is deactivated. Once the fourth clamp is disabled the docking tube will violently detach as the remaining atmosphere is vented into space.

The main airlock is sealed, so depressurising the tube will not depressurise *Bauer* but it will strand the aliens already aboard. Once inside the tube the Travellers will be able to cycle through *Bauer*'s airlock and into the ship. The airlock into the alien ship will be securely closed.

There are several other routes into the *Bauer* besides the main airlock. The cargo bay and probe bay on the mid-deck both have external doors that can be opened through either the data link or by accessing external controls. Neither will open until the compartment beyond has been depressurised, which will take five rounds. If the Travellers attempt to open the cargo bay doors they will discover that safety interlocks are preventing the chamber beyond from being depressurised, either because an internal hatch is not secured and thus the chamber cannot be made airtight, or the ship's computer has detected that there is still somebody inside the compartment. Travellers who have used the internal cameras will know that this is where the remaining crew are being held.

A third option for entering the ship is via the escape pod hatches. Each escape pod contains a very small emergency airlock, with capacity for just one person, that also connects to the hatch on board *Bauer*. If the pod is entered then these airlocks can be used to gain entry to the ship.

There are also four large hatches leading to the expandable cargo bay and a maintenance hatch within each hold will provide access to the lower deck of *Bauer*. These collapsible holds are partly filled with water ice and other minerals that the *Bauer* was harvesting from the ring system. Travellers will need to open the external cargo bay doors, manoeuvre through and around the tethered cargo and access the maintenance hatch at the top of the bay. The chamber beyond is pressurised and, since the collapsible cargo bays are not meant to be a point of entry, there are no controls to depressurise it. The Travellers will have to either use the data link to depressurise the chamber or bypass the safety interlocks and cause rapid decompression. Bypassing the safety interlocks requires a successful Difficult (10+) Mechanic or Electronics (computers) check (1D minutes, INT).

A final option is to cut directly through *Bauer*'s hull. The mining lasers and plasma cutters on the robots will be able to create a one-metre cut in a single round. If the Travellers are using hand-held cutting tools it will take them four rounds to create a one-metre cut. Any deliberate breach of the hull will result in gradual depressurisation of the chamber beyond and will be immediately obvious to anybody in that chamber.

If *Entdecker* has grappled *Bauer* then the Travellers may decide to board directly through *Entdecker*'s ventral hatch. They will need to cut through *Bauer*'s hull but will be able to use bulkier cutting equipment rather than the small hand-held cutters. These cutters are

equivalent to the mining lasers and plasma cutters on the robots and will open a one-metre cut in one round. There are two on board *Entdecker*.

Travellers can also use emergency airlocks to attach directly to the hull and create new, temporary access without breaching atmospheric integrity.

## Inside the Bauer

At the start of the assault against the *Bauer* there will be 15 Raiders on board. The bridge contains two soldiers and an adept; the engineering section will contain three adepts; the cargo hold will contain three soldiers and there will be another two soldiers and an adept in each of the spin habitats.

Once the Raider ship detects *Entdecker* it will take five rounds to decide to evacuate crew from the *Bauer*, then two rounds to respond to the order and get moving. On the eighth round after *Entdecker* is detected the Raiders will start to move back towards their ship, each group moving one area closer to the airlock each round. They will abandon their human captives and leave any equipment they cannot easily carry by hand. When two groups try and move through the same area there will be a bottleneck and one will have to wait for the other.

If the Raiders encounter humans, the adepts will conduct a fighting retreat towards their ship, if possible, but just away from the humans if not. Soldiers will hold their ground unless accompanied by an adept, in which case they will retreat to protect them. Both soldiers and adepts will try to assist wounded colleagues where possible and consistently attempt to return to their ship. The referee should keep in mind that the Raiders are very comfortable in microgravity. They will use walls, the floor and ceilings to move around and take full advantage of the tactical options this gives them. They also have an effective communications net and will co-ordinate activities to avoid and ambush boarders.

If the Raiders encounter the mining robots, they will respond quite differently. The mining robots represent a further challenge to the Ideology – an alien race (as they believe the robots are) more advanced than them who are artificial. The idea of this will fill Raiders with dread. They will redouble their efforts to escape the robots and be visibly agitated. If cornered, Raiders will fight to the death to avoid being captured by robots.

