Frontier Explorer

... forever walk ... with your eyes turned skyward ...

Issue 4 – Spring 2013

Features

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FROM THE EDITORS

Welcome back explorers!

This issue brings you, among other things, a reworking, or more accurately, an expansion of the background material on the Saurian race that was introduced in Dragon Magazine #103 (November 1985) as well as a bunch of other material that helps to flesh out that background. However, that wasn't our original intention.

Most of the content in this issue are a direct result of thoughts springing from ideas, implications, and consequences of the material presented in the Subspace Radios article. I originally wrote that article just after we published issue 1. It was the result of a discussion on subspace radios in the forums at the http://starfrontiers.us site. Much of the material was presented there but I have expanded a bit on my original postings in the final article.

That article prompted the idea of the Spacefleet Signal Corps and the Talnor Class Communications Vessel to be the primary ship of the Signal Corps. With that ship and branch of Spacefleet, it was just begging for a "first contact" scenario. Not wanting to introduce a new race, we realized that the introduction of the Saurians to the Frontier would make an excellent candidate for this scenario.

That led to the series of Knight Hawks encounters introducing the Saurians and the new Saurian ships and weapon system. Since those scenarios lead the characters to Kischen, the Saurian homeworld, we of course needed a planetary brief.

We've taken a bit of liberty with the background history of the Saurians to expand the ideas as we have but I feel that the path we took is mostly in line with the scant details provided by the Dragon article and definitely makes the background more interesting. The material presented in this issue could easily be used as the basis for a small campaign (or large one if you really wanted to expand it). It could be an extension of the Beyond the Frontier modules (SFKH 2, 3 & 4), or started with the PC's attending Gollwin Academy and being assigned to a Talnor Class vessel for a training cruise and being on the ship that makes contact with the Saurians. Beyond the basic KH adventures here, the PC's could go on missions to discover the fate of the other Saurian worlds or maybe there is a clue to the location of the elusive Sathar homeworlds. It's really up to you.

And that's how the issue came about. Much of the content flowed from that single article. And so without further ado, we present the Subspace Radio as the lead article in the issue.

Keep exploring.

- Tom Stephens
 Senior Editor

Equipment

SUBSPACE RADIOS

Tom Stephens

The subspace radio is the backbone of the communications network that holds the Frontier together as it provides the means to communicate across interstellar distances in a reasonable amount of time. However, the Alpha Dawn rules don't provide much information on the subspace radio. All we have is the description in the Equipment section:

> *A subspace radio is used for sending messages between distant planets and star systems. Subspace communicators send coded tachyon beams that must be broadcast from very carefully aimed dish antennas to hit their target planet or system. A subspace message crosses one light-year in one hour. The radio uses a type 1 parabattery. Sending a message uses 100 SEU. (Expanded Rules, pg 48)*

We also know from the equipment table that it costs 20,000 cr and weighs 100 kg. Beyond that, we are left to our own devices. This article attempts to expand on the operation and use of subspace radios in the Frontier. For a treatment of what the Frontier would be like if subspace radios didn't exist, see the article "*Star Frontiers Without Subspace Radios*" in The Star Frontiersman Magazine (http://www.starfrontiersman.com) issue 11.

LIGHTSPEED COMMUNICATIONS

Before we dive into the details of the subspace radio, we first need to look at the alternative, the videocom radio. The videocom radio uses standard radio wave transmission like modern television, radio, and wireless networks. It transmits a digital signal on an analog carrier wave that travels at the speed of light. And although we call it a radio, the videocom radio of the Frontier is capable of transmitting both audio and video, as well as data, as part of its signal.

Videocom signals can be broadcast omnidirectionally or beamed. Beamed transmissions can travel farther with less energy but the transmitter has to be pointed directly at the target (or at least in the general direction depending on

how tight the beam is). Omnidirectional transmissions cannot go nearly as far as power has to be transmitted in every direction, but you don't have to know where the receiver is to get the message to them.

When used for short range communications (on planetary surfaces, between nearby ships, around planets and stations), nearly instantaneous two way communication is possible. As the distance increases, however, so does the time lag until "live" conversations become unworkable. The time lag between someone on Earth and someone on the Moon is one and a quarter seconds. You could carry on a conversation but there would be noticable pauses after you stopped talking before you heard a reply. The time lag between Earth and Mars is even greater ranging from about 4.25 minutes at Mar's closest approach to Earth up to just over 21 minutes when Mars is on the opposite side of the Sun. At that point, you send a message, and then come back later to hear the reply. With those kinds of delays, real time communications is not really possible. As you want to talk to more and more distant targets, the time lag increases further.

However, a videocom radio setup is relatively inexpensive. The setup only costs 1000 cr for the base system on a starship and 100 cr for the one on your wrist (chronocom) with less range. It takes more power to send the messages with enough strength to travel longer distances, but videocom radio signals can easily cross a stellar system if you are willing to wait for it.

SUBSPACE RADIO BASICS

Compared to videocom radios, subspace radios are expensive and power hungry. The radio itself costs 20,000 cr. It requires a Type I parabattery to run (or needs to be attached to a larger power source) and uses 100 SEU to send a single message. And with a mass of 100 kg, it is not something you're going to throw in your backpack and carry with you. Subspace radios are relatively fixed installations either on a planetary surface, station, or ship. You could mount one in the back of a ground vehicle but beyond a few military applications, there isn't much point as the increased complexity of operation would counteract any advantage the mobility gained you.

However, the transmission speed of a subspace radio is fast. The messages cover one light year in a single hour. That's a little more than 8700 times faster than the speed

of light or 8700 times faster than a videocom radio. So that means that sending a message from one end of a planetary system to the other is nearly instantaneous. That message from Earth to Mars that took 21 minutes with a videocom radio now only takes 0.15 seconds. A slight delay but less than the videocom signal between the Earth and the Moon. And messages between stars now take hours instead of days and interstellar communications are now feasible.

Unlike a videocom radio, subspace radios can only be used in a beamed transmission mode. They cannot broadcast omnidirectionally. The same is true for the receivers. Both radios have to be pointed at each other for the message to be transmitted. In addition, the alignment of the transmitter has to be fairly exact in order to get the message to the correct destination. This means that it can't be used easily from a moving ground vehicle or a maneuvering starship (i.e. in combat, basic accelerations are okay) as the rapid changes in attitude of the transmitter would throw it out of alignment and the signal would not go to the correct place.

Another difference between the subspace radio and the videocom radio is that while the videocom radio can transmit continuously, the subspace radio sends its signals in small bursts of information, small packets. And it takes a finite amount of time to compose the "packet" to be sent. So while the time delay within a system is small there is an additional overhead that adds a bit more delay to the transmission and receiving process that makes two-way conversation a bit difficult.

Physical design

The transmitter/receiver "antenna" of a subspace radio is a large lattice of electrical wiring and transducer nodes. Roughly a meter and a half in length and half a meter square, the antenna has seven concentric box lattices inside one another. The details of the spacing and positioning of the lattice and transducer nodes are what allow the radio to create the tachyon beams that allow the faster than light communication.

The antenna is typically mounted on an alt-azimuth mount and has a small optical telescope with a digital camera mounted co-axially with the antenna to allow for alignment. More advanced models have additional alignment axes that can be set and locked into position based on the latitude of the location to allow for easier/permanent alignment of the subspace radio at a fixed installation.

The parabattery is typically installed inside the base of the mount and the radio is controlled via a separate control panel that is connected to the radio via cabling allowing it to be moved and positioned as needed for convenience of operation.

Tom Stephens

PGC Model 3402 Subspace radio. A standard man is provided for size comparison.

Subspace Radio Operations

The rules state that the subspace radio works by sending coded beams of tachyons. Tachyons are theoretical particles that, like normal particles, can never travel at the speed of light. However, unlike normal particles, they cannot travel slower that the speed of light. In fact they travel faster the less energy that they have. They represent a solution to the special relativity equations for particles with imaginary mass. It is these properties that allow them to be used for faster than light communications.

As was said before, subspace transmissions are beamed. This means that the transmitter must be pointed at the destination system. But for subspace transmissions, it also means that the receiver must be pointed at the transmitting system as well. If either of the two radios is out of alignment, then the message will not make it to its destination.

While the transmissions are beamed, the beam does spread out over interstellar distances, covering the entire system at the destination end. Thus any subspace radio pointed back at the transmitting system when the message arrives could potentially receive the transmitted messages. Because the transmitted messages can be received on any subspace radio in the receiving system they are typically both coded for the recipient and encrypted for privacy.

Message Coding

Message coding is just a bit of identifying information at the beginning of the message that signifies who the

message is from and who it is intended for. It consists of an ID string that identifies the transmitting radio, another user supplied ID that identifies the person or organization making the transmission and optionally a third ID that identifies the intended recipient. If the third ID is omitted, the transmission is considered uncoded and is generally intended to be a public message. Types of messages that would be sent uncoded are SOS signals, general UPF broadcasts, and any other type of message that the transmitter doesn't care who receives it.

On the receiving end, the subspace radio can be configured to only listen for messages that arrive from specific transmitting radios, specific transmitter IDs, or which are intended for specific recipients. In setting these parameters, lists and wild cards are often used to listen to a range of possible ID values. In this case, the radio will listen for messages that match the receive settings and only record the messages that match. It is also possible to listen for messages being sent to anyone.

The central Subspace Registry, located on Triad, holds the records of what IDs are registered to what individuals and organizations. While not every ID used has been (or needs to be) registered, most organizations will register their IDs so that they can lay claim to those identifiers (much like webpage domain registration today).

Sidebar Example: My favorite mini-corp, Obar Enterprises, has offices on Pale and Triad and facilities on New Pale and Rupert's Hole (among others). All four facilities are connected via subspace radio (with a 5 hour delay between the Truane's Star and Cassidine systems) and are keyed to only listen to messages coded with OE registered transmission codes and general UPF broadcasts. The receiver in Triad can detect any signal originating in the Truane Star system whether it is from the Pale office, the New Pale facilites, or one of OE's ships in that system. The same is true for the Rupert's Hole facility. However, the Rupert's Hole facility doesn't care about general business transmissions so it only listens for the messages coded directly to it. The Triad office, on the other hand, is set to receive any OE coded transmission whether directed specifically to the Triad office or to the Rupert's Hole facility or to any of the OE ships currently in the Cassidine system.

Message Encryption

Since anyone with a radio pointed in the right direction can receive and record a subspace message, most messages, in addition to being coded for their recipient, are also encrypted to prevent unauthorized reading of the message. The exception to this is typically SOS calls and general broadcasts from the UPF intended for all Frontier citizens, whether they be alerts or general messages.

Most messages, however, are encrypted. The encryption schemes can vary but even the very basic encryption

schemes built into the subspace radios are extremely difficult to crack without the proper encryption keys that the message was generated from. If the receiving system has those keys, the message decryption is straightforward. For radios that record the message without the correct decryption keys, the message is effectively just a bunch of noise useful only as a random number generator.

Subspace Frequencies

There are multiple "subspace frequencies" that the messages can be sent on. Any given subspace radio can only transmit or receive on one "frequency" at a time but multiple radios in the same system can send/receive messages simultaneously on different "frequencies" without interfering. A radio that is not actively transmitting or receiving a message can monitor all the frequencies for incoming messages that are coded to it. When one is received, they lock onto that frequency and receive the message. So if two messages from the same system (i.e. the direction it is pointed) come in at the same time, it will only hear one and miss the other.

This is another area where the referee can tweak the operation of subspace radios to fit the feel of his campaign. Maybe there is only one frequency and so if two transmitters operate at the same time, they scramble each other's signals. Or maybe there are only a few frequencies so that the chance of overlap is smaller but the total bandwidth of subspace communications is limited by the number of frequencies. In these situations, control of the radios or at least regulation of transmissions becomes more important.

Another possible modification is to limit the number of frequencies the radio can listen on. Maybe the radios can't listen on all frequencies when not actively recording a message but are limited to a small range or even a single frequency like today's traditional radios. Thus if you're not listening to the correct frequencies, you might miss the message even if it was being sent to you and you were listening in the right direction at the right time.

Operating a Subspace Radio

Using a subspace radio is straightforward, if somewhat difficult. Most of the difficulty lies in getting it aligned with the destination system. For fixed installations of a subspace radio, all of the hard work has been done when the installation was set up. In those cases, the positions and angles to each of the systems in the Frontier that the subspace radio are calculated in advance and then it is just a matter of matching the time against the destination and the computer moving the dish to point in the right direction.

Of course this brings up another point. Since the subspace beams are directional, you can only broadcast to receivers

that are above your horizon. If the intended receiving system is below your horizon, then you will have to wait until it rises before you can send a message. While no one has ever computed that detailed of astronomical data for the systems of the Frontier, it can still be used as a plot hook. The PC's have finally gotten the parts to repair the subspace radio and send off their SOS message. But Triad is below the horizon and won't rise for another three hours. Can they hold out against the hordes of angry natives long enough to send the message? Or will they have to retreat from the complex before they get the chance?

For non-fixed subspace radios, either ones on ships, ones that have been carried as cargo and then set up at the PC's camp or base, or the installation of a new radio at a fixed location, the procedure is a little more complicated. In that case, the radio has to be aligned in order to make the transmission. This requires a bit of work and a little bit of knowledge. The exact time and difficulty depends on the skill set the character has, and the distance to the target.

Characters with Astronomical Skills

Subspace radio alignment is easiest for characters with some sort of astronomical skills. From the standard AD/KH rules, this would be someone with the Astrogation skill from Knight Hawks. For the Zebulon's Guide skills, this would be someone with the Communication Equipment: Operate skill as that skill specifically includes the use of subspace radios. (Interestingly, there is no Astronomy skill in Zeb's Guide or an Astrogation skill for that matter.) If using some other skill system, like "A Skilled Frontier" from issue 9 of the Star Frontiersman Magazine, use whatever skill grants astronomical knowledge.

For these characters, subspace radio alignment takes (1d10-skill level + distance in light years) x 10 minutes or a minimum of 10 minutes whichever is more. This assumes that the alignment is done at night. If done during the day the die roll changes from 1d10 to 2d10.

In addition, the character has to make a skill check to make sure that the alignment is done properly. The success chance is 100% + 10% x skill level - 5% x distance to the target in light years. A roll of 96-100 always fails even if the chance of success is 100% or more.

If the characters are in, or trying to align on a remote system, a failed alignment can only be detected by spending another alignment period and making another skill check or sending a message and waiting for a reply. If none is received after the expected amount of time, then the alignment may be off. If the characters are in a populated system and are aligning on another populated system, a misalignment can be detected in just 1d10

minutes as the system would not be registering any incoming signals of any sort.

Characters without Astronomical Skills

For characters without any relevant astronomical skills, the alignment is a little bit more difficult as they lack the detailed astronomical knowledge to simplify the process. It is assumed that most adventures are at least passingly familiar with the skies of the Frontier and can identify the major populated systems (moving around the Frontier doesn't change the positions of most of the stars in the sky, just the ones actually in the Frontier). Thus given time they can get a subspace radio antenna pointed at the right star.

For these characters, the alignment time takes (2d10 + distance in light years) x 10 minutes and must be done at night when they can see the target above the horizon. The success chance in this case is LOG – 5% x distance to target in light years. The referee may assign bonuses depending on the characters background, experiences, or skills if he so desires.

Economics

In all the discussion so far, we've ignored how much data you can send via subspace radio. The Alpha Dawn rules don't define the size of the "message" that costs 100 SEU to transmit. This is left up the referee. For the discussion of this article, let's say that a message consists of no more than 10 minutes of audio, 1 minute of video plus audio, or some fixed amount of data. That's what you can send with that 100 SEU of power. However, there is nothing to stop you from sending multiple bursts if you have the power and need to transmit more data. You can vary the actual amount per burst depending on what you want in your campaign. More data per message makes interstellar communication cheaper and more common while less data per burst makes is more expensive and rarer. Personally, I like to keep costs high in my Frontier so I say a burst is 1 minute of audio or 6 seconds of video. (A factor of 10 more expensive to send messages).

At the default rates I suggested, you could send small video clips or a reasonable amount of audio or data in a single transmission. The transmission costs 500 credits (the cost of 100 SEU) but your message will arrive in a few hours instead of the days it takes to make an interstellar jump via ship.

What if you are StarPlay and wanted to broadcast the Galaxy Cup competition (whatever that may be) "live" via subspace radio? What would that cost StarPlay? Assuming the broadcast was 3 hours long and you used full video, that would be 180 transmissions at 100 SEU apiece or 18000 SEU to transmit which costs 90,000 cr. And that is per receiving system. Since the broadcast

needs to be transmitted to each receiving system independently, that cost is multiplied by the number of receivers. Ignoring the Rim and Zebulon, there are 17 systems in the Frontier. That means you have to make 16 different transmissions from 16 different subspace radios. You're looking at 320,000 cr for the radios, plus 1,440,000 cr for the transmission power. And that's just to get the signal to the subspace radios in each destination system. You then have to broadcast it out, via videocom to the general population, once it has arrived at the destination receiver but we're discussing only the subspace costs here.

So this is definitely a big business item, you're only going to do it for major events since you're talking about nearly two million credits to broadcast a 3 hour event to the Frontier. It can be done, it is just expensive.

Other Considerations

Listening posts

The nature of subspace communications practically dictates large listening posts. These posts would contain dozens to hundreds of subspace receivers pointed at the various inhabited systems of the Frontier. Multiple receivers would be pointed at each system to monitor the transmissions and be capable of receiving multiple messages at the same time.

These listening posts could have a variety of uses ranging from StarPlay's broadcast network hubs which are used to receive entertainment news from around the Frontier, to the central hub of a multi-system corporation used to monitor and receive reports on its operations in various systems, to UPF run intelligence gathering stations.

Military uses

The FTL communications capabilities provided by the subspace radio means that information can be transmitted relatively quickly between the field and central command. It also means that orders can be transmitted back to the field quickly as well. This has both good and bad consequences.

On the plus side, intelligence can be quickly relayed to a central location or locations for analysis by more people with a greater breadth of information, making trends, patterns, and correlations more likely to be discovered quickly. On the down side, there will always be a tendency of the higher ups to want to try to micromanage the field operations and the relatively short time scales for message transmission may lead to policies that require field commanders to "check in" regularly or before major operations. The delays can be large enough that the round trip times may cost opportunities and lives.

Another aspect is that there will probably be dedicated communication ships that are part of most fleet movements or at least part of the major Task Forces.

These ships provide the subspace link between the fleet and central command. During major battles they probably hang back and out of the way. The fleet ships communicate with the communications ship via videocom radio and the communication ship passes information on to central command via subspace transmissions.

Plot hooks

There are a number of ways the above information could be used as plot hooks and adventure seeds in a campaign.

Key Capture

The PC's employer has been recording the transmissions from a rival. However, they are encrypted and the employer needs the decryption codes to read the transmissions. To do so they need to capture either the transmitting or receiving subspace radio to extract the codes from the system's memory. The PCs are detailed to acquire the radio so the codes can be extracted.

A Flaw in the Code

A flaw has been detected in one of the PC's employer's encryption algorithms that allows the code to be broken. It is believed that a rival has been recording and decrypting transmissions. The PC's are to raid the receiving installation and determine if the code actually has been compromised. If so, all evidence should be destroyed.

