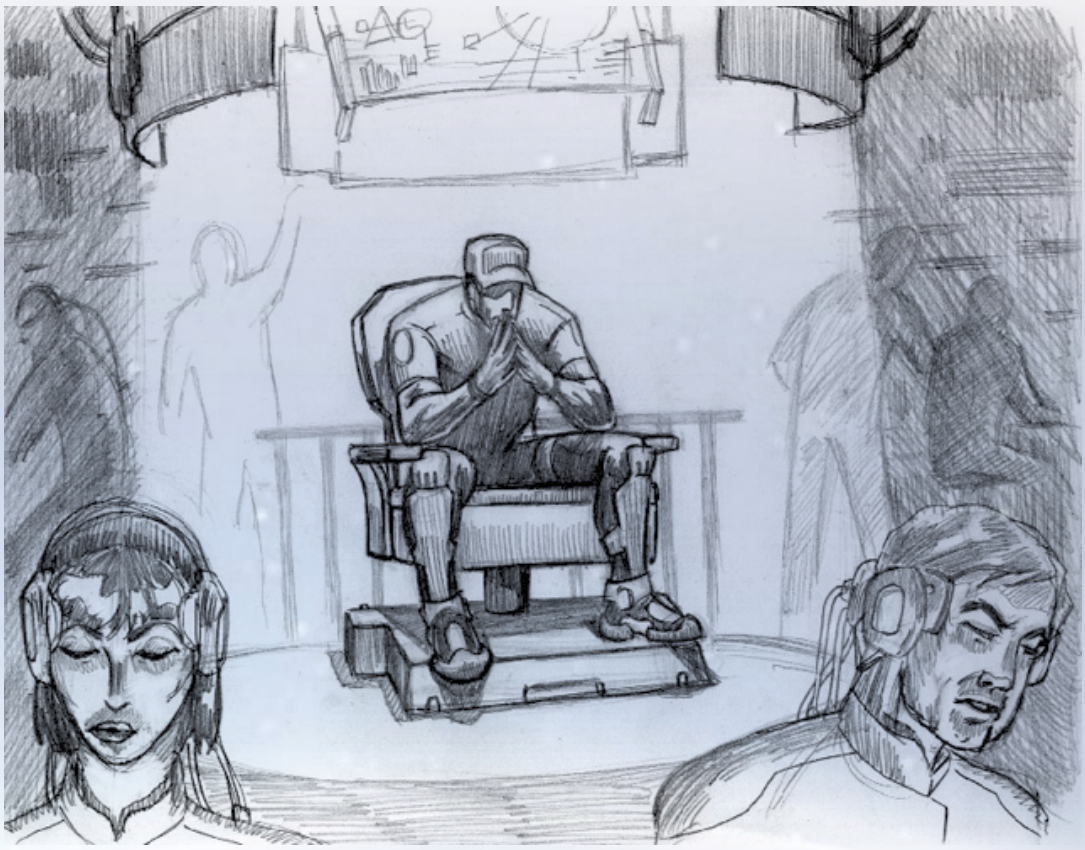
THE FOUR RACES



Human

General Description: Human are an air-breathing, land-based species of sentient mammals, evolved from a primate line which can be traced to a tiny tree-dwelling shrew. They are highly adaptable and thrive in a wide variety of environments, but seem most comfortable within a limited range of temperature, gravity and atmospheric density, which mimic the conditions on their home world.

Technology: The discovery of the so-called "subspace" dimension has allowed human propulsion engineers to take advantage of the gravitational stress fractures of the universe. The principle at work is simple: four-dimensional space time appears to have a crystalline structure, and massive bodies such as stars and black holes create distortions in the space-time continuum. These distortions are connected by breaches of space-time known as "subspace". In essence, subspace is an interstitial dimension, which connects one gravitational distortion to another.