If the route back to the alien ship has been cut off, either by the depressurisation or detaching the boarding tube, the Raiders will make for the nearest lifeboat. It is likely that the Raiders will be in or near the main airlock, so will scatter to the spin habitats and use the lifeboats there.

## Recovering the Bauer

The *Bauer* is currently without power plant, reaction drive or stutterwarp. She is operating on solar collectors and battery power, which provides just enough energy to run life support and essential systems. She is not going anywhere under her own power.

*Bauer* can be taken under tow using the magnetic grapples around *Entdecker*'s ventral hatch. These are normally used as a backup to the docking cradle on *Bayern* but can also be used to attach a spacecraft of up to 400 tons and carry it through stutterwarp. The flotilla's crews have practiced such a recovery but never with a damaged ship whilst a boarding action is underway.

To tow the *Bauer*, *Entdecker* will need to come to a stop alongside her and then manoeuvre into a position where the magnetic grapples can gain purchase on *Bauer*'s hull. With *Bauer*'s spin habitats locked into their vertical position the best location is with *Entdecker* on her side with her ventral surface aligned to either the probe bay or cargo bay doors. This assumes that the alien ship's railgun turrets have been disabled. Stopping *Entdecker* right under their sights would be a recipe for disaster if they were still operational.

Manoeuvring *Entdecker* into position requires a Difficult (10+) Pilot (spacecraft) check (1Dx6 minutes, DEX). Effect 6+ indicates the grappling is smoothly done, taking only half the indicated duration. Otherwise, the grappling takes place with a series of loud bangs, thumps and bumps, and a heavy impact that will require minor repairs to the heat shield before *Entdecker* can make atmospheric re-entry. Failure indicates the pilot has noticed a problem with the approach and has to abort.

Effect -6 or worse indicates the pilot has collided with the *Bauer*, with both ships suffering 2D damage. The impact will also set *Bauer* wobbling away, tearing the flexible boarding tube and imposing DM-2 to further attempts to grapple.

The grapples allow *Entdecker* to tow a ship using her reaction drive but structural damage to *Bauer* and the unconventional grappling position means that any attempt to do so using greater than 1 G thrust may cause additional damage. The Travellers will also know that the flexible docking tube will need to be disconnected before *Bauer* and *Entdecker* can proceed under stutterwarp.



Once *Bauer* is grappled, *Entdecker*'s chief engineer will need to recalibrate the stutterwarp drive to consider *Bauer*'s additional volume. This will require a successful Average (8+) Engineer (stutterwarp) check (1Dx10 minutes, EDU). The task duration may become critical if the Travellers decide to counter-board the alien ship.

## The Alien Ship

If the Travellers do not manage to disable the alien ship's railgun turrets and do not stay in the blind spot, the aliens will try to target *Entdecker*. If she remains in stutterwarp, *Entdecker* is safe from attack. Of course, *Entdecker* has to drop from stutterwarp to deploy boarding parties.

The railgun turrets are painfully slow to traverse and have a limited field of fire – they can only target objects ahead of the alien ship. Due to the slow traverse, they require D3 rounds to bear against a new target. The weapons also have to stop moving to fire, so can only fire a single shot before having to re-target. Initially two turrets will be aimed at *Bauer* and two will be slowly scanning the hemisphere ahead of the alien ship. If *Entdecker* remains behind the alien ship, she will be safe, unless the alien ship starts to manoeuvre.

*Entdecker* is only really at risk if she does not brake to a stop and instead moves past the alien vessel. In this instance, the aliens will fire on *Entdecker* with

DM-2. The aliens will alternate firing with two railguns whilst re-targeting the other two. The railguns fire highly machined frangible metal projectiles with a composite casing that is vaporised to charged plasma in the barrel. The result is similar to a shotgun blast of prodigious size.

A hit from the railguns will inflict 6D damage. They have a maximum effective range of several hundred kilometres but will not be able to target *Entdecker* should she re-enter the ice field, hide behind the shepherd moon or engage stutterwarp.

## Boarding the Alien Ship

Attempts to board the alien craft will be initially thwarted by the closed and locked hatch, located in the bow between two railgun turrets. If the Travellers pursue fleeing Raiders they may be able to enter their ship as the airlock is opened to admit the fleeing aliens. Otherwise, they will have to cut through, blast open or pick the airlock to gain entry.