Mysterious Signals

Strange subspace signals have been recorded in multiple systems across the Frontier. None of the ID codes in the transmissions match any known IDs recorded. The PCs are assigned to locate the source of the transmissions and investigate. Based on the receipt directions, they have triangulated to a specific system or even a specific location within a system. This could be a large interstellar mission if the location is in an unexplored system and the PCs have to go to the system and find the exact source or a small encounter if it is a raid on a single location.

Jammin'

This one works best if the number of subspace frequencies is small. A rogue transmitter is broadcasting random signals on many (/most/all) of the available subspace frequencies. This is causing corruption and loss of data for legitimate signals which are no longer getting through, effectively isolating the system from the rest of the Frontier. The PCs are assigned to find the source of the rogue transmissions, eliminate it, and capture those responsible if possible.

Total Silence

A listening post or other facility operated by the PC's employer has gone off the air and is no longer transmitting the regular subspace signals as expected. The PCs are dispatched to investigate. It could be anything from a simple malfunction to a meteor strike to a raid by a rival.

ANIMAL HANDLING SKILL

Tom Verreault

Animals as adventure pets in role playing games date back to Advanced Dungeons and Dragons and the inclusion of war dogs in the equipment list. Television and movies reinforced the idea of adventure pets with pirate captains having pet parrots and monkeys on their shoulders, truck drivers with a primate as a side kick, and Westerns that depicted cowboy heroes with their faithful horse of above average intelligence. The ultimate Hollywood presentation of this troupe was The Beastmaster, released in 1982 where the title character, Dar, had a whole menagerie of animals he controlled in a fantasy setting. Animals as adventure pets have been a significant, though sometimes minor, theme in the forty year history of role playing games.

What has often been overlooked is a rules framework for handling animals in game. The Star Frontiers Alpha Dawn rule books lacked this but Zebulon's Guide introduced them in the fragmented skill system of its incomplete revision. The flexibility and ease of use of the Alpha Dawn skill system has demonstrated its elegance and explains why it was never really been supplanted by the Zeb's skill system. What is called for is an adaption of animal handling skills from the Zeb's Guide to the AD rules.

THE SKILLS

As a skill, Animal Training best fits in the Bio-Social Primary Skill Area (PSA). Veterinary Medicine also belongs in this PSA.

ANIMAL TRAINING SKILL

(Skill check= ½ INT +10% per level)

Animal training deals with all aspects of animal behavior, training, and care. Its sub-skills are: Analyze Behavior, Taming, Training, and Care.

THE ANALYZE BEHAVIOR SUB-SKILL

This sub-skill allows a character, given ten minutes of observation, to determine if an animal is harmless or aggressive. The animal can be observed further (2d5 hours -1 hour per level of skill but for a minimum of 1 hour) to determine den location and eating and drinking habits. A full analysis of how the animal fits into its environment would require 200 hours of observation.

A failed skill check with this sub-skill will cause all other sub-skill checks to fail. The character may not realize that

he failed this skill action if he fails by more than 10 points on the percentile roll. A player may recheck for this sub-skill once per GST day or alternately may consider this sub-skill as automatically passed on a particular animal after 200 hours of active observation. Once an animal trainer is completely familiar with a particular animal species he never needs to roll for this action with that animal as success is automatic. Note that an individual animal from a species that normally is not aggressive could be aggressive because of illness, injury, or some other reason and unless the animal handler is completely familiar with the species, with a skill check he should spot right away that something is wrong.

THE TAMING SUB-SKILL

This sub-skill allows a character to tame a creature so that it can be handled safely without it attacking or hurting someone. A tamed creature can only be used as a beast of burden or herd animal. Anything further requires actual training. If this skill check fails then there is a 25% chance the animal will attack the animal trainer.

Taming is time consuming and requires the character to work with the animal day after day. If more than two days of taming are missed the trainer must begin again from the beginning. The taming process takes 1d10 days minus 1 day per skill level but one day is the minimum. It is further modified by the following but the minimum of 1 day to tame is still in effect:

Condition	Modifier
Herbivore	-1 day
Carnivore	+1 day
Domesticated Species (see below)	-1 day
Giant Sized	+2 days
Large Sized	+1 day
Small or Tiny Sized	-1 day
Prior Experience Taming this Animal species	-1 day

If a character has worked with an animal to tame it, believing he passed his analyze behavior skill check when he actually failed, the referee can hint to the player after 3 days of taming that perhaps he did not fully understand the animal's behavior. Realizing and fixing the failed analyze behavior skill check during taming only adds 1 day to the taming procedure but prevents an automatic failure that would otherwise occur.

Once tamed, an animal remains that way unless abandoned. The following types of creatures carry a -10% penalty to tame: tiny creatures, giant herbivores, all insectivores, large omnivores, and large carnivores. Giant omnivores and giant carnivores have a -20% modifier for taming. Monsters (like a queequig or sand shark), weird genetic constructs or Sathar creatures cannot be tamed. Taming does not mean that the animal does not require a cage, pen, or other accommodations usual to animals. Taming simply means that the animal may be safely handled unless provoked or stressed.

Animal Training Sub-skill

Training may be performed on a tamed animal. It functions like a robotics program installed in a robot. For example a robot cannot fight without the appropriate program installed like Attack/Defense. In a similar way animal training "programs" an animal to perform specific tasks in response to the right stimuli. An animal trainer learns one training program for every level of skill and may pay 4 EXP to learn a new training program after level 6. The animal trainer may actively manage one animal per level of skill in stressful situations like combat.

Some animals may not possess enough intelligence for some training; the referee must first approve the training course before training begins. Animal training works by practicing a training program for 1d5 weeks after which a skill roll is made. If it succeeds, the animal is trained in that program but otherwise the trainer must redo the regime. The following are six training programs but more are possible if approved by the referee.

COMPANIONSHIP

This training regime must be performed with an animal to house (or space ship) break it. Otherwise, a pen, cage, corral, or other suitable facility is required to house the animal. The animal will be content to associate with its owner and look to him for his needs. This program will also train an animal to associate with animals it would not normally do so, allowing an animal trainer to mix carnivores with herbivores. If the animal is to be ship broken then 0g familiarization is part of its training. Ship-broken animals not in a cage when the ship goes into 0g will require an incontinence garment to prevent waste products from floating around the ship.

GUARD

This regime teaches an animal to guard a location or person. Herbivores will usually sound an alarm (5% chance of biting the intruder or attacker), omnivores may (50%) actually bite an intruder or attacker, but carnivores may (75%) bite an intruder or attacker. Otherwise they sound an alarm. If the omnivore or carnivore has been through the Attack training then it will attack intruders or attackers 100% of the time.

ATTACK

This regime teaches the animal to use its natural weaponry to attack. Some herbivores can be trained to attack if the referee approves. Herbivores that are injured flee 5-50 meters. When an omnivore or carnivore is injured for more than half its STA it will flee 2-20 meters if the trainer fails a skill check. The training program includes the ability to call off an attack as well.

TRACK

This training program requires an animal that uses its sense of smell to follow prey. Most herbivores will not be suitable while most omnivores and carnivores will. The animal will follow a track but if it crosses a body of water or a food source the animal trainer must make a skill check to urge the animal on.

BASIC COMMANDS (SIT/STAY/COME/QUIET/& FETCH ITEM)

This training program teaches basic useful commands. If the animal feels threatened or experiences stress in the form of combat it will flee or act erratically unless the trainer passes a skill check.

HUNT & RETRIEVE

This training program can be taught to omnivores and carnivores. If the animal is a pack hunter it will work in concert with the animal trainer while hunting.

The Care Sub-skill

This sub-skill functions automatically if the character has already successfully analyzed animal behavior. It allows the character to know how to house, feed, and otherwise maintain the animal. Because animal handlers have specialized knowledge they may perform some limited veterinary actions for animals they have spent days working with. For a standard skill check they may perform basic first aid and heal 10 STA for their animal. If they have a specialized first aid kit matched to their animal's biology (usually cost 25 Cr and is good for 3 uses) they have a +10% bonus to the first aid skill check. First aid may only be attempted once per day by the animal trainer whether it succeeds or not.

Veterinary Skill

(Skill check= ½ LOG +10% per level)

This optional skill is simply the medical skill applied to animals. As an optional rule, Medics can use their medic skill to work on animals at ½ their skill rounded down and conversely a Vet can use their skill and knowledge to help a sapient being at ½ their skill level rounded down. Rounding down the skill level means that a first level skill cannot be used in this way. A veterinarian needs a tool kit of similar cost and weight to the medic's tool kit but the Telol drug is replaced with an animal sedative. Sedation is required for most medical treatment of an animal. The modifier for a medic working on a being with alien biology (-20) also applies to the veterinarian. A vet has

studied the biology of creatures native to the ecosystems that the core four races evolved in, all others are considered alien.

Referee Section

Domestication

Taming an animal does not domesticate it. Domestication is a process where animals are bred over generations for features that make them easily handled and worked with. Even though the Terran Wolf and Terran Dog are 99% similar in DNA and can interbreed, taming a wolf does not make it a dog. The reality is a wolf makes a poor house pet. For game purposes, a domesticated animal is any animal that has had a long association with the core four player character races and has experienced generations of breeding for desirable features. Use of Animal handling skill with a domesticated species carries a +20 bonus to skill checks. The decision as to what domesticated animals exist in the game setting will largely be up to the game referee.

Instinct

Instinct is programing that nature has given the animal. In the case of the Terran Dog, various breeds have been bred for a particular instinct and this instinct has become locked into the breed. For example some dog breeds have a strong shepherding instinct while others have a strong prey instinct.

My own house pet, a mix breed terrier has the hunting and killing instinct of his forbearers. There is not one aggressive bone in his body and he wouldn't hurt a fly but the instinct to grab small prey and break its neck is hard wired into him from being a terrier breed. Just paying attention to him, talking to him, or trying to pet him will cause him to become excited and hunt for his toy rope. The only time he ever growls is while vigorously shaking the rope to "break its neck." If it wasn't for his inability to relax and sit on your lap, he'd make a great lap dog, which was what I thought I was getting when I bought him for the wife and kids because he was small and fluffy. His instinct is simply locked into his genes and we've managed it by training him to only "kill" his toy rope, after he had destroyed a couple of the kid's toys.

Animal training can help manage an instinct and it is best to work with the animal's instinct when training it. A referee can apply a 10% penalty or bonus for characters working for or against an animal's basic instincts in its training.

Referee Notes on Instincts

Referee's will need to look at a particular animal that is intended to be an adventure pet and make a judgment call as to the type of basic instinct that it may possess. Fight or flight strategies turn up in herbivores as well as carnivores and is a good way to handle combat for an adventure pet that is not trained to attack or defend. Animals that flee have a flight distance. A domesticated animal will tend to have a short flight distance while tamed wild animals will tend to have a longer flight distance. A short flight distance can be as short as a few meters while a long flight distance can be as far as a half kilometer. A common tactic used by fleeing animals is to double back or circle around blocking terrain. Circling around or doubling back helps to throw a pursuer off the trail but in a carnivore or omnivore it can serve to turn the tables on the pursuer.

The following instinctive reactions can serve to make an animal more distinctive in game. Again these are guidelines that will require the referee to make a judgment call about the animal, but matching one to an animal can give the referee a consistent plan for handling the animal in stressful situations.

Prey Instinct

A strong prey instinct makes for an animal that is a good hunter. This instinct compels them to chase and catch animals that are usually its size or smaller. Animals with this instinct are good at stalking and hunting. They can solo hunt or group hunt and if bonded with their handler they will work almost intuitively with them in activities that mimic stalking and hunting.

Shepherd Instinct

A strong shepherding instinct makes for a good working animal well able to manage other domesticated animals. The trained animal becomes an extension of the animal handler, allowing him to control it by vocal commands and move domesticated animals as if by remote control. In an untrained animal, this instinct can lead to biting of domesticated animals. Typically, the shepherding instinct is a modification of the prey instinct brought about during the domestication process. For that reason a wild animal is unlikely to possess this instinct.

Protective Instinct

A strong protective instinct gives an animal a strong sense of protection for the beings with which it lives. It may stem from an evolutionary strategy to protect its progeny or strictly from being territorial. Once it becomes familiar with a location it will assume guardianship over it. Animals with this instinct will vocalize a warning at strangers and can launch an independent attack. Whether trained or not this instinct *can* lead to a very aggressive animal.

Social Instinct

This instinct is found in social animals that cooperatively hunt their prey or cooperatively defend themselves from predators. This can make it easier to train the animal to work with a sapient being. Behavior issues can sometimes arise if the animal is left alone or caged for long periods of time. The instinct can express itself in

carnivores by endurance hunting as a pack. Endurance hunters drive their prey, rarely closing with it but simply preventing it from resting till it succumbs to exhaustion. In an herbivore the instinct can present as a strong protective streak bordering on heroic.

Equipment for Animal Handlers

Light Weight Cages

These cages are made of light weight alloys and are inexpensive. Cages are rated by the size of the creature to be held in them. There is a 50% chance that the cage for a large creature will fail due to light construction. There is no such thing as a light weight cage for giant creatures.

Cage Size	Weight	Cost
Tiny	N/A	5 Cr
Small	1 kg	10 Cr
Medium	3 kg	20 Cr
Large	5 kg	40 Cr

Heavy Duty Cages

These cages are made of heavy weight metal alloy. Cages are rated by the size of the creature to be held in them. There is a 50% chance that the cage for a giant animal will fail.

Cage Size	Weight	Cost
Tiny	1 kg	10 Cr
Small	2 kg	20 Cr
Medium	4 kg	60 Cr
Large	8 kg	200 Cr
Giant	16 kg	400 Cr

Giant Sized Federanium Cage

Cages made from federanium alloy are guaranteed not to fail. They are constructed specifically for giant sized animals.

Cost: 2000 Cr, 20kg

Leash

A leash adds +10% to skill checks to control the animal in stressful situations. They are rated by creature sized and an animal must have a leash matched to its size. Large and giant creatures are generally not suitable for a leash.

Leash Size	Cost
Tiny	2 Cr
Small	3 Cr
Medium	4 Cr

Animal First Aid Kit

This is just a simple first aid kit and can only be used to perform first aid on an animal. It must be matched for the biology of the animal and it will provide a +10% to the first aid skill check by the animal handler. The kit is good for 3 uses.

Cost: 25 Cr.

Veterinarian Medical Kit

It is similar to the standard medic's tool kit for medical treatment of sapient beings. In this tool kit the telol drug has been replaced with 25 dose of broad spectrum sedative. It also lacks a freeze field and autodoc.

Cost: 400 Cr, 8 kg

Food and Bedding

An animal handler needs to provide food and bedding for his animal. This expense is computed as a weekly cost. Inadequate food or bedding can lead to illness and behavior issues. If a player character has failed to provide for these basic needs the referee can apply a variety of penalties. Everything from infections, to behavior issues, or the local chapter of Beings Against Cruelty to Animals cadre complaining to authorities about the player character.

Animal rights activists or local law enforcement paying the player character a visit is an in game penalty that must be handled through role playing. Behavior issues can have a wide variety of effects which are up to the referee to decide how they play out in encounters but a good rule of thumb would be a -10 to -20% penalty for skill checks while handling the animal. However, the animal's reaction could be as extreme as turning on the handler.

Finally the Alpha Dawn rule mechanic for an infection is expressed in this way: (S5/D8). This means the infection has a strength of 5 and will cause that much damage to the animal's STA every 10 hours for 80 hours. If the infection formula is followed by an "!" as in: (S10/D5!) then the animal will take 10 points of damage every 10 hours for 50 hours and at the end of that time if the infection has not been cured it kills the animal. A veterinarian skill check is required to "control infections" similar to the medic's sub skill. The attempt to control the infection requires a dose of animal omnimycin. Failure means the dose is used up and the infection is out of control. Another attempt can be made in 1 GST day.

Food & Bedding by Size	Cost/week (Galactic Std. Time)
Tiny	5 Cr
Small	15 Cr
Medium	30 Cr
Large	100 Cr
Giant	250 Cr

Campaign Background

SPACEFLEET SIGNAL CORPS

Tom Stephens

Spacefleet's Signal Corps is a sub-branch of Spacefleet responsible for all aspects of Spacefleet communications including regular day-to-day communications as well as all forms of signal intelligence. In addition to having members of the Signal Corps on all Spacefleet vessels to manage communications, the Signal Corps maintains listening outposts all over the Frontier and Rim and also controls and manages the large fleet of Talnor Class Communications vessels.

The Signal Corps is as old as Spacefleet itself. It was established as part of Spacefleet's original charter to handle communications for Spacefleet and the fledgling United Planetary Federation in the wake of the First Sathar War. At that time it was realized that if the new federation was going to work, a strong communication network was going to be needed and so the Signal Corps was explicitly created to fulfill that need. Thus the Signal Corps maintains both space- and ground-based assets to fulfill that role, probably the only part of Spacefleet to control sizable ground-based assets.

Regular Duties

The Signal Corps fills three main roles within Spacefleet: regular communications, signal intelligence gathering, and signals analysis.

Regular Communications

With the exception of UPF fighters, every Spacefleet vessel has at least one member of the Signal Corps as part of the crew. These crew members are responsible for the operation of the sensors and communications gear on the

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ship. On larger vessels with multiple Signal Corp crew members, they are also responsible for the maintenance of these systems. This includes the videocom and subspace radios as well as the radars and energy sensors on ships that have them.

Signal Corps crew members that handle the operation of the sensors and communications equipment tend to have strong computer, data analysis, and communications skills while those that are responsible for maintenance tend to have strong technical and computer skills.

As another aspect of regular Spacefleet communications, the Signal Corps maintains a number of Talnor Class communications vessels (p 12). These ships are typically assigned to all of the major Spacefleet operations groups to provide communications support during operations. While most of the members of the command crew of these ships (i.e. pilots, astrogators, engineers, and gunners) are typically not members of the Signal Corps, almost all of the rest of the crew are.

In addition to shipboard communications, the Signal Corps operates at least one major communication nexus in each system in the Frontier to facilitate the day to day communications of Spacefleet, Land Fleet, Star Law, and the UPF. These posts can be both ground based as well as on-board space stations , or in some cases for new worlds, a Talnor Class vessel is assigned to this duty, and are staffed by Signal Corps personnel responsible for handling all relevant responsibilities.

Signal Intelligence Gathering

The various communication nexuses and Talnor Class vessels deployed with operations groups also perform a general signal gathering function. While they are not actively processing signals designated for their system or fleet, these facilities also constantly collect data on other signals. This includes, but is not limited to, data about numbers of communication signals originating from various systems in the Frontier, transmitter and recipient codes, and in some cases actual messages. All of this data is monitored for specific triggers and flags as well as general trends and patterns.

In addition to these assets that support regular communications, the Signal Corps maintains a number of listening posts and Talnor Class vessels that are fully dedicated to signal intelligence gathering. These posts are listening to sources both inside and outside of the Frontier

and are monitoring known threats and issues as well as searching for new signals and patterns. The exact number of these assets is unknown but it is believed that there are many more active Talnor Class vessels operating in this role than are used for support of the working operations groups.

Signals Analysis

In addition to collecting the data, part of the role of the Signal Corps is to analyze the data. Some of this is done in real time as the data is collected. Especially for data directly related to the current operations. Also, data on high priority general targets are also processed as soon as they are received.