Connections between massive bodies in subspace are formed by means of similar "resonance" frequencies between the two gravitic "nodes". The causes of this "resonance" cannot be fully explained without resorting to the esoteric extremes of Starstring Theory, but the practical result is that the distance between any two nodes in subspace is highly compressed, relative to the positions these two Nodes might occupy in ordinary space-time. A human vessel equipped with a Node drive can enter and leave subspace at will, and thus traverse the compressed distance between nodes very rapidly. When the vessel emerges from subspace again, it will have traversed a great distance in a short period of time,

thus effectively achieving super-luminal speed. This "faster-than-light" travel is possible between any two points, which are connected by a fracture line.

Chains of nodal connection between stars are sometimes referred to as "starstreams", a term coined by the first subspace traveler, Blasky Yao Hsiang. However, the phrase "starstream" can be somewhat misleading. Although the Node connections between stars do form a sort of chain, if plotted through ordinary space-time, a human ship traveling in subspace will not be crossing those regions of space as a physical object. The only evidence of the ship's passage in ordinary-space time is a series of gravitational pulses, which indicate the presence of the vessel in subspace. Although a sufficiently sensitive scanner might be able to determine the mass of human fleet in motion or the number of vessels traveling together, those vessels cannot be contacted or intercepted in ordinary space-time.

All forward and maneuvering thrust aboard a human vessel is otherwise created by simple mass-to-energy conversion, the principles of which are understood by all star-faring races.

Physical and Social Characteristics: Humans appear to have undergone several conflicting stages of evolution on their home world. Bipedal, they walk erect with a locking knee and a hip structure evolved to allow maximum elevation from the ground and minimum exposure of skin surface to direct radiation from their sun. This suggests a period of development in an arid, hot grassland region. However, the smooth, often hairless hide and subcutaneous fat of the human body would also suggest a "water" phase at some point during their evolution, when humans may have lived a partially aquatic existence. In any case, the resulting modern human is a curious beast; height in the adult human ranges from 100-200 centimeters, while mass ranges from 50-150 kilograms, and a variety of superficial differences can be observed in pigmentation. Since these differences constitute so little variation in DNA there is no practical difference between one "race" of humans and another.

Humans are divided into two sexes, male and female. There are some morphological differences between the two, but most other sentient species cannot tell the two human genders apart. (Since there are only minor differences in physical capacity and behavior between male and female humans, this seldom causes problems of more than a comedic variety.) The exception to this rule would be the Hivers, who seem to have a natural advantage in identifying male and female members of any species, perhaps due to their sensitivity to airborne estrogen. Hivers have been known to target females first in ship-to-ship boarding actions, which can have unpleasant psychological effects on human crews.

Humans tend to form family groupings based on a single breeding pair, one male, one female, and their offspring from current and past pairings. A human female can produce several offspring during the course of her breeding career, although gestation and birthing of human infants can often be fatal without proper medical support.

Recent History: Due to certain peculiarities of human physiology and psychology, life on the human home world became very unpleasant in the post-industrial age. The expected lifespan of the average human being was enormously increased due to advances in biology and medicine, but the breeding behavior of the majority of humans was not adjusted to take this into account. Many humans also refused to modify their industrial consumption and pollution.

Accordingly, from the beginning of the so-called "Industrial Revolution" onward, humans began very rapidly to both overpopulate and environmentally devastate their own home planet. Certain unfortunate distribution philosophies created a steadily growing number of humans

with little or no access to vital resources, while others remained wealthy, overfed and wasteful. The impoverished fringe population rapidly grew, despite the pressures of starvation, disease and environmental toxins on their proliferation, until they outnumbered the so-called elite of the "developed world" by a factor of ten. The resulting planetary wars and limited nuclear exchanges were even more gruesome and destructive than the effects of overpopulation and careless industrialization had been; a sizable percentage of the home-world's native species were lost, as well as roughly 70% of the human population.

During the Reconstruction Age, a philosophical shift was observed in the surviving population of humans. The newly emerging Consortium governments more easily signed armistices, environmental protection accords and peace agreements. War in general was no longer universally revered as the most valuable and noble of all human endeavors, as had often been the case in previous centuries. A tendency toward cooperation and mutual support was encouraged.