Travellers will only have a short window to try boarding, as the aliens will quickly attempt to withdraw. Two rounds after *Entdecker* appears the evacuation order is sent to the aliens aboard *Bauer*. Three rounds later, they will begin moving out of *Bauer* towards the alien ship. After seven rounds, they will be visible moving through the flexible docking tube. Fifteen rounds after

*Entdecker's* arrival, the aliens will have fully evacuated *Bauer*. On round 17, the aliens will decouple the boarding tube and begin to retract it. On round 19, the aliens will begin to reorient the ship, using the manoeuvring thrusters. They will also fire all railguns at the *Bauer*, if they are still operational, and will hit automatically. On round 21, they will engage the reaction drive and accelerate out of the plane of the rings. On round 25, they will engage their stutterwarp and proceed out of the system.

If the alien vessel's reaction drive or stutterwarp have been crippled somehow, by missile fire or the actions of the mining robots for instance, soldiers will form a security perimeter whilst the adepts attempt repairs. If the reaction drive is damaged the aliens are quite prepared to stutterwarp straight out from where they are, rather than trying to move out of the rings. If the stutterwarp is damaged then the aliens will instead blast out of the rings and burn through the entirety of their reaction fuel to accelerate away. They will outpace *Entdecker* quickly, although they can still be intercepted using stutterwarp.

The alien vessel has a crew of 35; 15 adepts and 20 soldiers used as marines and deckhands. Of these, initially there will be 9 adepts and 11 soldiers on board the alien vessel and 6 adepts and 9 soldiers on board *Bauer*.

The interior of the alien vessel is straightforward; a central spine leads from the railgun turrets and boarding airlock in the nose to the engineering section at the rear. Pods around the spine contain the bridge, TAC equivalent, stores and communal areas. At the rear of the ship is a large engineering section that contains the fission reactor, stutterwarp and reaction drives. Two retractable spin habitats contain living areas and a habitat for the alien's staple food – a kind of arthropod similar to a very large woodlouse, known as a meat beast. The meat beasts breed quickly enough that they can be used as live food, replenishing themselves throughout the voyage. With the spin habitats retracted the meat beasts float helplessly throughout one of the habitats, clicking and wriggling alarmingly.

Should the Travellers make headway in boarding the alien ship and more than three quarters of the soldiers are incapacitated, the adepts will rig the nuclear reactor to overload. This will only take one adept five uninterrupted rounds to complete and the reactor will begin to overheat dangerously. This will be detectable from *Entdecker* and the Travellers will receive a warning (assuming *Entdecker* is still nearby)

two rounds after the reactor is rigged. The reactor will continue to overheat and suffer a catastrophic core meltdown and explosion 3D+4 minutes later. Even if the Travellers are able to gain access to the reactor, their unfamiliarity with the system or the process used to initiate the meltdown will prevent them from stopping the core going critical.

Eventually, a build-up of flammable gases in the core and the incredible heat and pressure from melting fuel rods will lead to a massive explosion that will destroy the alien ship and kill anybody aboard. The explosion will propel debris towards the *Bauer* and, if present, *Entdecker*. The ships will each be hit by 2D fragments, each doing 2D damage. The explosion will also expose anybody on board *Bauer* (whose LaFarge radiation shields have been compromised) to 3Dx100 rads.

## AFTERMATH

The conclusion of this chapter will very much depend on the actions the Travellers took. The best-case scenario is that the *Bauer* was re-captured and the aliens departed without accessing the computer core or removing the stutterwarp drive. The worst-case could result in both *Entdecker* and *Bauer* destroyed, and the aliens departing with vital intelligence on humanity.

If *Entdecker* is disabled and unable to rendezvous with *Bayern* and *Anton Dohrn* then Commander Schmidt will consider the situation too dangerous for the flotilla to remain in this sphere of space. He will plot a course away and depart, potentially using one of the disposable stutterwarp engines to put as much distance between *Bayern* and the alien threat as possible.

If *Bauer* and the alien ship were destroyed using the weaponised message drone, the Travellers' return to the flotilla will be downbeat. Those who were close to the crew of the *Bauer* may resent the Travellers and this may result in difficulties and strained relationships. There will be an official enquiry at the next mission board and the Travellers' actions will be closely scrutinised. The mission will be less effective without *Bauer* and *Entdecker* will be tasked to conduct the resupply missions. New mining robots will be constructed using *Bayern*'s autofactories, her cargo hold will be converted to materials storage and *Entdecker*'s crew will undergo a crash course in mining operations.