However, as much of the subspace and videocom radio traffic is encrypted, only the largest computers have a chance of trying to crack the encryptions on messages of interest in any reasonable amount of time. While the computers on-board the Talnor class vessels are large and powerful, they are nowhere near large enough to process all the data that the ship receives. Much of this data is archived and downloaded when the ships return to port. The data is then transfered for processing at Spacefleet's well-known but top secret processing centers on Morgaine's World and Triad.

These installations are huge computer processing centers that work on all types of computational tasks, including decryption and analysis of all the data collected by the communications ships and installations around the Frontier. The centers are heavily guarded and defended. While there are two known centers on Morgaine's World and Triad, it is rumored that Spacefleet has other centers that are even larger in unknown locations.

Training

In addition to normal operations, the large number of operating Talnor Class vessels play a significant role in

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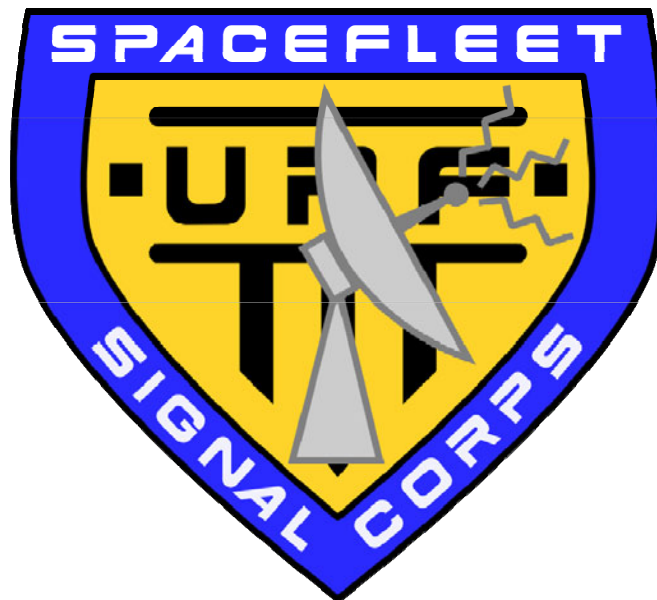
Spacefleet Signal Corps logo. The logo is comprised of the standard Spacefleet logo (blue and gold shield with the UPF logo and Spacefleet across the top) with the addition of the Signal Corps branch name at the bottom of the shield and a radio communications dish superimposed on the UPF logo.

Spacefleet training. With their relatively large crew size there are a lot of crew slots that are potentially available as training billets. Spacefleet takes advantage of this potential and many Spacefleet personnel, both enlisted and officers, have served on one of the Signal Corps vessels, typically during their early training years.

With typical operational tours of only two or three months, the time away from port for a Talnor Class vessel is perfect for training and tends to be fairly routine without a lot of excitement. With two full, diverse crews there are training possibilities for most typical positions throughout Spacefleet. At any given time, up to twenty percent of a Talnor Class vessel's crew is typically on their first or second training tour. This is true for the vessels on normal patrol or communications duty. Those vessels on exploration or "black ops" assignments are typically not used for training duties as their missions tend to be longer and/or more sensitive.

Service Patch

Pictured above, the Signal Corps logo is based on the standard UPF shield logo used by Spacefleet, Landfleet, and Star Law. The logo starts with the standard Starfleet version: a black UPF emblem on a gold background with a blue border and Spacefleet in white across the top of the shield. The Signal Corps name is in white at the bottom point of the shield. Finally, the logo has a silver broadcasting radio antenna superimposed on top of the UPF emblem.

TALNOR CLASS COMMUNICATIONS SHIP

Tom Stephens

Introduced shortly after the formation of the United Planetary Federation, the Talnor Class Communications Ship plays a critical role in the day to day operations of Spacefleet. Although the class has seen several updates over its service lifetime, the current version, Model D, still serves the primary role of the original ships, namely fleet communications and reconnaissance.

Ship Roles

The Talnor communications ship is not a front line ship but rather a fleet support vessel. At least one of these ships is attached to each of Spacefleet's Task and Strike Forces to provide communications support for both in-system and Frontier wide messages. The Talnor class ship is equipped with multiple videocom and subspace receivers and transmitters.

In addition to its plentiful communications gear, the Talnor class ships sport powerful sensors and computers to track, analyze, and monitor everything going on in space around it. It is not uncommon for a Task Force's chief tactical officer to actually be on the Task Force's comm ship to have access to the data and resources on-board to better plan and coordinate operations.

Besides traveling with Spacefleet's Task Forces and operations groups, a number of Talnor Class vessels are deployed around the Frontier as mobile communication nexuses to facilitate the general operation of Spacefleet. Capable of monitoring multiple subspace transmissions from every system in the Frontier and Rim simultaneously, and not having to worry about being on the wrong side of the planet, the Talnor class vessels provide a mobile backup to Spacefleet communications around the Frontier.

A final role played by the Talnor Class vessels is that of forward reconnaissance. These vessels are often deployed into areas where Spacefleet wants information. With their powerful sensors and communications monitoring gear, they can collect data and relay it back to Spacefleet command.

As there are a fairly large number of Talnor class vessels in service, and life on board is fairly sedate compared to a front-line Spacefleet warship, these ships tend to see a large number of trainee crew members. The relatively calm operations on these vessels, at least the ones serving the communication nexus role, lends itself to opportunities for on-ship training without the extra stress that comes with working on a front-line vessel. It is not uncommon for over a quarter of the crew on a Talnor vessel that is working the communication nexus role to be trainees on their first extended voyage. It is also not uncommon for any graduate of Gollwin Academy to have served at least one training tour on a Talnor class vessel at some time in their career.

Ship Design

At its core, the Talnor class ship is a giant broadcasting and receiving station. In its current incarnation, the Talnor-D sports 50 subspace radios and two dozen videocom radio transmitter/receivers. It also has a powerful radar and energy sensors system. The computers onboard are larger than typically found on spacecraft and optimized to collect, analyze, decrypt, and translate signals received on all of the ship's communication channels.

The rest of the ship is built around supporting this communication function. The ship itself is built from a size 6 hull, just like StarFleet's destroyers. In fact, from a distance, the Talnor can easily be mistaken for a McCoy class destroyer. Up close, however, the differences are readily apparent as the Talnor class vessels are bristling with communications gear.

Like the destroyers it resembles, the Talnor vessels sport three Class B atomic engines and are fully capable of maneuvering like their sister ships. However, they are not as heavily armed – sporting only two laser batteries for local defense. And while they don't carry masking screens, they have quadruple the number of ICMs (20) for missile defense. The extra weapon space is instead taken up by the communications gear and sensors.

> **Author's Note:** This ship doesn't quite follow the standard KH ship design rules. However, the deviations are fairly small, namely the inclusion of a deluxe white noise broadcaster on a small ship and a few more lifeboats than the rules allow for. If you want a strictly canon ship, simply remove four of the lifeboats and downgrade the WNB to a standard model (and reduce the cost by 720,000 cr). Otherwise, everything else is per the standard KH rules for starship construction.

Finally, in addition to the communication and sensor gear, the Talnor class sports a deluxe white noise broadcaster system. Typically this system is only found in the largest vessels but has been specially built into the Talnor class design. When necessary, this WNB allows a Talnor class ship to deny communications capability to enemy vessels, even when supporting a smaller task group that doesn't include one of the UFP battleships.

The Talnor class vessels also have a lot of built-in redundancy. There is a complete backup for the life support, radar, and energy sensor systems. In addition, there is a complete secondary computer system that is an exact mirror of the functionality of the primary system. Thus the vessel can sustain damage from combat and/or random malfunctions and still operate at maximum efficiency.

Optional Combat Rule

If desired, the Referee can allow this redundancy to have an effect in the Knight Hawks board game. At the referee's discretion, the Talnor vessel can ignore the first "Combat Control System" and "Damage Control" hits on the Advanced Game Damage Table. This represents the redundant computer systems onboard these vessels kicking in and taking over those functions.

Additionally, since the communications gear is such a large component of the ship's function, the referee can treat any "Weapon Hit" that would normally damage a Rocket Battery, Electron Battery, or Proton Battery as damaging 1d10 subspace radios. These can continue to be damaged until all 50 are destroyed.

Ship's Crew

Talnor class vessels typically deploy with two complete blue/gold crews that can keep the ship operating at full efficiency around the clock. In addition to the Captain and Executive Officer, who typically lead the blue and gold crews respectively, each of the gold and blue crews typically contains the following members:

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- 2 pilots
- 2 astrogators
- 3 starship engineers
- 3 technicians
- 2 robotics technicians
- 2 energy gunners
- 1 defensive systems specialist
- 2 radar/energy sensor specialists
- 4 local (i.e. videocom) communications specialists
- 15 subspace communications technicians
- 2 linguists
- 3 computer specialists
- 3 security personnel
- 3 cook/chefs
- 1 corpsman/medic

Most routine maintenance and janitorial services on board the ship are handled by robots under the direction of the robotics technicians and various other crew members.

Knight Hawks Statistics

HS: 6   **HP**: 40   **DCR**: 70
Engines: 3 Class B Atomic (6 pellets loaded)
ADF: 3 **MR**: 3
Weapons: LB LB
Defenses: RH ICM (x20) Decoy(x1)
Crew Size: 98
Maximum Crew Capacity: 120
Life Support Capacity: Primary – 200, Secondary – 200
Communications Equipment: 50 Subspace Radios, 24 Videocom Radios, 50 extra videocom screens, 4 master intercom panels, 200 intercom speaker/mike panels
Computer (level 5, 342 FP): Drive 5, Astrogation 4, Laser Battery 1, Laser Battery 1, ICM 3, Cameras 1, Skin Sensors 1, Cargo Arm 2, Life Support 1, Life Support 1, Damage Control 3, Computer Lockout 5, Alarm 3, Communications 4, Analysis 6, Information Storage 6, Language 6, Computer Security 4, Installation Security 4
Vehicles: 6 escape pods, 5 lifeboats, 2 small launches, 2 large launches, 3 workpods
Other Equipment: Deluxe Astrogation suite, 2 x radar systems, 2 x energy sensor systems, Cameras, Skin Sensors, Deluxe White Noise Broadcaster, Cargo Arm, complete backup computer system.
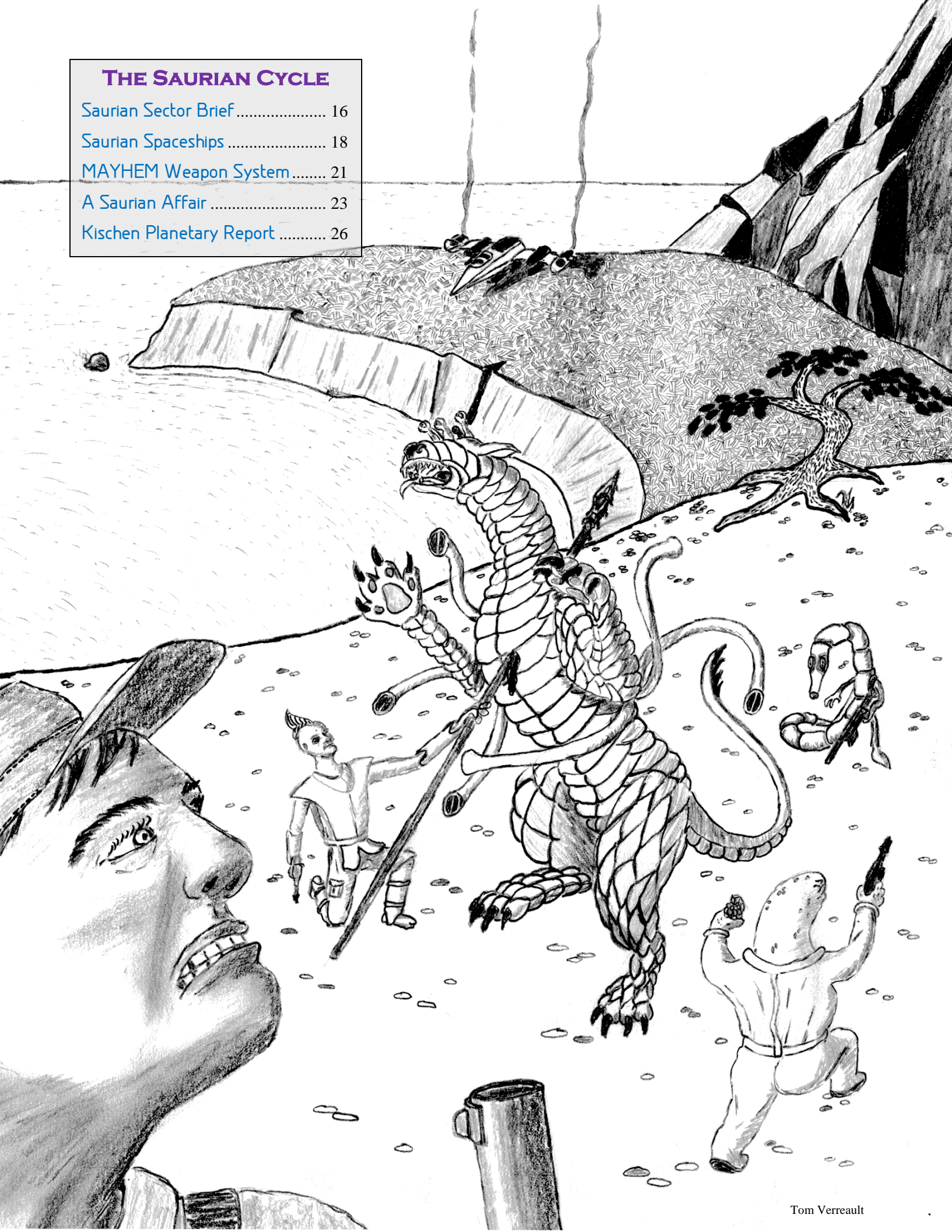**Cargo/Storage Capacity**: 1,500 m^3
Cost: 5,921,200 cr.

The Saurian Cycle

Tom Verreault

Frontier Explorer

Campaign Material

THE SAURIAN CYCLE
A ROADMAP TO ADVENTURE
Tom Verreault

Radio Free Sauria

In this issue we've prepared a menu of material around the themes of subspace radios and first contact with an alien species. Tom Stephens wrote an excellent article on subspace radios and it suggested avenues for adventure that we felt we should build on. One primary adventure hook was first contact via radio signal. Rather than invent a whole new species we decided to use an existing species to save time and effort on the creative process.

This lead us to the Saurians introduced in Dragon #103 (November 1985). The original article by Jeffrey Bouley, served its purpose of introducing a new race for play in the Star Frontiers setting but did not root that race in the setting beyond giving the name of its lost home planet. To provide an adventure seed for meeting the Saurians it became clear that we would need to develop and detail a sector of space for them to live in, rough out a planetary brief, and detail their spacecraft and technologies.

What you find in this issue as part of the "Saurian Cycle" is support material to help run an adventure or campaign. This includes a sector and system brief to establish the Saurians concretely in the setting. There is a write up on their spacecraft and a new weapon system they developed to combat the Sathar. A branch of Spacefleet and their primary communication ship are detailed. These would figure prominently in a first contact scenario. A set of Knight Hawk encounters are presented that tell the story of the first contact and show how the Saurian ark ships arrive in the Frontier.

Ventures in the Sauria Sector

In our first issue we introduced a "big ship campaign" centered on the crew of the CFMS Venture and promised to support that campaign in future issues. It would be easy to work the Venture into a Saurian campaign. Her status as a reserve merchant marine vessel with the Flight means she can be activated as needed to support active military operations. As an armed freighter she is ideal to deliver aid and supplies to the beleaguered Saurians or to support an ad hoc reconnaissance mission to track down the source of the Saurian subspace radio emissions.

Alternately the crew of the Venture could be the ones to intercept a strange subspace message. The fact that the Capellan Free Merchants are renowned as explorers would be enough to justify a little investigation of a strange signal that could lead to a new market.

Exploration in the Sauria Sector

The sector brief provides planetary footnotes on many worlds the Sathar devastated in the campaign to subjugate the Saurians. The Knight Hawk encounters provide a possible first contact scenario where the crew of a Talnor class communications ship comes to the aid of the Saurian warships fighting the Sathar. It's straightforward and simple but the first contact could go differently.

A campaign of exploration could logically begin in the Liberty system. Clues to who and where the Saurians are could be discovered there. No doubt the Sathar destroyed much and the Mhemne wiped out computer records to prevent them from falling into the Sathar's tentacles, so any clues discovered here would be sketchy at best.

The planet Precipice could be a next step to discovering the Saurians. It was a prospering star port and linked the Mhemne and the Saurians. Wiped out by the Sathar, the starport lies in ruins begging for exploration. A clearer picture of who the Saurians are will develop here. It is possible the subspace radio signals that were detected in the Frontier originated here. Maybe one or a handful of Mhemne survivors managed to repair a subspace radio. Their alignment of it was off so their signal never reached Liberty system but fate had it that the crew of a Spacefleet ship intercepted it. Searching the ruins of the starport should eventually lead the players to discover the location of the Saurian home world. No doubt there are Sathar attack monsters about, a secret Sathar listening post, and sporadic patrols by Sathar ships, so the player characters should find plenty of action here.

The Enemy of My Enemy is My Friend

First contact in the midst of a battle is classic in that a shared enemy facilitates alliances. In a campaign with more of a focus on Alpha Dawn level of play, a referee will want to role-play early encounters with the Saurians. The module "The War Machine" (SFKH4) used trust points for negotiating between the Belter Mhemne and the PCs. This could be adapted for negotiations with the Saurians. Psych-social skill and the Vrusk comprehension ability can aid the players with hints as to what the best negotiation strategy should be.

Campaign Material

THE SAURIA SECTOR

Tom Verreault

Introduction

Dragon Magazine #103 published in November of 1985 introduced us to the Saurian species for Star Frontiers. A very brief paragraph in the beginning of the article provided the only information on their area of the galaxy.

> *"The Saurians hail from the planet Kischen, an oceanic world many light years from the Frontier. For a time they lived in peace, enjoying profitable trade with nearby races. Soon, however, the Sathar became aware of the Saurians and regarded them as a threat and challenge to overcome."*

From this we can establish a few details about their world: its name and that it's an oceanic world. We also know they traded with multiple races.

I chose the Mhemne species of the module SFKH-4 War Machine as one of the species that the Saurian traded with. For the other I decided to not actually create a whole species but rather a name and a mystery. The Xxim were a species of secretive traders that visited Saurian systems but never shared their point of origin. The Xxim hinted at the existence of the Sathar with fear and disappeared completely once the Sathar invasion forces entered Sauria Sector. Who the Xxim are, where they came from, and their connection to the Sathar are all left as mysteries for game referees to explore.

The Dragon article presented the Saurians as refugees arriving in the Frontier which

> **Editor's Note:** The original Saurian Dragon article was available for download at the starfrontiers.com website but that site is currently down. Right now it can be found as part of a [Dragon Archive download](#) at the starfrontiers.us site. Rumor has it that a remastered copy will appear in the next issue of the Star Frontiersman magazine as well.

missed a great opportunity for exploration and discovery. For referees wishing to run an exploration type campaign, the following sector brief is presented as referee background to allow for a scout ship or a UPF Talnor class communication ship (see p 12) to discover the beleaguered Saurians on the brink of extinction.