With the discovery of the Node drive, a motive for further cooperation among the various human Consortia was found, and the available resources of several governments were pooled to fund the research and development of the first interstellar space ship. Christened the Nova Maria, the ship made several successful Node jumps to and from nearby star systems before the first deep space colony was planned.

As the Nova Maria boarded its passengers for launch, intent on the first adventure of space colonization for the human species, tragedy struck. A Hiver nesting fleet, consisting of a dreadnaught and several support vessels, arrived in the human's home system. The planetary defenses of the human race, which had never before encountered another star-faring species, were negligible, and easily brushed aside by superior Hiver firepower. The Nova Maria was destroyed in the first volley with all hands lost, and the human home world was bombarded from space for 48 hours afterward, resulting in massive devastation and catastrophic loss of life.

Only the legacy of humankind's suicidal past eventually saved their home world from complete destruction. After nearly 36 hours of struggle, the curators of the planet's former ICBM arsenal finally managed to reactivate their remaining stock of ancient missiles, which had been stored for decommission in the silos of the North American and Asian continents. A total of 3,000 fission and fusion bombs were launched at the descending Hiver fleet, destroying its full complement of destroyers and causing serious damage to its dreadnaught.

Thereafter, the remains of Hiver fleet left orbit and limped on to parts presently unknown.

Rebuilding from this devastation has taken the human race several years. Although the human home world is now lightly populated and there is little pressure to expand, certain peculiarities of human psychology have re-emerged from their slumber. The human race has re-learned its historical taste for war, and SolForce (the united human military) never lacks for willing volunteers. Most human spacers have bitter memories of the Hiver attack, and are old enough to have lost friends and family in the fires, floods, and chaos that followed. Accordingly, although the official motto of their Space Corps is "Per Ardua Ad Astra"--"Through Hardship, the Stars"--the unofficial motto of humans in space is "Repensum est Canicula": "Payback is a Bitch".

***The Discovery of Subspace*:** The first subspace traveler, Blasky Yao Hsiang, was a solar physicist assigned to the Sol Prima research station. Early in the year 2371, Blasky was assigned to perform the first penetrating scan of Sol's deep core using an experimental high-energy resonance beam. One of the station's hardened research pods had been fitted with the ring-shaped scanning array; the pod was launched from the station with Blasky aboard to operate the controls, while the rest of the station's 18-man crew eagerly monitored their screens.

The moment that Blasky's scan was initiated, however, the tiny research bell disappeared from view, and was no longer detectable by any means available to the Sol Prima monitoring station. Fearing that the scientist had suffered a catastrophic equipment failure or lost power, the station quickly dispatched a rescue team to search for his bell and the precious scanning array, hoping to recover the man and his equipment before a decaying orbit could drop both into the sun's corona.

After several minutes of frantic scan-and-search, Sol Prima received a feeble signal from Blasky's pod. The scientist's calm voice was heard from a distance of over 800 million kilometers; in less than ten seconds, he had been miraculously transported from a close orbit of Sol to a close orbit around the nearby gas giant Jupiter.

For the next two hours, as his team of solar scientists desperately attempted to find some means of reaching and rescuing their comrade, Blasky made a series of burst transmissions to the nearby Storm Watch probe in Jupiter's orbit. The full-length recording of these transmissions is still played to first-year students of Node mechanics, and can be a highly emotional experience for those who have never heard them before. As Blasky's probe slowly descended into Jupiter's atmosphere, the scientist gave a highly detailed account of his experience in subspace, describing the gravitational "current" which seemed to pull him away from Sol's orbit with blinding speed. He expressed his regret in having expended so much fuel fighting this astounding gravimetric pull, and speculated that his pod might have traveled much further had he not engaged thrust to fight the current within the "starstream".

When Blasky could add no further detail to his description of subspace, he calculated the volume of fuel he had expended in resisting the gravitational flux, and the distance and direction he had traveled. His tentative conclusion was that the force acting upon his ship had been the gravitational pull of the nearby star Wolf 359; later experiments in subspace travel proved him correct, as Wolf 359 was the nearest node in Sol's subspace chain.