In the event that the Travellers were detected or attempted to open communication with the aliens and they destroyed *Bauer*, the Travellers will be sharply criticised by some of the crew for their recklessness. Others will be supportive if the Travellers attempted

a peaceful dialogue. Again, relationships with some of the flotilla's crew will be strained and an inquiry convened at the next mission board. The Travellers will be asked to account for their actions. If found to be negligent or reckless and they are unable to satisfy the board that they did everything possible to fulfil the mission objectives, Commander Schmidt may decide on some form of punishment. In the worst possible case, he will instruct that the Travellers be frozen for the duration of the trip home until proper criminal proceedings can be brought. *Entdecker* will be re-staffed from other officers aboard and command will be given to Diane Kamahmo. Other punishments could include restriction to quarters, additional duties or reassignment away from *Entdecker*. The greatest punishment, however, is likely to be the reaction from the rest of the crew, who will quietly ostracise the Travellers. It will take time to rebuild trust.

If the alien ship is scuttled and the *Bauer* is destroyed by debris from the explosion, subsequent investigations will reveal the shattered remains of both computer core and stutterwarp drive. It is also possible that the Travellers were able to rescue the crew of the *Bauer* before the alien ship self-destructed. Whilst the loss of the *Bauer* and any damage to *Entdecker* is regrettable, the return of the crew and knowledge that the secrets of the home systems and stutterwarp are secure will be some comfort. The mission board will convene and an inquiry undertaken. Unless the Travellers were especially reckless, it is unlikely there will be further consequences. *Entdecker* will again be tasked to perform *Bauer*'s resource gathering missions but this time with *Bauer*'s surviving crew on board as mission specialists.

If the alien ship is surprised and departs without stealing either *Bauer*'s computer core or stutterwarp drive, or is destroyed and *Bauer* survived, the Travellers' return will be triumphant. The return of *Bauer* and her crew and the knowledge that the aliens did not gain access to the location of the home worlds, or gather significant information about stutterwarp, will fulfil all mission objectives and more. The mission board will convene and hear evidence from the crew of *Bauer* and *Entdecker*. *Bauer* will be grappled and repairs begun immediately as her battered and bruised crew are assessed by medical staff. Some injuries will be deemed too serious to treat aboard *Bayern* and the crewmember will be cryogenically frozen for treatment on Earth. Some crewmembers will have injuries from the brutalisation that do not show on the surface. *Bayern*'s medical staff will work hard to recognise those who may be suffering from the psychological

injuries and aftereffects of their treatment. Freya the Neodog's training in recognising the unseen signals for PTSD and stress triggers will prove to be invaluable in helping the traumatised crew through the experiences. Thomas Austin Ferris will spend a lot of time exercising her to work off the treats she gets.

In the unlikely event that the Travellers managed to take any of the Raiders prisoners, the crew will have to decide what to do with them. Opinions will be divided between pushing them out of the nearest airlock to taking them along to open a dialogue. The referee should encourage discussion amongst the Travellers and present differing opinions from *Bayern*'s crew. The Raiders will be uncommunicative and hostile, homicidally so in the case of those with high IDE characteristics (see page 116). Even those Raiders with low IDE will be reluctant to communicate. Establishing dialogue with the uncommunicative aliens will prove to be impossible.

If the Raiders are kept as prisoners they will not fare well. Many will prove to be so hostile that they will seriously injure or kill members of *Bayern*'s crew if not kept under restraint. Others will retreat into a form of catatonic fugue state and cease eating or drinking. A lack of understanding of their nutritional requirements will hamper artificial feeding and they will eventually waste away and die. At the referee's discretion a dialogue may be opened with the adept with the distinctive red markings (Red Spines), who is somewhat more inquisitive and open-minded than most Raiders.

Ultimately, the safest course of action is to remove the Raiders from *Bayern*. Commander Schmidt will push for a fast decision as he wishes to remove the flotilla from the threat of further attacks. If a consensus cannot be made he will invoke his command prerogative and order the remaining prisoners to be stranded on the Builder homeworld, witness to the devastation that they meted out.

Once the issue of any prisoners has been settled, the flotilla will assemble and *Bayern* will depart on her journey, avoiding any course that takes her near worlds visited by Builder probes.