History of the Sauria Sector

The Saurians discovered space flight and eventually interstellar travel. They began exploring and establishing

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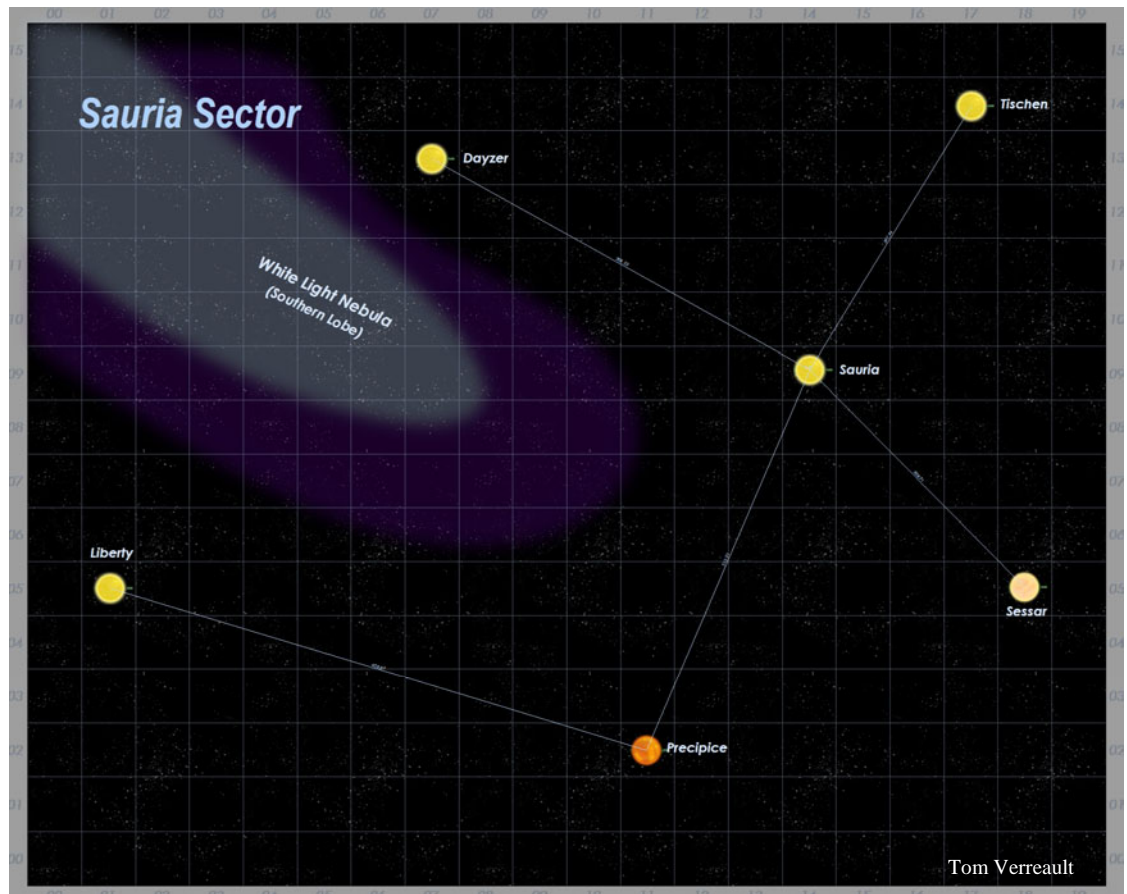
Star (class) & Planet	Primary Race	Population	Trade	Gravity	Day (hrs)	Satellites	Moons	Uses
Dayzer (G4) New Kischen	Saurian	Lt	A	0.9	19		Zzessar	
Liberty (G1) Snowball	Mhemne	Mod	R	0.9	32	ASS/DS	Akhala	R
Precipice (K4) Edge	Saurian	Out	E	0.8	16		Zzessan	
Sauria (G8) Kischen	Saurian	Hvy	A/I	1.0	18		Zzessi	
Sessar (F1) Rock	Saurian	Mod	R/I	1.1	52	ASS	Sezzna	R
Tischen (G6) Kzz-ten	Saurian	Lt	R		35		None	

colonies and outposts in their sector of space. Early on, this lead to contact with the mhemne species (Liberty system) and they shared space technology that jump started the Mhemne's space age. Not long after that the enigmatic Xxim turned up in the system Tischen. Eventually, the Xxim consented to trade with the Saurians but always with trepidation. It seemed they were fearful of a menace and they repeatedly warned the Saurians that their radio signals would bring this menace to Sauria.

The Saurian Interstellar Age of Exploration lasted approximately 100 GST years before the Sathar arrived. The first assault wave overran the Dayzer system. No ships escaped Dayzer to warn of the attack and no one knows the fate of the colony there. Next the Sathar struck Kischen in the Sauria system but were beaten back at a terrible cost to Saurian space infrastructure.

As the Saurians were preparing for an expedition to Dayzer to retake the system, a new wave of Sathar attacks devastated the Tischen and Precipice systems as well as conquered the mhemne of Liberty system. Again the devastation to the Saurian space infrastructure was crippling.

The Saurians began to develop ship designs that could be built in shipyards on the planet's surface and launched into space and abandoned any hope of a space based industry. The next wave of Sathar saw the loss of the mineral rich Sessar colony and wide spread orbital strikes of the planet Kischen.

The Saurian religious leadership saw the writing on the wall and moved to build space arks to save their species from extinction at the hands of the Sathar. They are desperately trying to finish these ships and have already sent some out in various directions. One has even braved the depths of the Great Expanse beyond the Precipice system. The Ark Program is the Saurian's last hope for survival. Millions will not be saved and are prepared to die on Kischen. All Saurians look to the stars with trepidation, wondering what lies just over the void space horizon and will descend on their planet any day now.

Astographic Catalog

The table above provides basic astronomical data on the various systems in the Sauria Sector. Note that the catalog reflects outdated data from prior to the sathar invasions and some of the names reflect translations from the saurian tongue.

Planetary Footnotes

Edge (Precipice) was a science outpost and link to contact with the Mhemne. It had a small but thriving starport town for servicing ships bound for Liberty system. Wiped out during the second wave of Sathar attacks, it is believed to be a Sathar outpost now. If any of the Saurian residents and Mhemne visitors survived it is unknown. The Saurian Ark Mission that headed into the Great Expanse completely bypassed the planet fearing discovery by Sathar patrols.

Kischen (Sauria) is the home world of the Saurian species and its dominate animal forms are reptilian. An oceanic world, the planet is dotted with a few small continents and numerous archipelagos.

New Kischen (Dayzer) was an idyllic world from the Saurian perspective with larger land masses then Kischen. Its environment, gravity, and length of day were a close match to the home world. Its agricultural colony was overrun by the first Sathar wave and its fate is completely unknown.

Rock (Sessar) was colonized for its mineral riches and was the back bone of the Saurian space industry. The loss of its shipyard was the death knell of the Saurian civilization in the face of the Sathar attacks.

Spacecraft

SAURIAN SPACECRAFT

Tom Stephens

SAURIAN FIGHTER

The Saurian fighter is a small single being craft, not designed for long stints in space. Like the UPF fighter, it has basic life support for 20 hours and lacks the astrogation equipment required for interstellar jumps. Unlike the UPF, whose standard fighter sports the quick, high-powered punch of three assault rockets, the Saurian fighter is built around the Laser Pod (Polyhedron, Issue 19). The choice of a laser weapon gives the Saurian fighter a bit longer reach and the ability to fire both offensively and defensively instead of just being an offensive weapon.

Battle Ray Patrol by I.L. Jackson – I.L. Jackson is a journalist and professional writer and artist in the sci-fi, fantasy and horror genres with work in the role-playing game, collectible card game and other industries. He is the author of "Robotech: The New Generation" and "Robotech: The Genesis Pits" Sourcebooks by Palladium Books.

KNIGHT HAWKS STATISTICS

HS: 1   **HP**: 8   **DCR**: 30
Engines: 1 Class A Atomic (3 pellets loaded)
ADF: 5 **MR**: 5
Weapons: LP
Defenses: RH
Crew Size: 1
Maximum Crew Capacity: 1
Life Support Capacity: Primary – 1 being for 20 hours, Secondary – 1 being for 20 hours
Communications Equipment: Videocom Radio
Computer (level 3, 51 FP): Drive 4, Astrogation 1, Laser Pod 1, Skin Sensors 1, Life Support 1, Life Support 1, Damage Control 1, Computer Lockout 3, Alarm 1
Other Equipment: radar system, Skin Sensors, complete backup computer system.
Cargo/Storage Capacity: none
Cost: 434,350 cr.

LASER POD (LP)

The full details of the Laser Pod were presented in Polyhedron Magazine, issue 19. A copy of the article can be found in the Downloads section of Port Loren Public Library project at http://www.starfrontiers.us/node/5640. It is basically a laser removed from a standard Laser Battery and mounted as a Forward Firing weapon on small craft. The full Knight Hawks statistics for the weapon are:

Restrictions: FF, RD
Range: 5
Damage: 1d10
Attack:
Damage Table Modifier: 0
Cost: 8,000 cr
Volume:
Computer Program: Laser Pod – level 1, 3 FP

Saurian Battle Ray

This ship fills the same role in the Saurian space fleet as the Assault Scout plays for the UPF. It is a small, fast ship that packs a punch. Unlike the UPF Assault Scout, which is built around delivering Assault Rockets, the Saurian Battle Ray is built around the Saurian MAHEM weapons system (detailed on page 21).

Aerodynamically streamlined, the Battle Ray is capable of atmospheric flight if necessary. Built on a small size 4 or large size 3 hull, the Battle Ray's main body is relatively short although squat with wide wings. However, the long length of the MAHEM system gives the ship a long tail and presents the appearance of a manta ray, thus the ship's name. The tail section completely consists of equipment for the MAHEM system and small access tubes for repair and maintenance purposes.

With all the space taken up by the MAHEM system, the Battle Ray doesn't carry a full laser battery system like the Assault Scout but rather has a Pod Laser Turret system. It does the same damage as a laser battery but lacks the full range, only have a range of 40,000 km (4 hexes) instead of the 90,000 km range of the laser battery.

The Battle Ray is capable of interstellar travel. Like UPF ships, Saurian vessels carry life support for half a year of operations. However, as the Saurian year is only 280 GST days, instead of 400 GST days in the UPF calendar, the typical life support system on a saurian ship lasts for 140 days.

Knight Hawks Statistics

HS: 4 **HP**: 20 **DCR**: 50
Engines: 2 Class A Atomic (3 pellets loaded)
ADF: 4 **MR**: 4
Weapons: PLT MAHEM(x4)
Defenses: RH
Crew Size: 18
Maximum Crew Capacity: 20
Life Support Capacity: Primary – 20 beings for 140 days, Secondary – 20 beings for 140 days
Communications Equipment: Videocom Radio, 3 extra Videocom screens, Subspace Radio, 4 master intercom panels, 50 speaker/mike intercom panels
Computer (level 4, 108 FP): Drive 4, Astrogation 4, Laser Pod 1, Camera 1, Camera 1, MAHEM 3, Pod Laser Turret 1, Skin Sensors 1, Life Support 1, Life Support 1, Damage Control 2, Computer Lockout 4, Alarm 2, Robot Management 4
Other Equipment: radar system, energy sensor system, 2 full camera systems, Skin Sensors, complete backup computer system.
Cargo/Storage Capacity: 75 m^3
Cost: 1,287,000 cr.

Pod Laser Turret (PLT)

The Pod Laser turret is a variation of the Laser Pod built on a turret to provide a full 360 degree firing arc. The pod laser sacrifices a bit of range compared to the Laser Pod only having a range of 40,000 km (4 hexes) instead of 50,000 km. The Pod Laser Turret was developed by Richard Rose as part of his many Star Frontiers campaigns. Links to one of his many write-ups can be found at http://www.starfrontiers.us/node/1443. (Note that we've changed some of the statistics compared to Richard's original version to be in line with the cost of the Laser Pod from Polyhedron that this weapon is based on.)

Restrictions: RD
Range: 4
Damage: 1d10
Attack:
Damage Table Modifier: 0
Cost: 10,000 cr
Volume:
Computer Program: Pod Laser Turret – level 1, 4 FP

Saurian Ark Ship

The Saurian Ark ship is probably the most well-known Saurian ship in the Frontier as these are the ship most commonly shown in holovid documentaries of the Saurian Exodus. These huge ships rival the UPF Battleship in size being based around a similar size 20 hull. Unlike the battleship, the Saurian Ark ship was not designed for war but rather to seek out and find new habitable worlds for the Saurians to colonize that were as far away from the Sathar as possible. Thus in design, they are a cross between a giant passenger liner and scientific research vessel. While not designed as a warship, the Saurians knew they were headed into unknown and potentially hostile territory and the Ark ship is not defenseless. It carries both ship armaments and fighters for local defense.

These ships were a massive undertaking by the Saruian species to construct and launch in an attempt to save their race from destruction by the sathar. Although, considering that the entire economy of their planet was poured into the project, the limiting factor was probably time and not resources. It is unknown exactly how many of the ships were built and launched. Eight of the ships arrived at Theseus. It is unknown how many were

Author's Note: I took a little liberty with the canon KH ship design rules with the Ark Ship. While there is nothing that directly contradicts the standard ship design rules, the inclusion of fighters on this ship definitely goes against the spirit of the rules. However, these larger ships are simply huge and given reasonable assumptions about the volume and mass of the various ship design components, everything included in this ship would easily fit within the volume of a HS 15 ship. Thus by making it HS 20, I felt there was more than enough room to include all the specified equipment.

AZ Gamer

Finally, the Ark ships are armed for defense. As they discovered to their dismay, the galaxy is a hostile place and the Ark ships were not to be sent into the unknown undefended. Each ship is armed with a quartet of laser batteries. They also are coated with a reflective hull, and carry 20 ICM salvos for missile defense. In addition, the ship carries a small squadron of 10 Saurian fighters. Between the ship's weapons and the fighters, the ship should be able to survive any casual foe and make its escape.

Packing all of these features into a single ship definitely comes with a price. And that is a loss of performance. All of this cargo and ship systems put a burden even on the eight atomic engines that the ship is equipped with limiting its ADF and MR to 1, instead of 2 as most HS 20 ships have.

launched in other directions and the Saurians are very closed-lipped on the subject. One can fully expect that as the UPF continues its exploration, that other worlds already colonized by Saurians will be found.

Considering the size of the ship, the active crew is fairly small, only 150 beings. These beings are responsible for running and maintaining the ship as well as manning the defenses and fighters and performing the scientific studies necessary to find new worlds fit for colonization. The vast majority of the ship is taken up by the huge storage class passenger bays. Each Ark ship carries one hundred thousand storage class berths filled with members of the Saurian species waiting to be awakened on their new home world. There is also a large cargo area that contains buildings, materials, and supplies needed to start the new colony.

In addition to the passenger accommodations and colony supplies, the Ark ship contains a variety of scientific exploration equipment such as atmoprobes, remote probes, landing drones, and laboratories to study the systems and worlds that they pass through in their travels looking for new worlds to colonize. To assist in these studies, and also for use in ferrying colonists and materials to the surface when an new world is found, the Ark ship carries a number of shuttles capable of landing on the planets and retrieving samples and any landing drones deployed.

The life support systems on these ships are also a little more extensive than on most starships. The Saurians didn't know how long they would be searching for new worlds and increased the capacity for the active crew considerably. Instead of the typical half year of supplies carried on most UPF ships, these ships carry enough life support supplies for 5 Saurian years (1400 GST days) in both their primary and backup systems.

KNIGHT HAWKS STATISTICS

HS: 20 **HP**: 100 **DCR**: 80
Engines: 8 Class C Atomic (10 pellets loaded each)
ADF: 1 **MR**: 1
Weapons: LB LB LB LB
Defenses: RH ICM(x20)
Crew Size: 150-160
Maximum Crew Capacity: 160
Life Support Capacity: Primary – 200 beings for 1400 days, Secondary – 200 beings for 1400 days
Communications Equipment: 2 Subspace Radios, 2 Videocom Radios, 5 extra videocom screens, 4 master intercom panels, 2000 intercom speaker/mike panels, 100 portholes
Computer (level 6, 940 FP): Drive 6, Astrogation 4, 4x Laser Battery 1, ICM 3, 2x Cameras 1, Skin Sensors 1, Cargo Arm 2, Life Support 1, Life Support 1, Damage Control 6, Computer Lockout 6, Alarm 6, Communications 6, Analysis 6, Information Storage 6, Language 6, Computer Security 6, Installation Security 6, Probe Guidance/Analysis 3, 10x Lab Analysis 3, Maintenance 6, Bureaucracy 6
Vehicles: 20 escape pods, 10 lifeboats, 2 small launches, 4 large launches, 10 workpods, 20 HS 1 shuttles, 10 Saurian Fighters
Other Equipment: Deluxe Astrogation suite, radar systems, energy sensor systems, 2x Cameras, Skin Sensors, 2 Cargo Arms, complete backup computer system, 20 Atmoprobes, 5 Landing Drones, 10 Laboratories, 5 Remote Probes
Cargo/Storage Capacity: 30,000 m^3
Cost: 216,363,700 cr. (not counting the cost of the fighters or shuttles)

Equipment

MAGNETICALLY ACCELERATED HIGH ENERGY MISSILE (MAHEM) SYSTEM

Tom Stephens

DESCRIPTION

The MAHEM system was developed by the Saurians in their fight against the Sathar. It uses strong magnetic fields to propel molten metal, typically iron, to high velocity. As the metal leaves the "barrel" of the launcher and enters the vacuum of space, the outer layers of the metal bolt freeze harden into a shell while the core stays molten. Upon impact with the target, the shell ruptures and the molten metal penetrates the hull of the target and splashes around on the interior causing significant damage.

The MAHEM system is long and large, measuring a full 60 meters in length and 3 meters in diameter for a total of nearly 450 cubic meters just for the barrel. Thus any ship that uses this system must be at least 60 meters in length to accommodate it and the barrel would run the entire length of the ship. It is a forward firing weapon roughly equivalent to Assault Rockets but slightly more deadly.

The construction and operation of the MAHEM system is

a closely guarded Saurian secret. In order to prevent the system from falling to the Sathar's hands, the Saurians built a failsafe into every weapon system constructed. When a ship containing the MAHEM system is destroyed, or on command of the crew, the MAYHEM system will self-destruct. It does this by releasing a small amount of metal into the chamber, and then going through the firing sequence. However, instead of ejecting it as a fired bolt, the metal is released into the housing of the system, destroying the electromagnets, computers, and other systems by melting them into slag. This self-destruct can be triggered without damaging the rest of the ship if necessary.

While no image of a MAHEM system is available and the Saurians keep even the schematics close to their chests, they did provide us with a scan from their archive of one of the early notebook sketches of the general design. It doesn't have any details on it but shows the basic idea of the weapon's operation.
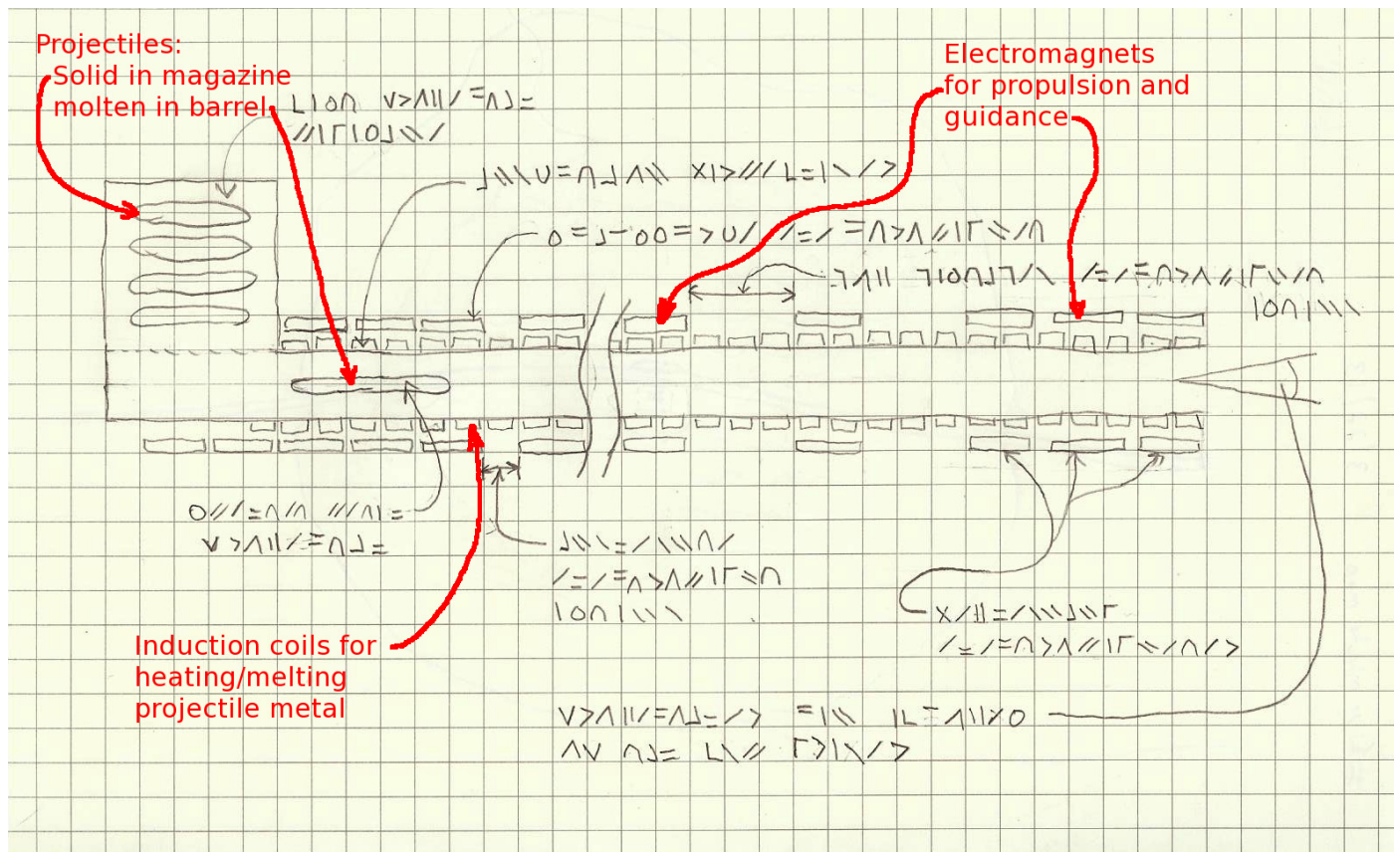
Use in the Knight Hawks board game

In Knight Hawks game terms, the MAHEM system is Forward Firing, Moving Player Only, and Limited Supply. It has a range of 5 hexes (50,000 km) and does 2d10 points of damage. It has a flat 60% chance to hit against any defense type as none of the defenses have any influence on the weapon. It is purely a kinetic weapon. If using the lower to hit chances with player skills, the base chance is 45%. Because of the MAHEM bolt's high speed, ICMs only get a -5% per ICM deployed against it.

If using the advanced combat rules and the Advanced Damage Table, roll twice on the table for the effects of the MAYHEM system, once with a -15 to the die role and once with a +15. This represents the penetrating power of the weapon and the subsequent internal damage it does to the ship as the molten metal is spattered around inside. If playing with just the basic combat rules, increase the damage done from 2d10 to 3d10 to represent this increased damage.

When rolling on the Advanced Damage Table, the MAHEM system is damaged whenever a damage roll calls for Assault Rockets being damaged. If a ship is designed with both assault rockets and the MAHEM system, assume the MAHEM system comes before the Assault Rockets in the damage table.

MAHEM KH Game Statistics

Restrictions: MPO/FF/LTD
Range: 5
Damage: 2d10 (advanced rules), 3d10 (basic rules)
Attack: 60% (45%)
ICM: -5%/ICM
Damage Table Modifier: two rolls – one at -15 and one at +15

Optional Repair Rule

The MAHEM system is somewhat delicate and can be knocked out of alignment and lose effectiveness. If desired, the referee can simulate this as described below. This variation represents the inability of the combat repairs to fully align the electromagnets that propel the metal bolt and control the intense energy field that liquefies the metal.

The system functions correctly until the first time it is damaged in combat. If it takes damage and is then repaired, it does not achieve full functionality after the repair. After repair, the weapon has its range reduced from 50,000 km to 30,000 km (3 hexes) and it only receives one roll on the Advanced Damage Table with no modifier instead of two rolls. If playing with the basic rules, the damage is reduced from 3d10 to 2d10.

After being damaged a second time, the MAHEM system cannot be repaired during combat. The only way to repair the weapon back to full effectiveness is at a shipyard, regardless of whether it was damaged once or twice in combat.

Use in Starship Construction

When building ships using the MAHEM system, it has the following characteristics. (Note: the mass isn't used in the KH system but if you want to incorporate the MAHEM weapon into some other system it is provided for reference.)

Launcher

Minimum Hull Size: 3 – While the minimum hull size is 3, the ship has to be a longer than an average HS 3 ship to accommodate the longer 60m length of the weapon system. In addition, a larger portion of the ship's interior volume is taken up by the weapon. Typically this is mounted on at least a HS 4 ship.
Volume: 450 m^3
Mass: 1200 tons
Cost: 75,000 cr
Computer Program: level 3, 8 function points

Ammo

A ship can carry one ammo charge per hull size.

Volume: 40 m^3
Mass: 80 tons
Cost: 1,000 cr (it's just a lump of iron after all)

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Knight Hawks Encounters

A SAURIAN AFFAIR

Tom Stephens

These encounters form a mini campaign detailing the Saurian exodus from Kischen and initial contact with the UPF. They can be played as stand-alone battles or woven into a larger campaign if desired. They introduce scenarios with all of the new ships presented in this issue of the Frontier Explorer.

First Contact
First encounters with ships from a new species.

Background
On patrol in the Liberty system, the UPFS Aundrea Norma, a Talnor Class communications vessel, detects signals originating in the outer system on an unusual frequency and language. She is dispatched to investigate and report back. As she gets closer, a new set of signals appear that are unmistakably Sathar in origin and seem to be converging on the original unknown signal. Arriving at the sources of the unknown signals, the Aundrea Norma finds a battle already in progress between the Sathar and an unknown race. There are several drifting hulks at the edge of detector range. One looks to be a hull size 5 sathar vessel and the other six are small – hull size 1 – probably fighters. The Aundrea Norma's captain doesn't know who these strange new ships belong to, but if they are fighting Sathar, he intends to help them.

Order of Battle
UPF Ships
- UPFS Aundrea Norma – a Talnor Class communications vessel

Saurian Ships
- 4 Saurian Fighters
- Saurian Ark ship

Sathar ships
- 2 Sathar Destroyers

Setup
The Saurian Ark ship is first placed in the center of the map about one-third of the way from one short end to the other. It is headed toward the far short edge and has an initial speed of 10 hexes per turn. The four Saurian fighters are placed anywhere within 4 hexes of the Ark ship and have the same starting speed and direction.

UPF & Sathar Ship Statistics
Here are the statistics for all the UPF and Sathar ships used in these scenarios. For statistics on the Saurian ships, refer to the Saurian Ship Statistics box on the following page.

Fighter
HP: 8   ADF: 5   MR: 5   DCR: 30
Weapons: AR(x3)
Defenses: RH

Assault Scout
HP: 15   ADF: 5   MR: 4   DCR: 50
Weapons: LB, AR(x4)
Defenses: RH

Frigate
HP: 40   ADF: 4   MR: 3   DCR: 70
Weapons: LC, LB, RB(x4), T(x2)
Defenses: RH, MS(x2), ICM(x4)

Destroyer
HP: 50   ADF: 3   MR: 3   DCR: 75
Weapons: LC, LB, EB, RB(x4), T(x2)
Defenses: RH, MS(x2), ICM(x5)

Light Cruiser
HP: 70   ADF: 3   MR: 2   DCR: 100
Weapons: DC, LB, EB, PB, RB(x8), T(x4)
Defenses: RH, ES, SS, ICM(x8)

Heavy Cruiser
HP: 80   ADF: 2   MR: 1   DCR: 120
Weapons: DC, LB(x2), PB, EB, RB(x8), T(x4), S(x2)
Defenses: RH, ES, PS, SS, ICM(x8)

Assault Carrier
HP: 75   ADF: 2   MR: 1   DCR: 150
Weapons: LB, PB, RB(x8)
Defenses: RH, MS(x4), ICM(x10)

Battleship
HP: 120   ADF: 2   MR: 2   DCR: 200
Weapons: DC, LB(x3), EB(x2), PB, RB(x10), T(x8), SM(x2)
Defenses: RH, ES, PS, SS, ICM(x12)

Talnor Communications Ship
HP: 40   ADF: 3   MR: 3   DCR: 70
Weapons: LB(x2)
Defenses: RH, ICM(x20)

Sathar Cutter
HP: 25   ADF: 4   MR: 3   DCR: 60
Weapons: LB(x2)
Defenses: RH, MS(x2)

The two Sathar destroyers are then placed on the short edge of the map closest to the Ark ship. They can have any initial speed up to 12 hexes per turn.

Finally, the Aundrea Norma is placed on the short edge of the map farthest from the Ark ship and can have any initial speed up to 20 hexes per turn.

The drifting hulks detected are just off the map behind the on-coming Sathar ships and have no influence on play.

Special Rules

As this is a battle in progress, some of the ships have already sustained damage. Apply the following changes to the ships in the game:

- The Saurian Arc ship has had its engines damaged and currently has 0 ADF and 0 MR. It has also been reduced to 53 of its original 100 HP and has had one laser battery damaged. It also only has 10 ICM's left.
- One of the Sathar destroyers has lost 8 HP and so only has 42 left.
- The other Sathar destroyer has had its EB damaged.
- All other ships are undamaged.

All of these systems are eligible for attempted repairs if playing with the Advanced Rules. Both Sathar destroyers have their full complement of torpedoes and rocket battery salvos.

Victory Conditions

The Sathar achieve victory if they can destroy the Ark ship. If they can also destroy the communications ship, it is considered a major victory.

The UPF achieve a victory if the Arc ship survives. If the communications ship also survives it is a major victory.

A Ray of Hope

A squadron of Saurian Battle Rays holds out against Sathar invaders.

Background

After making contact with the Saurian Ark ship, the location of the besieged Saurian home world is provided to the UPF in a bid for assistance against the Sathar. Strike Force Nova, currently in Theseus, is dispatched to provide assistance. As the Strike Force is assembling and moving out, a small detachment is sent ahead for some "reconnaissance in force". Joining up with the Aundrea Norma in Liberty the small fleet proceeds to the Sauria system with the jump routes provided by the Saurians.

Upon arriving at the Saurian homeworld, it seems the Sathar had the same idea and the UPF vessels find a

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Sathar reconnaissance force engaging a squadron of Saurian Battle Rays and fighters defending the planet.

Order of Battle

UPF Ships
- 2 Assault Scouts
- Frigate
- Talnor Communications ship

Saurian Ships
- 6 Saurian Fighters
- 3 Battle Rays

Sathar ships
- 1 Frigate
- 2 Cutters *(Frontier Explorer Issue 2, p 6)*
- 3 Destroyers

Setup

Place a planet in the center of the map to represent Kischen. The Sathar player then declares which side of the map their ships will enter from. After the Sathar side is declared, the Saurian ships are placed on the map anywhere within 15 hexes of the planet with any speed up to 10 hexes per turn.

Once the Saurian ships are places, the Sathar player then places their ships within 5 hexes of the edge of the map with any speed up to 15 hexes per turn.

Finally the UPF ships are placed on the other side of the map opposite the Sathar and may have any initial speed up to 15 hexes per turn.

Special Rules

None.

Victory Conditions

The Sathar score a minor victory if they can destroy all of the UPF and Saurian ships. They score a major victory if they can destroy all UPF and Saurian ships except one of the Battle Rays and have two Sathar ships still functioning. This represents an opportunity for the Sathar to capture the Battle Ray. The Sathar have been trying to capture a Battle Ray for several years now as it, like the UPF Assault Scout, is a design that they cannot reproduce and has a new weapon system that they would like to capture.

The UPF score a minor victory if all the Sathar ships are destroyed. If the UPF side still has at least one Battle Ray and the communications ship intact after destroying all the Sathar vessels, they score a major victory.

Last Ship Out

Can the last of the Saurian Ark ships escape the Sathar onslaught?

Background

Strike Force Nova has taken up patrol duties around Kischen as the Saurians complete construction and provisioning on the last of the Ark ships that will be able to leave the planet. Time is up as the Sathar have launched an offensive with an armada that cannot be withstood. All that can be done now is to hold them off long enough to allow the last of the Ark ships to flee.

Order of Battle
UPF Ships – Strike Force Nova
- 6 Fighters
- 3 Assault Scouts
- 2 Frigates
- Destroyer
- 2 Light Cruisers
- Battleship
- Assault Carrier
- Talnor Communications Ship

Saurian Ships
- 20 Saurian Fighters
- 3 Battle Rays
- 2 Ark ships

Sathar ships
- 16 Fighters
- 3 Frigates
- 5 Destroyers
- 3 Light Cruisers
- 3 Heavy Cruisers
- 2 Assault Carriers

Setup

A planet counter is placed in the center of the map to represent Kischen and the Sathar player declares which side of the map the sathar ships will enter from. After that, the UPF player sets up all the UPF and Saurian ships expect for the two Ark ships which are still on the planet preparing for launch. The UPF and Saurian ships can be placed anywhere on the map within 20 hexes of the planet and with any initial speed up to 15 hexes per turn. If the UPF player wants to pre-deploy any of the battleship's seeker missiles, they should do so now.

Once all the UPF and Saurian ships have been placed on the board, the Sathar ship should be placed on the map. They must start within five hexes of the side of the map originally declared and may have any initial speed up to 15 hexes per turn but all Sathar ships must have the same starting speed.

Special Rules

The Saurian Ark ships are placed on the map at the beginning of the UPF player's second turn. They are placed on the planet counter and have a speed of zero. They may then move normally starting on that turn. This represents the launching of the ships from their construction facility on the planet's surface.

If the Saurian Arc ships reach the edge of the map but have Sathar ships in pursuit, use the Advanced Game rules for shifting or extending the map until all pursuit or the Ark ships have been eliminated.

Optional Campaign Rule

If playing these scenarios as a campaign, players may optionally reduce the number of ships available to the UPF player by any UPF ships destroyed in the "A Ray of Hope" scenario as the Assault Scouts, Frigate, and Communication ship were part of Strike Force Nova that were deployed in advance of the main fleet. If they were destroyed, they would not be available for the last defense. Conversely, if any of the Saurian ships survived they could be added to the Order of Battle as they are extra ships that survived to fight.

Victory Conditions

The UPF player wins if both Ark ships make it off the side of the map opposite where the Sathar entered without any Sathar in pursuit. A ship is considered to be in pursuit if it is within weapon range and has a speed such that it can close or maintain the separation between the ships. If only one Ark ship makes it off, consider it a minor victory. If the UPF manage to destroy all the attacking Sathar vessels, it is a major victory.

The Sathar player wins if both Ark ships are destroyed. If the Sathar player can also destroy all the UPF Strike Force Nova vessels, it is considered a major victory.

System Brief

KISCHEN PLANETARY REPORT

Tom Verreault

KISCHEN

INITIAL SURVEY REPORT

To Space Fleet Command, Morgaine's World, Prengular System

Initial Survey Report of the Planet Kischen, Sauria System by the UPFS Aundrea Norma, Captain Nico Mcleod, commanding.

Tom Verreault

OVERVIEW

Kischen is an oceanic world with small continents and numerous archipelagos. The dominant animal form is reptilian and this lead to a sapient species known as the Saurians. The planet was the capitol of a five system interstellar entity of unknown political organization. The Saurians have been under siege by the Sathar for 24.8 GST years. Kischen is the last planet under Saurian control and their defense planners project its fall with the next Sathar wave projected to arrive in the next 2 GST months.

Their defense planners assure us that this next wave of the Sathar will overwhelm their planetary and space based defenses. There are already pockets of Sathar on land masses that the Saurians have not been able to eliminate beyond crippling the enemy's air and space assets. Our initial analysis suggests the Saurians have been conservative in their projections. They are facing extinction at the hands of the Sathar.

The Saurian government has embarked on an ark ship program to evacuate a miniscule percentage of their overall population. Numerous ark ships have been sent in various directions in an effort to seed their species as widely as possible. The Saurians have gambled on the ark program at the expense of military defense in a cold blooded calculation to save their species. Six arc ships are now in route to Theseus system, but the final two are still under construction. Immediate military aid is required for those last two refugee ships to escape the Sathar.

Of special note is the Saurians' main space based weapon system, code named MAHEM. See attached technical report. The Saurians have declined to share full details of this weapon with us but probably will once their refugees are safe in the Frontier.

Attached are botanical, zoological, environmental, and sociological reports from the first survey team. After action reports from actions involving the Andrea Norma against lead Sathar elements entering the system are included as well.

SOCIETY

Saurian society is organized into units call sviks. A svik is analogous to a clan in structure. The species' core value is individual freedom of choice which makes its surprising that they managed to organize a central world government. It would seem that the pressure from the Sathar has forced them to organize a council of sviks that is advised by their highest spiritual leader. This priest figure is not the leader of the Saurian civilization in a *de jure* sense but as the single most revered Saurian she is a *de facto* leader and more than just a figurehead for the government.

It was under her leadership that the saurians embarked on the space ark program to save their species when defense

SAURIAN LASER SPEAR S MODEL
Weight: 4 kg

This item was manufactured on Kischen prior to our first contact with the Saurians. Due to their love of archaic weapons they developed the laser spear as a combination pole arm and laser weapon. The weapon conforms to standard pole arm performance statistics when used in melee combat.

The laser has a power system that is incompatible with Frontier technology. The Saurians developed a battery that is rated at 3 SEU in power which is slightly larger than a 12 gauge shot gun shell. The spear holds 6 of these batteries. When firing the spear, the spear is fired one time and then a pump action mechanism to eject the spent battery and jacket a new one into the firing chamber must be operated. The laser may be fired and rearmed for the next shot all in one turn.

This item was manufactured and issued to Saurian troops for use against the Sathar and thus was never marketed. Today they are cherished by Saurians as a tangible connection to their lost planet. As a collector's item they are worth at least twice the normal cost of a laser rifle. The batteries can be special ordered for 25 Cr each.