## The Raiders

Because of their unprovoked attack on the Builder homeworld and the *George Bauer*, the race encountered in this system has been named Raiders. Their swift and aggressive attack and the difficult interactions with her crew have revealed little about the race beyond limited spaceflight capability and aggressive tendencies.

# Extract from Initial Observations Regarding the Alien Species Encountered in the BPC 260484, designated 'Raiders'

Dr. Jacqueline Bohranian and Dr. Brian North., SS *Bayern* Mission Log, 2303

## Raider Physiology

The race tentatively identified as Raiders are laterally symmetrical hexapods with aspects similar to both crustaceans and testudines. They have a flat body, as opposed to an upright like humans, with a horny or bony outer shell comprising bands of closely fitting, overlapping plates. The shell is domed and has several contoured grooves along the underside into which arms and legs can fold, presumably to protect them from damage. Most Raiders exhibit variations of dark tan, ochre, brown and black in mottled patterns over dorsal surfaces, while ventral surfaces are uniformly white or cream. Legs feature the same colouration as the shell with darkening towards the joints and a merging to the white and cream of the underbelly on the inner surfaces of the legs.

This body is supported by four long, segmented legs that project from opening at roughly the corners of the shell. Each leg consists of three sections, although the first is very short and mostly held within the body cavity. There is a hard plate covering the join between sections, much like a protective kneecap. The legs themselves are encased in a hard exoskeleton and hold the body suspended slightly below them. The front legs are longer than the rear, giving the shell a slight upward cant. The legs, fully extended would measure well over two metres, but are normally held bent, cradling the body between them. At rest a Raider stands approximately 100 centimetres above the ground, to the top of the shell. The legs extend upwards a further 20 centimetres. The body length, including head, is approximately 150 centimetres.

The front of the shell has a further opening divided into three smaller orifices. The central, largest orifice contains the Raider's head, which is covered in a series of bony plates. These plates overlap and are anchored to a flexible skin, allowing the head to move and articulate. Two eyes are mounted in articulated, armoured housings on either side of the head, similar to a chameleon. The head is almost spherical with eyes on either side, set slightly forward. At the base of the head is the mouth, which consists of a round opening fringed by around a dozen short, knobbly tentacles.



The Raiders were occasionally observed to shake their heads and jut their chins, causing the tentacles to shake. It is possible that the tentacles may serve as some form of sensory organ as well as manipulative appendage. The mouth is surrounded by a series of small, rasping teeth with a short, flexible, tongue tipped with a beak-like orifice. The rasping plates and tentacles are used to hold food whilst the tongue takes bites from it.

Either side of the head are two jointed arms able to fold back into contoured grooves on the underside of the shell. They are covered in a hard exoskeleton, similar to the legs, and terminate in a club-like forearm. The end of this forearm has three openings from which flexible finger-tentacles can be projected. These tentacles are strong and dexterous, and can extend some 20 centimetres.

There was some variation in overall appearance between the Raiders encountered on board the *George Bauer*. Although there was no gross dimorphism to indicate gender, several Raiders were observed to exhibit more pronounced ridges and short spines on the upper surface of their shells. Some also exhibited the same spiny structures on legs and forearms. It is unclear from superficial examination what this signifies. It may be related to age, some form of ethnic or regional variation, environmental factors or differing genders.

Some decoration of the shell was observed. Several individuals exhibited patterns on the upper surface that seemed to be artificial, cut or etched into the shell. Some had rings and fastenings through the fringes of the shell, used to clip on small pouches or hang equipment directly from the shell, a behaviour also seen in Kaefers. Most Raiders also wore a harness across the shell which equipment was attached to. Aside from the armoured spacesuits used in the initial assault, Raiders rarely wore any other form of covering or clothes. Occasionally the 'technicians' were observed to wear a covering on their body under the equipment harness and the 'soldiers' frequently wore the torso and upper leg sections of their armoured space suits.

The Raiders seemed to be comfortable with standard atmospheric pressure, temperature and composition aboard the *Bauer*. They exhibited an apparent affinity for microgravity and were seen to scramble along walls, floor and ceilings with apparent ease. Although their vessel seemed to have retracted spin habitats, they disabled the rotation mechanism aboard the *Bauer* before they ventured into the spin habitats. It may be that their home world has a lower surface gravity than Earth.

### Raider Psychology

The sample size of Raiders encountered by *Bayern* is not large enough to draw any real conclusions beyond the group itself. For all we know, this could be a criminal or renegade group cast out for antisocial behaviour and the rest of the Raider society could be idyllic by human standards.