SAURIAN LASER SPEAR PGC MODEL
Weight: 4 kg
Cost: 500 Cr

When the Saurians arrived in the Frontier it did not take the Pan Galactic Corporation long to pander to the saurian love of archaic weapons. The company released a model of the famed saurian laser spear that was fully compatible with Frontier power supplies. It uses the standard 20 SEU power clip and has a port for operating off of a power backpack or belt pack. Although if plugged into a power back pack or belt pack and used in melee the melee modifier is doubled. This weapon may be fired at a rate of 2 per turn which makes it an improvement over the S model.

Tom Verreault

planners determined that it was only a matter of time before the sathar completely overwhelmed them.

TECHNOLOGY
The Saurians seem to love archaic weapons and have swords, pole arms, and cross bows. After capturing laser technology from the Sathar they developed a laser spear. The laser spear is a melee weapon that can be used as a rifle. For a complete description of the laser spear, see the sidebar.

PLANETARY ENVIRONMENT
As an oceanic world, the oceans provide Kischen with a mild idyllic environment. The planet has tropical, temperate, and arctic regions with most of the population centered at the temperate land masses. If it were not for the presence of the Sathar, Kischen would be an ideal resort destination.

ZOOLOGY
The aquatic biosphere teams with life closely related to the dominant reptilian forms. Eel like sea serpents are common. On land the "land dragon" is closely related on the evolutionary tree to the Saurians. This creature has been domesticated by the Saurians and is integrated into its society much like the canine is in human society.

LAND DRAGONS
The three domesticated land dragons are kava, with a long curved horn, the tala, with a boney ridge down their spine, and the vana, with no horn or bony ridge. All are amphibious and move at one speed slower while swimming.

The gore and toss special attack is done during a first turn of combat with a move to contact (charge). It does 4d10 damage and tosses the target 3 meters in a random direction (use the grenade bounce table) and the victim is

| Saurian Land Dragon			
Species:	Kava	Tala	Vana
Type:	large omnivore	medium omnivore	small omnivore
Number:	1 to 5	2 to 10	2 to 20
Move:	Medium	Fast	Very Fast
IM/RS:	5/45	5/50	6/60
STAMINA:	100	75	20
ATTACK:	60	55	50
DAMAGE:	3d10	2d10	1d10
SPECIAL ATTACK:	Gore and toss	Tail Bash	Tail whip
SPECIAL DEFENSE:	Tough hide	Boney Ridges	none

Given the presence of terrain that would normally provide soft cover, like dense sea weed, they gain the hard cover bonus for combat. Giant sea serpents have a tough hide that acts as a 200 point skein suit.

Sathar creatures on Kischen

The sathar have used their plethora of attack creatures on Kischen and any of them can be encountered. Of special note is the initial lack of any aquatic attack monster. Originally, the Saurians sought to reduce any Sathar beachhead on their planet but with diversion of all possible resources to the ark program, the Saurians settled for crippling any air and space capabilities of the Sathar on the two continents they overran in the last invasion wave. The Sathar here have endeavored to develop an aquatic based attack asset. To this end they modified their famed cybo-dragon cybernetic controls for use with Saurian sea serpents. To date only the medium and large sea serpents have been seen with this cybernetic control unit.

A sea serpent cybernetic control unit has 8 SEU and uses one SEU per attack to increase the damage by 1d10 electrical damage and stun the target for 1d10 turns (STA check to avoid stun). An anti-shock implant is the only technological defense against this as a gauss screen does not work under water.
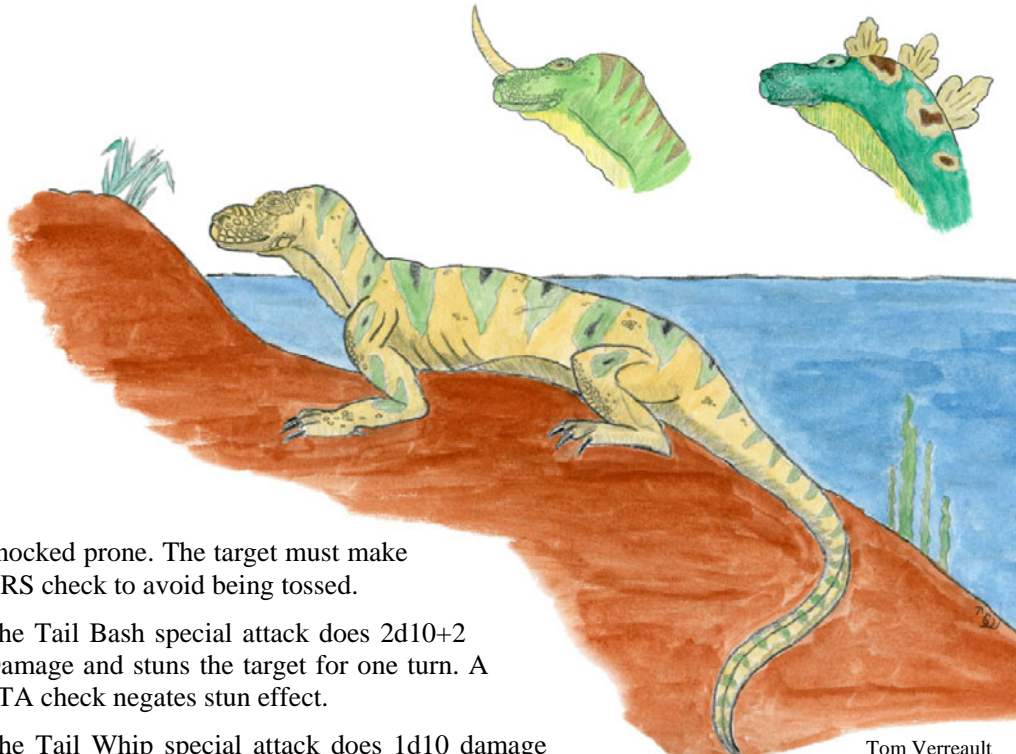
knocked prone. The target must make a RS check to avoid being tossed.

The Tail Bash special attack does 2d10+2 Damage and stuns the target for one turn. A STA check negates stun effect.

The Tail Whip special attack does 1d10 damage and knocks the target prone. A RS check negates the prone effect.

The Tough Hide special defense operates like a 50 point skein suit.

The Boney Ridges special defense allows for a RS check vs. all kinetic melee weapons for no damage.

Domesticated land dragons have been extensively trained to aid the Saurian war effort against the Sathar. Most have been trained with "basic commands" and "attack" training regimes (see the *Animal Handling* article this issue p 6).

Tom Verreault

Saurian Sea Serpents

The saurian sea serpent is a reptilian aquatic creature native to Kischen. Most are elusive swimmers, which mean they automatically count soft cover in combat.

Saurian Sea Serpent				
Size:	Small	Medium	Large	Giant
Type:	small herbivore	medium omnivore	large carnivore	giant carnivore
Number:	4 to 40	1 to 5	1 to 2	1
Move:	Fast	Medium	Medium	Slow
IM/RS:				
STAMINA:	5 to 20	20 to 100	75 to 200	200 to 400
ATTACK:	35	55	65	55
DAMAGE:	1d5	2d10	4d10	
SPECIAL ATTACK:	None	None	None	None
SPECIAL DEFENSE:	Elusive	Elusive	Elusive	Tough Hide

THE INFITA

Eric "iggy" Winsor

Greetings gentlebeings! Jurak Hangna here, introducing yet another tasty little beast of the universe. This issue's little critter is an amazing comeback story.

When people think of GODCo they mostly think of planetary engineering, the high taxes governments impose on their citizens to pay GODCo to complete the process, cloning extinct yaziriforms, and yazirians in robes. Yazirians praise GODCo for making lask[1] available to the common yazirian and bringing back a new extinct yazirian beast each year for the ceremonial exodus hunts of remembrance. Non-yazirians curse GODCo for never turning their resources toward another species' bioforms. Today I am happy to announce that the great GODCo tree has dropped seed and the tree has born its first fruit. A sign that we hope will someday be remembered as the birth of extinct bioform cloning for all species.
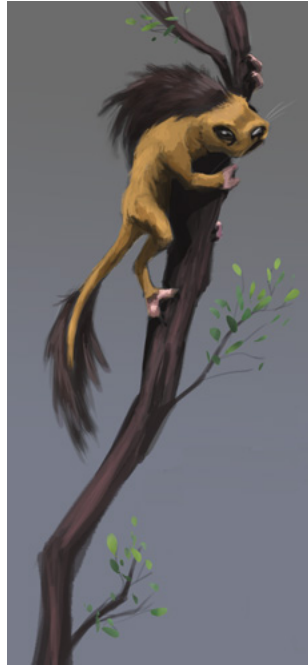
Male Infita by Tysho

During our early expeditions to the Rim Worlds, Dwain gained the acquaintance of a wealthy ifshnit merchant seeking to clone the extinct infita. As a result, the Jurak Hangna Foundation has partnered to establish an open cloning facility on Faire. Dr. Jika Gasar has joined the Jurak Hangna Foundation as director of the new JHF Open Bioform Cloning Laboratory (OBCL). The details of this auspicious meeting and the founding of the OBCL are a long story. Dwain says, "We could tell you, but we would have to kill you." I'll stick with his human saying. I'll tell you the happy ending and new beginning. Dr Jika and her team have successfully recreated the infita, the first non-yazirian species to be cloned back from extinction.

The infita is native to the ifshnit homeworld. They went extinct as a result of a Sathar biological attack that destroyed the island habitat they lived in. What was a seemingly unimportant and overlooked ifshnit species became the symbol of the ifshnit drive to reach the stars and survive against the Sathar. Every ifshnit felt the loss of the infita and identified it as the inevitable loss they themselves would face if they did not overcome the Sathar. "*Fa gi infita!*", "*Not like the infita!*" became a common phrase among the ifshnit and children were given infita dolls. Fortunately several infita bodies were frozen in nitrogen by our anonymous ifshnit trade house. Dwain and his ifshnit friend realized that the JHF and the Capellan Free Merchants were the two parties with the key pieces to unlock GODCo's cloning to bring back the infita.

DESCRIPTION AND SOCIOLOGY

Infita are small creatures averaging 30cm from nose to the end of the tail. They have three fingers, the fourth (index finger) developed into a sharp, retractable claw close to the pads of the hands and balls of the feet. They use these claws to scale the branches of the trees they live in. They travel in families eating leaves and insects in the trees. They also use these claws to remain suspended from the tree branches while they sleep.

Squads of infita are matriarchal, with the eldest female choosing the trees that they will forage in. Typically this female leader is the grandmother of the other females in the group. A group will divide when a mother has three or more daughters with children. This division seems to be driven by the need to select a separate feeding tree to support feeding the grandchildren. Males leave the family group when they are old enough to travel alone. Males seldom congregate in groups or pairs and mate with the females in late night encounters with one or two of the females and quickly slip away.

Infita are all light brown in color. Their short fur protects them from the scrapes and rain of life in the trees. The males have dark brown neck and tail manes. The neck mane starts at the base of the skull and extends down the spine to the middle of the back. The tail mane extends from the middle of the tail to the tip. It only grows on the top and bottom creating a vertical fan of stiffer hair.

Threatened squads will screech and shake branches to frighten aggressor. When this doesn't work they retreat swiftly to the tops of the trees, fleeing from tree to tree if necessary. During the night the squad will gather in the treetops for defense while they sleep. They sleep lightly and will easily awaken to slight disturbances that may be a threat. Females without children quietly investigate any disturbances for potential threats, while the others remain

alert for their warning cries. The warning cry of the infita is a soft shriek. During the day these same females will forage along the edges of the group as sentinels.

Male infita travel constantly following food sources. Their courses typically loop back upon themselves every few days. This is thought to be an effort to find female groups that may be behind them. The overall path meanders for kilometers with these sporadic loopbacks before taking another direction at random. The effect is that they tend to crisscross a single large area throughout their life. When male infita happen upon each other they stand each other off for days until one succumbs to hunger and forages in a different direction than the other. This has led to the ifshnit saying that a person is "as stubborn as an infita."

Infita live for about 7 galactic standard (GST) years. They reach adulthood in about 250 GST days. The gestation period is about 23 GST days with a birth of one pup. It is unknown if infita have ever given birth to twins but the OBCL biologists have determined it is genetically and biologically possible in extremely rare cases. A single female infita may have as many of 27 offspring if she mates during every breeding cycle. In the wild before their extinction, they averaged about 13 births per female on average. The prolific nature of the infita in safe, healthly, controlled conditions has been a key element to rebuilding the species and their biodiversity. Dr Jika also capitalized on techniques gained from the yazirian exodus to use fragments of DNA obtained from many samples of infita hair to augment the biodiversity of the species.

Ifshni Infita	
TYPE:	Omnivore
SIZE:	Tiny to Small : 30cm
NUMBER:	(3 to 9) female / 1 male
MOVE:	Medium : 55 m/t
IM/RS:	+6/60
STAMINA:	70-120
ATTACK:	60
DAMAGE:	(1d10)/4
SPECIAL ATTACK:	None
SPECIAL DEFENSE:	None
NATIVE WORLD:	Homeworld, Capella
COST:	480 cr

Reintroduction & Future

Since the successful reintroduction of the infita to their native island habitat, they have become a symbol of pride to the ifshnit. Due to the success of the infita population growth, the CFM now markets male infita as The Ifshnit Pet. Infita have become the gift of choice to adolescent ifshnit. The CFM marketing department has tied the infita to every ifshnit holiday and life event from primary school

graduation and merchant school admittance, to the solstice of the new year, to launching day when ifshnit traditionally launch all sea and space vessels. There are CFM plans to market infita outside of the CFM worlds to the Rim and the Frontier when ifshnit demand is satisfied. Currently, there is a one year waiting list to purchase an infita pet, which cost 480cr. The JHF is proud to host a breeding pair of infita at our preserve on Hakosoar. These are the only infita on display outside of the ifshnit worlds and our star attraction at the JHF preserve park. The CFM marketing campaign has been so successful that Dr Jika's lab is on a firm financial foundation.

GM Adventure Material

Jika Gasar was dishonored by her employers at GODCo when they formally reprimanded her for supporting her brother Hako Gasar's[2] pursuit of their common life enemy, the murderer of Lucco Gasar. The quest for Lucco's murderer made Hako a clanless fugitive wanted by the UPF and various world governments. GODCo's executive management was embarrassed by the media attention following Hako's successful defeat of their life enemy. Some non-yazirians viewed Hako's quest as vigilante justice and some of the tabloid media fabricated stories of GODCo's support through Hako's sister Jika. GODCo executives took their worries out on Jika.

Fortunately for Jika an obscure line of the CFM loan contract that helped fund the initial start up of GODCo was still in effect and overlooked by the GODCo legal department. This clause allowed the CFM to secure Jika and a select few of her staff to work free from GODCo influence or control as long as they are under the umbrella of a yazirain company without CFM ties. Thus the JHF was provided a generous no-strings-attached grant by the CFM to fund Jika's Open Bioform Cloning Laboratory. The JHF OCBL is on Faire to keep it safely secured against GODCo espionage and interference.

The GODCo executives are furious that they may have just lost their monopoly on yaziriform cloning. They do, however, still retain control of the yazirian gene banks through the Family of One. Jika was not allowed to bring any samples, files, or equipment from the GODCo labs. Rumor has it that Hako has embarked on a new quest to find a lost yazirian exodus ship that contains a gene bank. He is rumored to have a team of other renowned clanless yazirians working with him.

The CFM is rigidly controlling the breeding of infita. Only male infita are available to the public. Female infita at kept as breeding stock at CFM nurseries. The infita island preserve on Homeworld is guarded to keep the wild female infita from being captured and used for breeding on the black market.

[1] See Star Frontiersman issue 18, "The Yazirian Files: Legend of The First Clan".
[2] See Frontier Explorer issue 3, "For Lucco's Honor".

LOVE AND ATOMIC ROCKETS

Edwin Cintron

Of all the people I had ever known, Granny Shimout was not one to ever ask for help or show weakness. I grew up listening to tales of her legendary strength and fortitude. Heck, when the first muster was called against Hatzck Naar's pirate fleet, she took over command of her family's privateer ship as her father lay dying at her feet. I am told she did not shed a tear or shown any distress when her father died during Harzck's last stand at Timeon. The only emotions she did display were a smile as Hatzck boiled inside his vac suit when he was spaced, courtesy of the holes she poked in his gear.

So when the call came from her asking me to meet her in order to lend her a hand at Timeon station, I dropped everything and caught passage on the first star ship I could find. The *Star Dancer* was a fairly new heavy freighter, and word around the station was that the ship's captain was in dire need of a pilot. Her last pilot and first mate were killed during a pirate attack, one of several that had plagued the ship over the last couple of months. Many felt that the ship was jinxed. Since I was not the superstitious type and the idea of facing down pirates was not a turn off, I figured that it would be a great way to catch a ride and earn some credits along the way.

Chapter 1

As I made my way down the gangway, I was a little surprised at the lack of activity. The ship was schedule to jet in twelve hours and there was no sign of loading cargo. Generally, the captain-owner of a ship tried to minimize docking fees and spend as little time as possible in port. Ships zip into a station, acquire a cargo, and head out. So either the cargo was already loaded or the ship was jetting out empty. I was greeted by a voice from the comm panel at the ship air lock.

"State your business," the box squawked.

"Heard you're looking for a pilot," I replied and flashed my spacer's guild card at the external camera.

The air lock door slid open and I came face to face with a grizzled old spacer. "What's your name son?" he asked as his eyes roamed up and down my body.

"Name's Rodworth Shimout."

"Kind of young to have a class A starship pilot's license?" he asked starring at my guild card.

"Mister I've been piloting starships from the moment I could reach the controls. Heck, made my first jump into the void when I was ten." I shot back.

"Shimout? Scott's boy?

"He was my dad."

"Good man, sorry that he's dead, but if you are Meteor's whelp then you are just the man I need. Come in." He moved to the side to let me in.

The grizzly old spacer was Albert Cam, owner-captain of the *Star Dancer*, and he assaulted me with his tale of the streak of bad luck he had been experiencing since taking ownership of the ship. He formerly owned a smaller ship, *The Rusty Venture*, which netted him a small fortune on the run to Timeon from Minotaur. Members of his old crew had pooled their saving together to purchase the *Venture*, so the *Dancer's* crew were new. Thus he has been growing suspicious that a member of the crew was a pirate's plant.

By the time we made it to the bridge we were like old friends, he told me how he met not only my father but also my mother Tei Song Shimout, and how her death due to Red flu had rocked my father.

"Son your mom wasn't a scrapper like your dad, but she had the heart of lion. She gave her dose of antibiotic to a new born baby, knowing it would spell her death. She was one heck of a lady. Your dad was never the same after that." He finished his tale as we entered the bridge.

There were five of the crew at various consoles running system checks. Matt and David Howler, cargo handlers, Xi'tic'koi, a Vrush med tech and life support specialist, Jake "the Hammer" Johnson, second mate, and Eddy "the Mouse" Wilson, engineer and ship mechanic.

"Okay you swabs, this is Rod Shimout and he's our new backup pilot and first mate." Captain Cam roared after introducing me to my crewmates. They looked a little shocked, me being the newbie, and newly hired. Jake the Hammer looked angry, which is understandable since it is the tradition of the second mate taking the place of first mate when the spot becomes available. Jake held his tongue but I knew there would be trouble.