The Raiders encountered by *George Bauer* exhibited co-operation and hierarchy, although the similarity in appearance and consequential difficulty in identifying individuals makes determining the nature of the hierarchy troublesome. The most obvious delineation was between the heavily armed and armoured 'soldier' types and the less heavily armed 'technicians'. The soldiers seemed to possess a hierarchy of their own, as did the technicians, but all technicians seemed to outrank the soldiers. Of course, the usual care should be taken when comparing human organisational structures to an unknown society.

Their behaviour during the recapture of *Bauer*, apparent concern for wounded members of their crew, organised withdrawal, plus the apparent panic that the arrival of the mining drones caused, along with retreat rather than face drones in protracted battle, indicates a healthy concern for their own wellbeing.

They are clearly the product of a technologically sophisticated society and familiar with advanced concepts such as fission power, high-energy weapons and space travel. There is some evidence that the stutterwarp systems used by the Raiders were not of their own technology, as sections of the Raider ship exhibited design aesthetics and iconography not found elsewhere on their vessel. The stealth systems used by the ship in its approach to *George Bauer* were impressive by human standards and the efficiency of their weapons can leave no doubt about their military capability.

The efficient way they disabled *George Bauer* and their subsequent boarding indicates teamwork and discipline and the treatment of *George Bauer's* crew indicates reasoning and curiosity. The Raiders encountered exhibited vocalisations that were obviously a spoken language but there was some evidence that non-verbal communication was also used. It is not clear what form this took but it seemed linked to the chin tentacles.

### REFEREE'S INFORMATION

The Raiders encountered by the *Bayern*'s crew are all Experienced with skills geared towards combat and technology. Gun Combat (energy), Melee, Recon, Engineer, Electronics and Mechanic are common.

There are two types of Raider aboard the ship that attacks *Bauer*; adepts and soldiers. The adepts are scientists, engineers and officers who control and maintain ship systems and hold positions of authority. They are all drawn from the middle ranks of the Ministry technocracy and aware of the Builder heresy. The experience with the *Bauer* has only served to make them even more paranoid, as these are advanced aliens who are clearly also not Builders.

The soldiers are those brought along to perform menial tasks or fight, and drawn from trusted members of the Multitude or lower ranks of the Ministry and have few, if any, technical skills. They tend to follow orders given by adepts very literally and without question, showing little personal initiative. If ordered to guard a door, they are unlikely to investigate a suspicious noise from a nearby room but would report it.

### Ideology (IDE)

IDE is a characteristic measuring how strong the individual Raider believes in the truths of the Ideology, and how likely they are to act in a way defined by its tenets. A Raider with a high IDE will be likely to react in a hostile way to anything that does not support the

Ideology's central conceit – an alien using superior technology, for instance. Those with a low IDE are more likely to be curious and open to new ideas.

## RAIDER ADEPT (RED SPINES)

STR: 5 | DEX: 8 | END: 7 | INT: 9 | EDU: 7 | IDE: 5

<b>Skills:</b>	Admin 3, Electronics (computers) 3, Engineer (stutterwarp) 1, Gun Combat (energy) 2, Investigate 2, Leadership 2, Mechanic 3, Persuade 3, Science (physics) 3, Science (psychology) 1, Vacc Suit 12
<b>Traits:</b>	Armour (+2), Heightened Senses
<b>Equipment:</b>	Hand-Held Computer, Tool Kit
<b>Armour:</b>	P-suit (+6)
<b>Weapons:</b>	Raider Laser Pistol (equivalent to Muller Rivera P-3)

This Raider adept has spent the majority of its life studying the captured Builder stutterwarp drive and trying to refine and replicate it. Red Spines is conflicted about how the drive can exist, when Ideology clearly states Raiders are the pinnacle of evolution. It has recently been promoted to oversee the engine on a new Raider ship, the most precise and accurate replication of the Builder drive Raiders have ever produced. The shock of discovering the *Bauer*, a ship apparently even more advanced than the Builder ship, has again thrown it into confusion but the opportunity to try to figure out human stutterwarp is overwhelming any misgivings.

## RAIDER SOLDIER (YELLOW SCAR)

STR: 8 | DEX: 8 | END: 8 | INT: 6 | EDU: 6 | IDE: 11

<b>Skills:</b>	Animals 0, Athletics (dexterity) 2, Gun Combat (energy) 2, Gun Combat (slug) 3, Leadership 1, Melee (unarmed) 3, Recon 2, Stealth 1, Vacc Suit 1
<b>Traits:</b>	Armour (+2), Heightened Senses
<b>Equipment:</b>	Knife, Hand Illuminated Copy of the Ideology.
<b>Armour:</b>	Combat Vacuum Suit (+8)
<b>Weapons:</b>	Raider Laser Pistol (equivalent to Muller Rivera P-3), Raider Spike Gun

Brought up on a farm, this Raider spent its formative years tending herds of food animals for its settlement to send as tithe to the Ministry every year. Although in the lean years that meant the settlement would go hungry as the whole herd would be sent to the

Ministry, Yellow Scar felt proud to know its work was furthering society as a whole. When the Ministry sought Raiders to join the expeditionary fleets it knew that it could do more to assist the Ministry than following meat beasts around and it joined up immediately. Much of what it saw thereafter in indoctrination and training it did not understand; the new skills and equipment it had to become familiar with were very confusing. Fortunately there was always someone from the Ministry at hand to tell it what to think and do.

## Background

The Raiders are intended to remain something of a mystery to the Travellers. It is clear that they are a technologically sophisticated race and their attack on *George Bauer* and the genocide they perpetrated on the Builders' homeworld indicates that they are extremely dangerous and aggressive. For referees interested in expanding encounters with Raiders, a synopsis of raider society and psychology is presented here. It is unlikely that Travellers would learn much from the *George Bauer* incident but referees may wish to impart some information through abandoned artefacts or equipment – a copy of the Ideology for translation, for instance.

## Raider Evolution

The Raider homeworld has a higher coverage of water than Earth and a slightly thicker crust, resulting in a slower process of crustal movement and recycling. Because the planet's internal heat is not as able to easily escape it instead forms numerous volcanic hotspots, similar to the one that forms the Hawaiian island chain on Earth. This results in the dominant terrain being long island chains and archipelagos.

The modern Raider evolved from an amphibious scavenger that lived on the shores of these island chains. The scavengers began to co-operate to hunt larger animals, then learning to capture and domesticate livestock to moved from hunter-scavenger to rancher, in much the same way that humanity moved from hunter-gatherer to farmer. Raider society evolved through phases similar to humanity, with a long succession of island-based nation states and empires.

This continued until the development of atomic and biological weaponry and a series of devastating wars nearly wiped out the Raiders. It was during their own version of Twilight that the foundations for modern Raider society were formed. One of the nations that survived was able to rebuild and came to dominate the majority of the habitable land. This nation was built upon The Ideology.

## The Ideology

Modern society is based around adherence to and promotion of a core set of state-sanctioned and codified beliefs, truths and social rules that all Raiders are expected to live by, known as The Ideology. The core tenet is that the Raiders are the first life to have evolved in the galaxy and the pinnacle of all lifeforms. The Ideology states that the leaders are the most advanced and sophisticated amongst the Raiders, and each new generation can only exceed the last. The continual progress of society can only be achieved by strict adherence to The Ideology. Sciences and new ideas that promote the goals and aims of The Ideology are encouraged whilst investigation, research and ideas purely for the sake of knowledge, or that might undermine The Ideology, are banned and ruthlessly suppressed.

The Ideology also dictates that society is divided into those who implement and maintain The Ideology, known as the Ministry, and those who live only to support the progression of The Ideology, the Multitude. The Ideology states that the Multitude can never hope to exhibit the qualities of the ideal, so they have to support it through their works instead. This places the Ministry at the top of a feudal technocratic hierarchy that keeps the majority of society, the Multitude, in almost medieval levels of technology, education and welfare whilst those in the Ministry decide the course of society. The Ideology is so ingrained from birth that the Multitude cannot see that they are being exploited.

Raider society is a combination of a fundamental belief structure, totalitarian personality cult and a mix of propaganda, control, misinformation, surveillance and manipulation. The Ministry must be obeyed. The Ministry knows all. To question The Ideology is to question the very order of the universe. The Ministry has spies and informants everywhere. The Ministry knows what is best for you. The Ministry *must* be obeyed.

The Ministry, in contrast, is well aware of their position. The nature of The Ideology reinforces the belief that they are the pinnacle of life within the galaxy. This is why when the Builder probe with its sophisticated stutterwarp drive arrived in the Raider system it was such a devastating shock; someone was out there who might be more advanced.