Captain Cam was no dummy. He was letting the crew know that they were suspect and making me the stalking horse, in hope of having the traitor show their hand. Didn't

make me too happy but the old coot must have figure that I could handle it.

"Where's Alice?" he asked after scanning the bridge.

"She in the Radio room, running checks on the FTL radio," Eddie the mouse answered.

"Come Roddie me boy, let me introduce you to pretty Alice," Captain Cam said as he pushed me in the direction of the Radio Shack.

The hatch to the radio room was open and I could see a pair of feet poking into the corridor, on her hands and knees Alice was attempting to open an access panel at the base of the FTL radio set. I didn't expect much as my experience was that when an old coot of a spacer call a woman pretty they're anything but that. In a way I was correct. When the captain called her and she rose to her feet, I found that she wasn't pretty. She was beautiful!

I am not a poet, and my mere words fail to describe what I saw, but Alice was a woman whose sight would make a man's heart race and put iron in his bottom. With me, I felt that I was struck in the chest by a Gyrojet round and all I could do was stare like some silly school kid.

"Alice this is Rodworth Shimout, our ship pilot and new first mate. Roddies me boy, this is Alice Heart, or should I say heart breaker, radio operator and sensor tech." Captain Cam bellowed in a loud voice that echo through the narrow passage.

A shy smile appeared on her lips as she looked me over. She walked over to Cam and wrapped an arm around his waist. "Well, my captain, he does look like he has some fight in him. Maybe he will work out." She purred then she and Cam locked lips.

"Oh great, she's the captain's woman!" I thought, making her definitely off limits

"Well, let me show to your bunk young Shimout." Cam said as he disengaged from Alice.

He led me to a small compartment on the lower level near the engine room. The room basically was a ten by ten cube with a zero gee hammock and a small foot locker. I secured my Duffel bag and vac suit carrier to a series of rings on the wall.

"Well boy we are jetting at 0600 am. Get some rest," he said as he turned and left me alone in my new quarters. With my gear secure I made my way upward and found the galley. Jake and the Howler boys where already seated and eating a meal. I nodded at them and attempted to drift pass them to get to the food processor. Jake struck out his foot in an attempt to trip me. Instead I brought my foot down on his shin. He howled and attempted to stand. So I slammed him face first into the table. Holding him down, I whispered into his ear, "look, there can be only one alpha dog in a pack, and I am it. So are we going to be

cool or are we going to have to repeat this everyday that I am aboard?"

"We're cool," he groaned and I let him go. The Howlers stared away trying their hardest to pretend that nothing happen. Mouse and Alice entered the Galley and that moment I decided it best to go back to my cabin and attempt to get some shut eye before liftoff.

CHAPTER 2

My personal com woke me up at 0500 and I was ready to go. I hit the sonic shower, retrieved my skin suit from the refresher unit, and by 0515 I arrived on the bridge. The crew members were already at their stations. The captain was at the pilot chair so I took the co-pilot seat.

"Ah I see that you have graced us with your presence young Mr. Shimout. " he said mockingly drawing smiles from the crew. He turned to the pilot console and muttered, "Don't take it personal son, but I like to be at the helm when taking my ship into and out of the station, also for our jump into the void."

Cam ran a tight ship. He ran preflight checks on all systems with each member of the crew calling out their system status in turn. When 0600 came around he detached from the docking ring and fired the maneuvering jets. Cam didn't bother with the automated anti-collision system and bought us out on manual. It was easy to see that Cam was a master pilot, the *Star Dancer* was just that with him at the helm. And in a few minutes we were moving out at one gee on a course that would take us out of the system.

Two hours into our flight Cam rang the high acceleration alarm, and everyone strapped themselves into their acceleration couch as he performed a high speed turn that exposed us to six gee acceleration. I was a little perplexed with our sudden change of course and then Cam spoke. "Relax me lads. We need to pick up our cargo, and that maneuver should have put off any one who may have attempted to track us. We are heading for an asteroid factory in the Belt so everyone get prepared for zero gee operation. Mister Shimout, turning the helm over to you. Location is already program into the console. I will see everyone at the main lock in an hour.

An hour later we were all gather at the main air lock, Cam arrived limping. For a man his age a six gee maneuver was a little hard on the body and it was apparent he was feeling the effects of his earlier stunt.

"Listen here mates, this is how it will go. I'm taking the life boat over to that rock to conclude the transaction and to pick up a couple of passengers. Mr. Johnson and Rodworth will use the ship's work pod to transfer the cargo to the hull and the brothers Howler will take care of storing and securing the cargo. Ms. Heart, you will monitor communication and Mouse, you and Tic will be suited up to lend aid if needed. Questions?" Cam grunted

AZ Gamer
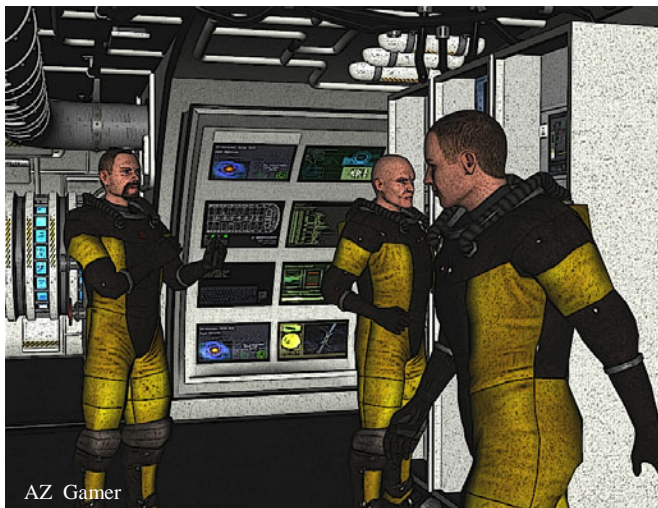
his order in attempt not to betray the pain he was feeling. As he headed to the hatch Xi'tic'koi watched carefully to ensure Cam was okay while the rest of us went to suit up.

Zero gee cargo loading operations are dangerous affairs, the list of hazards are a mile long, ranging from micro meteor strikes to solar flares. The biggest danger comes from simple laws of physics when dealing with force and momentum. A slight nudge can start a large mass moving, while that mass's inertia makes stopping that moving object an issue. Worse if that moving object should impact you when you are not looking. The asteroid factory was using robot tugs to move the massive containers into position. Just as Jake began to line up to latched on to a waiting container, one the tugs had their engines misfire hurling a massive container at him. I spotted the container and barked "Jake to your rear six. Rogue container."

He managed to fire his jets and his work pod side steped the out-of-control container, while I jetted into position to brake it.

"Thanks Rod, owe you one," he squawked over the comm and we went back to hauling cargo.

It took over three hours to load the cargo and ensure it was secure. When it was completed we gathered at the main air lock. The captain was there with passengers: two humans, a male and a female dressed in full military body armor with a pair of robotic mules carrying several heavy cases. No mistaking them for anything but ultrahigh security, very likely heavily augmented, and carrying enough fire power to stop a squad of war`bots.

"Crew, this is Mr. Smith and Ms. Jane, they are to be treated with the utmost courtesy and given full run of the ship. Mr. Rodworth, plot us a course to the jump point for Timeon, I will relieve you in twelve hours, Alice I want you on the long range radar, I'll send Mouse to relieve you in twelve, everyone else get some rest and in eight hours I want us to assume regular ship routine." Cam barked and we scattered.

I got to the bridge and dropped into the pilot chair, from the console I checked and saw that the reactor was set to idle. I rang the acceleration alarm and fired the engines for a standard one gee acceleration. Unlike the pulp novels, starships have no artificial gravity. All the effects of gravity are produced from the acceleration provided from the rockets. As old Einstein discovered there is no difference felt between the acceleration due to the pull of gravity or acceleration from firing the engines. So generally, starships maintain a constant one gee till they reach the speed needed to enter the void for the comfort and health of the crew and passengers. From the console view screen, I watched as we pulled away from our orbit around the factory asteroid and into the emptiness of what lay ahead. Alice popped into the seat behind me and brought up the long range radar screen that scanned space for several light minutes around us.

"All clear young Shimout," she purred in the mocking manner of our captain. I grunted back an okay, afraid that any attempt of making conservation would end up with me saying something foolish. This woman had me rattled and as I glanced over and saw her smiling, it was obvious that she knew it.

"It's going to be a pretty boring twelve hours Roddie if you remain so stiff. Relax. Tell me about yourself. I promise I won't bite. At least not till I know you better."

So I told her of my life, born into a spacer clan, a mother who was a priestess of the goddess Infiniti, my father the lion of the space ways, my three brothers: Barnes, Xenon, and Cross, my sister Grail, and of course Granny the matriarch of our clan. How at sixteen I took off on my own when I realized that there could be only one alpha dog in a pack. I loved my brother Barnes too much to battle him for that place, not when the whole Frontier beckoned. Then there were the four years of adventures and battles that lead me to here, sitting across from a woman whose glances set my blood boiling.

When I was done I looked at her, her face was flushed and she looked away. The Chronometer showed that eight hours had past and at that moment Mouse entered the bridge. He threw me a protein bar and water bulb, and said "Captain ask me to relieve you early, Alice. Figure you could do with something to eat before your watch is over, Rod."

He took Alice's seat as she rose to leave and turned to me and said, "So tell me about yourself Mr. Shim....."

Chapter 3

Several hours later, Captain Cam entered the bridge accompanied by Mister Smith. Smith took the seat in front of the ship's laser battery and began keying it into the long range radar. Cam walk stiffly toward me, a sign that he still had not recover from his earlier exposure to the high gee maneuver. He managed a smile, "Go get yourself

some grub and a good rest. I expect you back at 1200 to relieve me young Shimout." I hurried out of the bridge toward the galley.

The duty cycle was long, and there was a host of needs that my body demanded. I ran down the list, to the refresher to relieve myself, the galley for food and water, and the sonic shower to rid myself of grime and sweat. Then finally to my compartment to sleep. I threw myself into the zero gee hammock and sleep began to tug at my consciousness.

That's when Alice entered my cabin and I fell out of my hammock in shock. I got to my feet and began to say, "What the heck...." and before I could finish asking her what she was doing here, Alice kissed me. Next thing I knew we stripping off our skinsuits and fell into each other arms like a pair of colliding black holes. When it was over we lay side by side among a pile of our skinsuits and the tangle mess of the zero gee hammock.

"My sweet naked singularity! What we just did was wrong. You're the captain's woman." I muttered.

Alice sighed, "Roddie I'm no one's woman but my own. The captain has been good to me, gave me a job and I've shown him a little kindness," she traced her finger down my chest and look me in the eyes, "This is different. " she sighed again and lay her head against my chest before closing her eyes. I did the same and fell into sweet slumber.

CHAPTER 4

When I woke Alice was gone. I untangle myself from wreckage of my hammock and dressed. Catching a bite to eat, I made my way to the bridge and ran into Ms. Jane. As we walked toward the bridge she turned her head in my direction and smiled. "Hummm, looks like someone got lucky," she said without breaking a stride. I was not sure what visual clues she pickup on.

At the bridge the captain exclaimed,"Haah young Shimout, good to see you. Mouse told me of how you saved Jake's hide during the cargo loading, hope that square things between the both of you." He smiled as I watched Jane and Smith swap places. "See you in twelve, me and you will run twelve on twelve till we jump. The rest of the crew knows the drills."

He rose and made his way to the hatch. As he left I breathed a sigh of relief, apparently what Jane could see wasn't obvious to us unmodified members of the human race. I made a silent vow to keep away from Alice and went back to work.

And it went on like this for two days, me and the captain relieving each other at the conn, Alice dropping by my cabin after my tour, me surrendering to her charms, and feeling guilty for betraying my captain. The bright spot was that I would be jumping ship at Timeon, but in a way

that ate at me to. I liked Captain Cam, he ran a tight ship and his crew seem to be an okay brunch, almost like family. Yet one or more of them were likely a pirate plant. When we reached the jump point I was more or less on the verge of mental and emotional collapse.

The Void is what makes faster than light travel possible. It is one of those parallel set of dimensions scientist call a D-brane. It actually wraps around the normal four dimensions of time and space. Subatomic particles actually rotate into and out of it, giving them that odd half Planck spin. It's only when a large object, like a starship, reaches one percent of the speed of light that it can also rotate into it. Distances are jumbled up in the Void. It takes careful timing to reach the right place, a second or two miscalculation can put you light years away from your desired location.

Cam impressed me again with his piloting skill as he managed our jump without use of a nav computer and actually smoked the jump cutting off two days of travel.

It meant two less days in the Void with Alice, and two less days of worrying about waiting to see what awaited us when we emerged in the Timeon system. Both Mr. Smith and Ms. Jane were on the bridge when we emerged in normal space, and everyone cheered when the long range radar showed the area around the jump clear of pirates.

"Okay mates, let clear the bridge. Xi'tic'Koi, let's break out the hard stuff and everyone can have a drink to celebrate," said Cam, his face alight with joy. "Mr. Smith and myself will hold down the bridge. Young Shimout you can relieve me in two hours." With that, I and the rest of the crew headed to the galley.

When we hit the galley Xi'tic'Koi opened the locked liquor cabinet and began playing bartender. Before I could get a drink, Alice grab my arm and dragged me away, Xi tic Koi gave her a strange look, maybe like Jane he was able to tell what was going on between her and myself. While that thought bothered me, it did little to bar the call of the flesh. Two hours passed in a haze of passion. When I attempted to pull away and dress Alice grab me.

"Don't go." she said, her eyes pinning me like a tangler grenade.

"I have to relieve Cam." I said shaking my head

"Roddie something bad is going to happen. In a couple of hours the ship will be taken. Stay with me and I'll make sure nothing happens to you. We can go away together. Be together my dear," she pleaded.

I had never hit a woman before, but my fist connected with Alice's chin and she went down like a sack of potatoes. I put on my skinsuit in a hurry. I reached into my duffel bag and pulled out a needler pistol and rushed to the bridge. When I got there, I found Captain Cam, Mr.

Smith and Ms. Jane slumped into their seat with three drink bulbs on the floor. I rush over to the Captain. He was alive but totally out of it. The console was alarming, so I moved over to check the long range radar and spotted a blip on the edge of the screen – a ship on an intercept course at least two hours out.

Leaving the bridge I rushed to the galley, the rest of the crew was scattered around the deck out cold like Cam. Missing was Xi'tic'Koi. There was one last place to check, the radio room. I took the safety off my pistol and set it to lethal for the stakes were too high to play it any other way. As I near the radio shack I could hear Xi'tic'Koi's polyvox screeching out its translation. Ignoring it I kick in the cabin door. Xi'tic'Koi whirled around with a laser pistol in his hand but before he could fire I emptied my clip into him. He tumbled to the floor with half a dozen flechette etching a line from his abdomen to his thorax.

"Red one, this is Red leader. Come in Red one," blared the radio. As I turned off the receiver, I was hit with the realization that I was a dead man. We were all dead men. I toyed with the idea of loading everyone into the life boat and making a run for it, but the pirates would chase us down. I could man the laser battery but without the rest of the crew we wouldn't stand a chance in a straight fight. I went to the pilot console and upped the acceleration to two gees – the limit of the engines. As I felt the increase force of gravity on my body, I knew that this would only give us a few extra minutes. There had to be something else I could do. At that point I decided to check the cargo to see what was so valuable to warden the extra muscle that came aboard to guard it.

I searched the Howlers brothers and found the key card for the cargo hold. It took maybe a half hour to break into the cargo containers, inside were robots, servant bots, maintenance bots and war-bots, at least a dozen. There was hope, but the war-bots had no power batteries or weapons. I rush to engineering deck and found five fully charge parabatteries. A search of Ms. Jane's and Mr. Smith's quarters yielded a small arsenal of weapons, a heavy laser, a couple of laser pistols, electro and sonic stunners, and a pair of vibroknives.

Chapter 5

It was a race. I barely got a squad of five war-bots up and armed when I heard grapples strike our hull. Armed with my needler and Xi's laser pistol, I raced with war-bots in tow to the main airlock. I positioned myself at the first bend in the passageway to the airlock and waited, arranging the bots in a line behind me.

Soon enough I heard the airlock cycle. The inner door slid open and a dozen pirates cautiously enter the corridor. I jumped into the passage and unloaded my needler but the shots rang harmlessly against their armor. One of the pirate screamed "Get him!" as I darted around the corridor. The pirates barreled around the corridor hoping to catch me and ran right into the waiting War-bots. "Sic 'em boys" I ordered and the war-bots waded into the pirate band. The following battle was one sided, the War-bots had the element of surprise and I joined in with Xi's laser on maximum. Three of the pirates went down before the others turned and fled back to the main lock with the War-bots close behind.

They attempted to return to their craft but before they could seal the hatches to our airlock the war-bots slipped aboard their craft. Their ship disengaged and jetted away at max thrust. I could picture in my head the chaos that raged aboard their ship as they not only were attempting to escape but also had to battle a squad of killer robots. As it stood that was the last I saw of the pirate vessel.

There were ton of things to do. Checking on the down pirates, I found two of then still breathing, so I used my needler and a clip of tranq rounds to keep them unconscious, a few shots into each would keep them out for days. It took me a couple of hours to break into the medical locker, but once I did I then began injecting the down crew with Stimdose to revive them. But there was no reviving Captain Cam. During my battle with the pirates his heart had stopped, Xi had given too big a dose to Cam. Then there was Alice. As the crew was reviving I went back to my quarters. She was just recovering from my upper cut and she attempted several times to rise only to drop to the floor.

"Don't bother getting up my love." I told her in an icy cold tone and shot her with the needler. She slumped into a pile and I realized that it may have been better at this point if I had hit her with the lethal load of needles instead.

As first mate it became my duty to take the captain's place. The rest of the crew were no problem, they knew their duties. Mr. Smith and Ms. Jane were a bit ticked that I borrowed their gear and lost it. They insisted that they needed to contact their employer so I had Mouse escort them to radio shack. I then went over the captain's log and found a series of instructions in case of his death.

This added another stop to our trip as the captain wanted his body buried on Charon's rock, an Icarus asteroid that spacer's used as burial ground in this system. Plotting a course to it would put additional day to our journey but it had to be done. Finally I radioed Timeon station and had them connect me to Cam's only living relation, his daughter. After breaking the news of her father's death, I advised her to get a good lawyer in order to handle the ship transfer and the final transaction with the cargo and its owner. It was then the strain of all that happen caught up to me and I past out. Next thing I knew I was being shaken awake by Jake

"Hate to wake you Captain, but the pirates are coming to." he apologized.

"How long have I been asleep?" I yawned

"Almost a full day." he answered.

"Murphy's mother, I must have been tired. Jake you and the Howler brothers bring the pirates to the main airlock, have Mouse bring Alice. It is time to have a Captain's Court."

There is no one set of laws or authority that covers the Frontier. In fact in some systems the only law is one that comes out the mouth of a laser, but for spacers there is a set of traditions that bind us. Generally, small offenses like malingering are punish by the offender's ship mates. Slightly greater ones by the first mate. But major ones are handle by the ship's captain and piracy is the most serious offense possible. There is usually only one punishment for it and that is being ejected into space.

The Captain's Court was held at the main airlock. The two surviving pirates struggled against the grip of Mr. Smith and Ms. Jane who took it upon themselves to play master-at-arms. Alice was sobbing with Jake and Mouse holding her. She did not struggle and the sight of her standing there broke my heart, but justice had to be served.