## The Builders and the Raiders

The probe was seized by the Ministry and news of its arrival suppressed. Secret projects to reverse engineer it were started in order that the Ministry could erase anything that might undermine The Ideology. The Ministry was split into two camps. The first are the Orthodox, true believers in The Ideology. They see the Builders as anathema, undermining absolute truth. The second group, the Opportunists, are those in the Ministry who supported The Ideology for personal gain and the privileges it offers. They have no real belief in the tenets of The Ideology and pay lip service only. They see the Builders as a threat to the control they have over the Multitude. If news that The Ideology were not true – that there is a race more advanced than the Raiders – came to light, then the Multitude may question other aspects that keeps the Opportunists in their position of power.

Once the Ministry had developed a working stutterwarp drive they despatched a starship to the Builder homeworld on a scouting mission. Unfamiliar with stutterwarp technology the Raider ship exceeded the 11 light-year limit of the Builder drive and built up a fatal charge. It was destroyed before it could return home.

The failure of the scout ship to return only increased the paranoia of the Ministry. Believing that the Builders had somehow destroyed the scout ship they assumed these aliens must be hostile and so built a fleet of ships to destroy them. This was the raiding fleet that delivered the devastation on the Builder homeworld that the *Bayern* crew observed. However, these ships suffered the same fate as their predecessor and were destroyed by drive explosions after they left the Builder system.

## The Current Situation

The Ministry currently exists in a state of extreme paranoia. Their last two expeditions to the Builder world, one of them carrying a great number of the Ministry, have been lost for reasons unknown. The Ministry has responded by cracking down hard on sedition, rebellion and rumour. Further expeditions are periodically sent out to nearby systems. The Raiders are just coming to realise that there is a limitation in their stutterwarp drives, as they can make journeys to nearby stars and return safely but ships travelling further go missing. The ship that *Bauer* encounters is one of these; it has made a short trip, less than five light-years, so is still able to return to the Raider homeworld.

The Raider scientists are hobbled in studying stutterwarp drives in two ways. Firstly, many of the Orthodox feel that studying Builder technology is in some way heretical. The Ideology does not specifically state that studying more advanced technology is forbidden because it makes no allowance for there to be more advanced technology – the assumption is that Raiders are and will be the pinnacle. It is this failing in The Ideology that so concerns the Orthodox and gives them pause. The second hindrance is that even whilst they do study the drives, scientists understand the mechanics but lack the fundamental understanding of stutterwarp theory that would allow them to discover the charge build up. Essentially they know *how* the drive works but not *why*.

Even so, given enough time, the Ministry agents aboard *Bauer* will discover differences between human and Builder drive systems or crack the encryption on the data cores. The Builder home system has an abundance of mineral rich worlds, many containing huge tantalum reserves. If the Raiders discover how to construct drives that give them the capability to travel reliably, it could lead to a crusade driven by a need to prove The Ideology is correct and that Raiders are the supreme lifeform.

## Raider Spike Gun

Raiders use a fearsome, but relatively inefficient, conventional firearm as the principle weapon of their marines and pacification troops. It is mainly designed for intimidation and is dreadfully inaccurate and short ranged. Since the forces of the Ministry have had no real wars for hundreds of years, the weapon suits the needs of their troops. It is a semi-automatic smoothbore weapon similar to a shotgun that fires low velocity spikes designed to penetrate Raider carapace. Each weapon has dual magazines and the user can switch from one to the other as a free action. Various spikes exist including an impaling solid, explosive or spikes that fragment after leaving the barrel like a shotgun.

Type:	22mm semi-automatic spike launcher
Country:	Raider
Length:	75 cm
Action:	Single shot
Mass (empty):	3.5 kg
Ammunition:	22 x 65 mm spike
Muzzle Velocity:	200 mps
Magazine:	Twin 6-round cassettes
Mass of Twelve Rounds:	1.2 kg
RoF:	60 rpm



Weapon	TL	Range	Damage	Kg	Cost	Mag	Traits
Spike Gun	10	25m	4D	3.5	—	6/6	Bulky

Spike	Mass	Traits
Solid	0.1 Kg	AP 6
Explosive	0.1 Kg	Blast 3
Fragmentation	0.1 Kg	AP 3, Blast 3

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