"I'm not going to waste time, we all know why we are here," I said as I turned to the pirates. "You and your mates attempted to take our ship, and I am sure that our lives would have been taken also. Your actions have led to the death of Captain Cam so there is no mercy that I can show you. I sentence you two to be spaced

The pirates attempt to break free but Smith and Jane easily tossed them into the open airlock and Jake closed the hatch. As captain it was up to me to hit the emergency cycle button that opened the outer airlock door to space. The pressure of the air inside the lock ejected them into the vacuum. Alice swooned, and was caught by Mouse. Ms. Jane pulled a vial out of a pocket and positioned it against Alice's nose causing her to regain consciousness.

"Alice Heart, for your actions your life is also forfeit. But yours will not be a quick death. Instead you are sentence to accompany our fallen captain. You are to be marooned on Charon's rock with no radio and twelve hours of air. "As I pronounced her fate Alice again collapsed.

Mouse barely caught her and he turn to me, "You're a cold one. Don't think we all didn't know you were shagging her and now you going to sentence her to death."

"Can it Mouse, the Captain is right. Heck it serves her right to suffer a bit. Spacing is too good for her!" Jake said jumping to my defense.

Tom Verreault

"I'll have no more of that. Ms. Jane, take Alice to her cabin and lock her in. The rest of you back to your duties, we'll meet here in twelve hours to put Captain Cam to rest. Hop to it!" I roared.

Spacers' funerals are solemn events, staged on deserted asteroids in the deep vacuum. It was up to me as acting captain to offer up last words. So as the Howler brothers lowered Cam's body into the pit Jake had blasted into the stone, I recited an old Infiniti prayer I had heard my mother use on such occasions. It spoke of the green fields of Earth, man's mother world lost so many centuries ago, and our return to it in our next lives. Alice was standing silent as Ms. Jane held onto her arm. Smith looked on cold as ice and Mouse was crying as he positioned the capstone on Cam's grave.

"Okay let get back to the ship, Jane I'll take care of Ms. Heart," I said as I grabbed Alice by the arm. "I'm sorry, I wish that things could have gone another way," I muttered as I opened her helmet comm panel and grabbed the radio circuit board and crushed it in my hand.

Everyone made their way to the airlock and I trailed behind and watched as everyone boarded. Just as I began to climb into the lock, I removed a flare pistol from my suit emergency pack and dropped it. It drifted slowly in the micro gravity of Charon, but eventually came to rest

on a small boulder. Little hope that Alice would find it. Even a smaller hope that any ship would come by that she could signal with it. But it eased my conscious and a small hope was better than none.

Chapter 6

When we lifted off from Charon's rock, the entire crew watched from the bridge monitor as we pulled away, as it faded in the distance not a word was said. The rest of our journey was uneventful and quiet but when we finally pulled into port we were greeted by a small mob.

There were peace officers from the Timeon Department of Justice, stevedores to unload our cargo, a set of suits representing the owners of the cargo and their security agency. Also there was Helen Cam and her lawyers. The first to greet me were the police officers demanding copies of our logs, which I had waiting. They began making demands that I accompany them for further questioning on the pirate attack and the fate of the pirates that were captured. Their demand stopped as one of the suits came over and whisper in the ear of the officer in charge, I also caught a quick exchange of credit chits when the two shook hands.

Then the suits approached and I found Mr. Smith and Ms. Jane at my back, one of the suits reach out to shake my hand," Captain Shimout, Mr. Smith and Ms. Jane have informed me of the actions you took to save our cargo, I'd like to thank you." As he took my hand he placed in my palm a credit chit, "the local militia has found a derelict vessel filled with dead pirates and powered down warbots. So it looks like you get to collect the bounty. If you ever need a job look us up, we are always on the lookout for good men."

Finally, came Ms. Cam and her lawyers, I took her hands, "I am really sorry about your father, I did not know him very long but I came to really like him. I wish I could have done more."

One of the lawyers led her away and the other took possession of the Captain's access card and logs. He then proceeded to hand out our pay, there was a muttered exchange that after all the paper work was completed that Ms Cam would be needing a ship crew and captain, I gave a tentative reply that if I was still around that I would be available but my heart wasn't into it.

I made my way to local Spacer's Bar, as I entered I spotted Granny seated at a table filled with old spacers laughing and drinking in celebration of times past. Granny spotted me and got up out of her seat.

"Roddie my boy, what took you so long?" she ask as she hugged me

I told Granny about all that happen, she nodded and ordered us drinks. When I was done she commented, "Roddie you are so much like your father, a soft touch for

a pretty piece of fluff. Cheer up I have something to give you." And she tossed me a starship access card.

I looked at the card, and had to admit that I was a bit perplexed.

"Look over there, out that viewport," Granny continue pointing at a viewport across from us. Drifting in a parking orbit outside the station was a one-man courier vessel. It was a bit scarred and pitted, but it sported a band new class A atomic drive.

"It's yours, I found the ship adrift on the edge of the system. Drive was gone but everything else was fine. Likely belonged to some smuggler who blew the drive and abandon her. I've already talk to the station's Postmaster and he will contract with you for courier runs to connecting systems."

What could I do but hug the old bat and rain kisses on her cheek, "Thanks Granny."

"Now don't be a stranger, you have your own ship and you know the systems our clan roams. Every one misses you, including Barnes!" She scolded me.

At that moment two young ladies entered the bar, very likely locals looking to find some fun with wild exotic spacers. Granny poked me in the arm and pointed at the ladies.

"You know the quickest way to get over a broken heart is to find yourself a missy to comfort you." She said with a smile.

"Thanks, but no thanks," I said. "I've had enough of the fairer sex for a while. I think I will check with the Postmaster and see if he has any mail needs delivering. "I kissed my granny on the cheek and headed out of the bar. And on to my next adventure.....

Tom Verreault

Equipment

GEAR UP FOR ADVENTURE

Tom Verreault

BOOMERANG

The boomerang is a curved aerodynamic throwing weapon. It requires a throwing skill to use effectively and can be made of wood, metal, or advanced composites. Intended for use against small and tiny animals and birds, it will do 1d10 damage and may stun a creature. Creatures of Tiny size are automatically stunned if hit and creatures of Small size make a STA check to resist the stun effect. All other animals are immune to the stun effect but take damage.

If a throw misses, the boomerang returns to the thrower who must make a RS check to catch it, otherwise it drops to the ground. If caught, the boomerang can be thrown again on the next turn. If dropped an entire turn must be spent picking it up before throwing it again. The return to thrower feature usually only works when thrown at flying creatures. If thrown at a creature on the ground or in a tree the referee may rule that it hits a branch or grounds out.

VIBRO BOOMERANG

A vibro boomerang follows the rules for a standard boomerang. It requires a metal gauntlet (1 kg, 20 cr) similar to that used by yazirians with the zamra and catching it is more difficult due to the vibro action, -10 to the RS check. The boomerang uses a SEU mircodisc for power (5 SEU, n/a kg, 10 Cr.) and 1 SEU is drained when it hits causing 2d10 points of damage.

"Boomerang Chainsaw" by Furious Midget

WarTech Incorporated

I NEVER HUNT WITH MY WAR TECH VIBRO BOOMERANG WITHOUT THE WAR TECH POLY MAIL GAUNTLET.

The WarTech Poly Mail Gauntlet provides guaranteed protection to the hands when handling sharp objects.

Available in a variety of sizes for all Frontier and Rim races. Available at any WarTech dealer or outlet store.

(Jurak Hangna)

Cost: 20 cr.

The vibro boomerang is effectively a hand held mini chain saw. It may be used to cut wood and vegetation of a small thickness for 1 SEU/30 min. This makes it a dual purpose survival item and weapon provided the power supply doesn't run out. It can also be used in melee as a vibro knife but the melee modifier is +0 instead of +5. There are no power ports and the micro disk must be changed when drained. Without power it can still be used as a regular boomerang.

SCREEN OVERLOAD GLOVES

Defensive screens are a staple equipment item in the Frontier. The Screen Overload Gloves are the latest

Weapon	Damage	Melee Mod	Ammo	SEU	Rate	Defense	Range: PB/Short/Med/Long/Ex	Mass (kg)	Cost (cr)
Boomerrang	1d10	-	-	-	1	Inertia	0-5/6-10/11-15/16-20/20-25	n/a	10
Vibro Boomerrang	2d10	0	5 SEU disk	1	1	Inertia	0-5/6-10/11-15/16-20/20-25	1	25
Screen Overload Gloves	Special	0	20 SEU clip	5	-	N/A	-	1	75

"Lightning Gloves" by Furious Midget

The Roller Ball, model SC9

The Roller Ball is a high tech concept car that saw limited production before being discontinued. They are now a collector's item and can be difficult to obtain. It would be unheard of for one to be available to rent.

The Roller Ball's unique wheels make it well suited for sharp turns and maneuvers. Any ability or skill check required due to maneuvering gains a +10 bonus. The cutting edge technology of the tires allow for good speed on ice and moderate speed on water with retractable spikes or fins for those modes of travel. The computer controlled hydraulic canopy can deploy as a sail while on water.

measure to defeat a defensive screen. They are worn and used like shock gloves. The user must make contact with both hands against a defensive screen by rolling a standard attack roll (roll using melee weapons skill – same as for shock gloves). A successful attack drains 5 SEU from the gloves' power source and shorts out the screen's power source for 10 SEU. The gloves are otherwise harmless. Any attack with the gloves that rolls a critical success of 01-05 causes the defensive screen to overload totally, shutting it down until the device is repaired.

Roller Ball	
Cost:	65,000 Cr
Top Speed:	120 kph/ 200 m/turn
Cruise Speed:	75 kph/ 125 m/turn
Accel:	70 m/turn
Decel:	50 m/turn
Turn Speed:	90 m/turn
Passengers:	4
Cargo Limit:	75 kg, .5 cubic meter
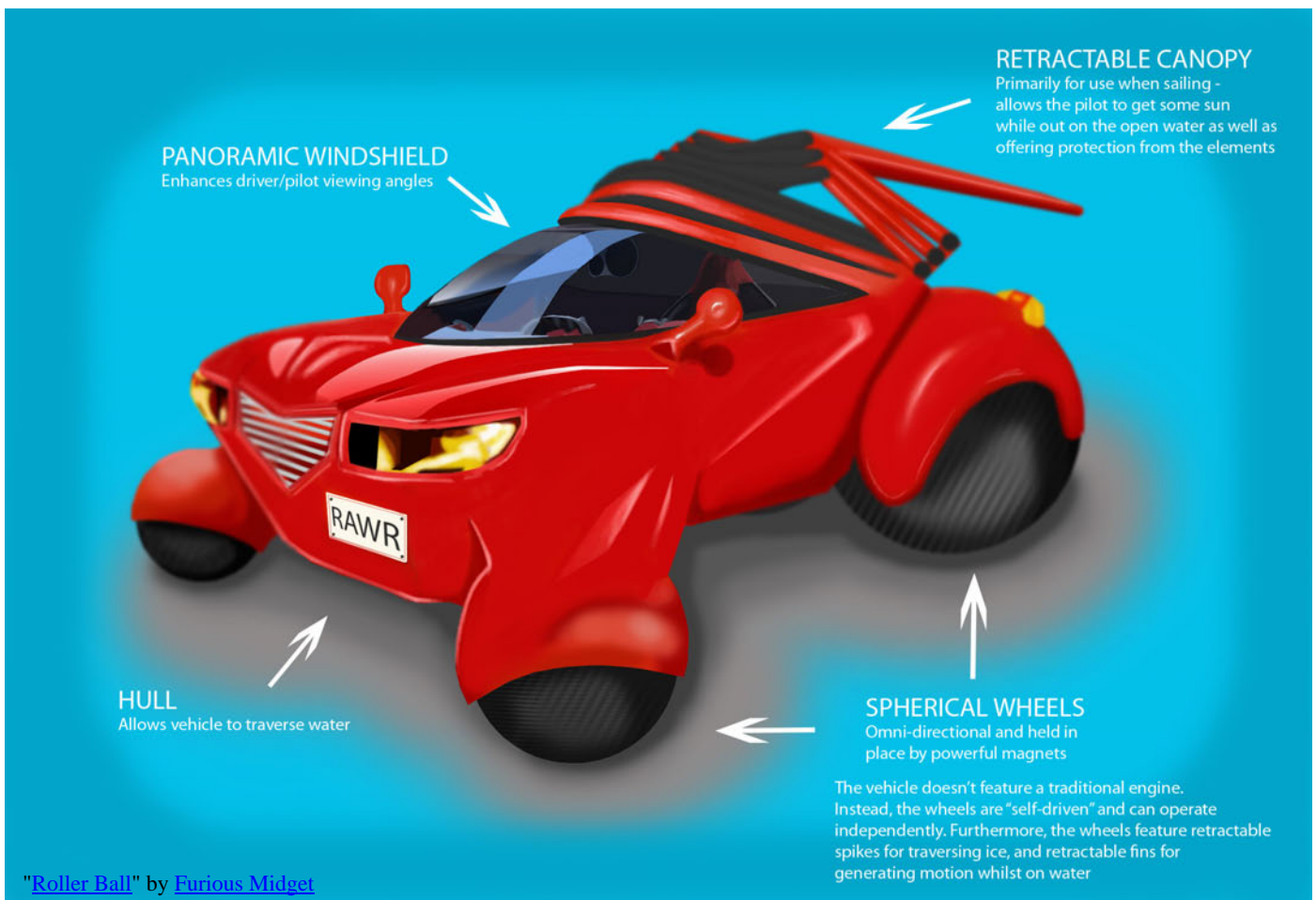
"Roller Ball" by Furious Midget

Cultural Perspectives

MORGAINE'S WORLD

Tom Verreault

HISTORY AND CULTURE

At the time of the founding of the United Planetary Federation, Morgaine's World was little better than an outpost. A group of farming homesteads with grants from the Frontier Agricultural Resource Mission had been established without even a proper landing facility for starships. With the climatic space battle of the First Sathar War fought virtually on the planet's doorstep, the colonists renamed the world in honor of the fallen hero of that battle.

Though Morgaine's World began as an agricultural outpost, it could not remain so for long. Because of the star system's location and the establishment of the UPF government on its sister planet, Morgaine's World was destined to grow to its present day moderate population levels. Today the economy is growing in the business and industrial sectors which are dominated by corporate interests connected to the resource mining of one of its moons and to the mega corporation Pan Galactic which is headquartered on the sister planet. Not unsurprisingly, the presence of Star Law's training academy, as well as

Spacefleet's Gollwin Academy, has had a significant impact on the planet's economy as well. Agriculture has always been a major industry, but today it is a small percentage of the overall planetary production.

The agricultural outpost beginning of this colony has become part of the social myth and fabric of its society. The planet is rugged and tough and the citizens of Morgaine's World view themselves in the same terms whether they live in urban or rural environments and regardless of their occupation. Morgainers are noted for their "can do" and patriotic attitudes. Disproportionate numbers of Morgainers join Space Fleet and exploration services than from any other colony based on percentage of population. High population worlds like Clarion and Minotaur see larger numbers of their population join Space Fleet than Morgaine's world but the actual percentage of the population is less than that of Morgaine's World.

Due to the colder and more rugged environment that Morgaine's World has compared to its sister planet of Gran Quivera, the clothing norms tend toward warmer and more serviceable clothing. A typical Morgainer will dress in pants and layered shirts with the outer shirt being warm, loose, and falling to below their belt. Serviceable leather belts are worn over the outer shirt fastened with a large metal belt buckle. A loose vest that reaches the belt finishes the outfit and for ¾ of the year they wear ponchos against the cold and rain though they resort to a parka for winter.

LOCAL GEAR

Two items of material culture have sprung up on Morgaine's World; the Morgaine Trekker and the Morgaine knife. The Morgaine Trekker is a boot favored by the working class, ideal for work and hiking in the wild and rural areas of the planet. Originally it was made by hand and then in small shops. The boot proved to be very popular with members of the various exploration services. Its fame brought the attention of corporations like Pan Galactic Corporation. PGC now markets the Morgaine Trekker throughout the Frontier and claims that it has the only official

Morgaine's World Three time Knife Throwing Grand Champion, Sofiya Proskovya (Wearing a typical Morgaine's World clothing style). by Tom Verreault

trekker. It even went to the expense to build a factory on Morgaine's World to support this claim. Other companies and corporations elsewhere in the Frontier have produced cheap knock offs to cash in on the famous name of this footwear but no one can match the quality of the few shops still producing true Morgaine Trekkers.

The Morgaine knife came about as a necessary tool for life in the early colonial outpost. It was well balanced for throwing and long enough to use to clear underbrush. It remains popular on the colony despite the population shift to urban areas. Competitive knife throwing is a planetary sport.

Local Skills

Characters who grew up on Morgaine's World speak their native Terran language as well as Pan Gal. They begin play with a pair of pants, a loose but warm shirt, belt, poncho, an authentic Morgaine knife (see below) and a broken in pair of Morgaine Trekkers (75% chance they are true Morgaine Trekker otherwise they will conform to those made by PGC) as well as their starting money. It's highly likely they had one or more close friends or family members in Space Fleet or an exploration service. They are positive, patriotic, believe they can do anything, and have a "don't mess with Morgaine's World" attitude that they carry through life like a chip on their shoulder. To a certain extent the hero, Admiral Morgaine, is viewed as the father of the colony or a patron saint.

Any character from Morgaine's World rolls a d10 at character creation to see if they have the culturally based "knife skill". On a roll of 1-2 they have this skill at level 2, on a roll of 3-7 they have this skill at level 1 and all other results mean they have this skill at level 0. Level 0 means they can throw or fight with the knife without a -20 penalty for being unskilled. This skill is treated as a racial skill and learned at "in" PSA rates (use the military PSA if using the AD skill system). It allows the character to effectively throw or fight with a knife regardless of their PSA and profession. A character that has both melee weapons and thrown weapons can ignore this skill unless it is higher in level than those skills.

Equipment Details

Morgaine Trekkers

These boots are a rugged hiking/work boot whose stitching pattern identifies them with this planet. The pattern is easily duplicated so that cheap knock offs as well as reasonable quality copies are made throughout the Frontier in an attempt to cash in on the name of this popular boot. These copies are simply a standard boot costing 15-20 Cr for the cheap knock off and 20-25 for a quality mass produced boot (PGC version of the boot is 25 Cr).

The true Morgaine Trekker is produced in small shops and sometimes by hand on Morgaine's World and cost triple that of the PGC model, 75 cr. One shop specializes in a boot with an integral knife sheath for 80 Cr. These prized boots give the wearer an edge in rough terrain conferring a +5% to any ability DEX/RS ability check required to respond quickly in rough, rocky ground, or wooded terrain. Being in an urban environment or on a star ship nullifies this effect.

The Morgaine Knife

Like the trekkers boot, this knife was made famous by being used by explorers and in the 3D holo vids. Cheap knock offs and copies abound throughout the Frontier but these cost and act the same as a standard knife. An authentic Morgaine knife is a thing of quality and beauty. It is so well balanced that it has a +5% bonus for throwing. It's adequate to substitute as a machete in the light underbrush of Morgaine's World (or other terrain that would not be considered heavy underbrush) and is an effective survival tool. Many (60%) come with a sharpening stone in a special holder sewn onto the side of the sheath. Cost: 20-25 Cr.

Tom Verreault