After carefully re-checking his data, including the level of energy he had used to initiate his solar scan, Blasky ejected his data core with the ship's tracking beacon attached. He died several minutes later in the crushing depths of Jupiter's liquid hydrogen sea. The amazing discovery and tragic death of this remarkable scientist became the planet-wide impetus for a return to manned space exploration; it was often argued in the months immediately following that the budget cuts which had forced ISA to place an unmanned probe in Jupiter's orbit, rather than a manned research facility, had cost Blasky Yao Hsiang his life.

Hiver

General Description: Human spacers call this species "Hivers" (or even more informally, "Bugs") because of their resemblance to the countless insect species found on Earth. Size notwithstanding, Hivers do have many features in common with terrestrial insects, especially when it comes to social organization and physical appearance. Nonetheless, they are a fully sentient space-faring race.

Hivers may be encountered in any part of the galaxy. The location of the Hiver home world is presently unknown. They are highly adaptable and able to thrive in a wide variety of environments, however; Hivers can colonize worlds which many other races would find inhospitable due to low gravity or atmospheric density.

Technology: Hivers move through space using a combination of slower-than-light and instantaneous-transport technology. A fleet of Hiver ships, driven by standard STL engines, begin by traveling a great distance the hard way: it may take them months or years, moving at sub-relativistic speed, to reach their destination. Once they arrive, however, the Hivers quickly set up a massive teleportation device. Should other Hiver ships choose to follow, they travel instantly the newly erected gate from any other gate in the Hiver empire.

Physical and Social Characteristics: Despite appearances, Hivers are not insects in the physical sense. They are much larger than any Terran insect, ranging from 40 to 250 kg in mass and 90 to 450 centimeters in height. They do have six limbs, but the upper four are equipped with opposable digits. Most Hivers have a pair of wings on the dorsal surface of their bodies, but these seem to be vestigial and useless for flight.

A Hiver's body is partially covered with chitin, but the shell is not an exo-skeleton. Hivers have an interior skeleton, a full array of internal organs and a circulatory system similar to that of a terrestrial bird or mammal. The chitin is not used for tissue support; it is adapted to serve them as armor. Some scientists speculate that the bright colors and patterns of a Hiver's body also convey a great deal of social information to other Hivers.

In space, Hivers tend to live and move in large family groups. All of the members of any given Hiver fleet are usually related to one another by birth.

The Hiver species is divided into three physical and social classes: the Worker, the Warrior, and the Breeder. All three classes are very different from one another, and might almost appear to be different species to the casual observer. A Worker bug looks, thinks and behaves so much differently than a Warrior or a Breeder bug that it is sometimes difficult to believe that all three bugs could have hatched from the same cluster of eggs!

Workers : Workers are the most common type of Hiver, making up around 70% of the species. The average height of a Hiver worker is 150 centimeters, and they generally mass around 70 kg. Worker bugs do not have sexual organs or any psychological quirks related to breeding, but they are intelligent, sensitive and curious, and as prone to be interested in art, science and culture as the average member of any other sentient species. Workers create the vast majority of Hiver art and literature, and they also make up the vast majority of Hivers engaged in scientific, technical and academic fields.

Workers can pursue almost any occupation in their society. They fill the ranks in all walks of life, from merchants and street-sweepers to architects, farmers and miners. Regardless of what profession they pursue, however, the efforts of any given Worker are always directed to one purpose: to strengthen, protect, unify or glorify its family, and serve the interests of its Mother.

Warriors : Warriors are the second most common type of Hiver, making up around 25% of the species. Of all Hivers, the Warriors have the largest variety, when it comes to superficial physical appearances. They can range from 50 centimeters to 250 centimeters in height, and may have super-light bodies or massive armored frames. They also sport a wide variety of chitin adaptations, including markings, which may be super-bright or subtle camouflage in any kind of terrain.

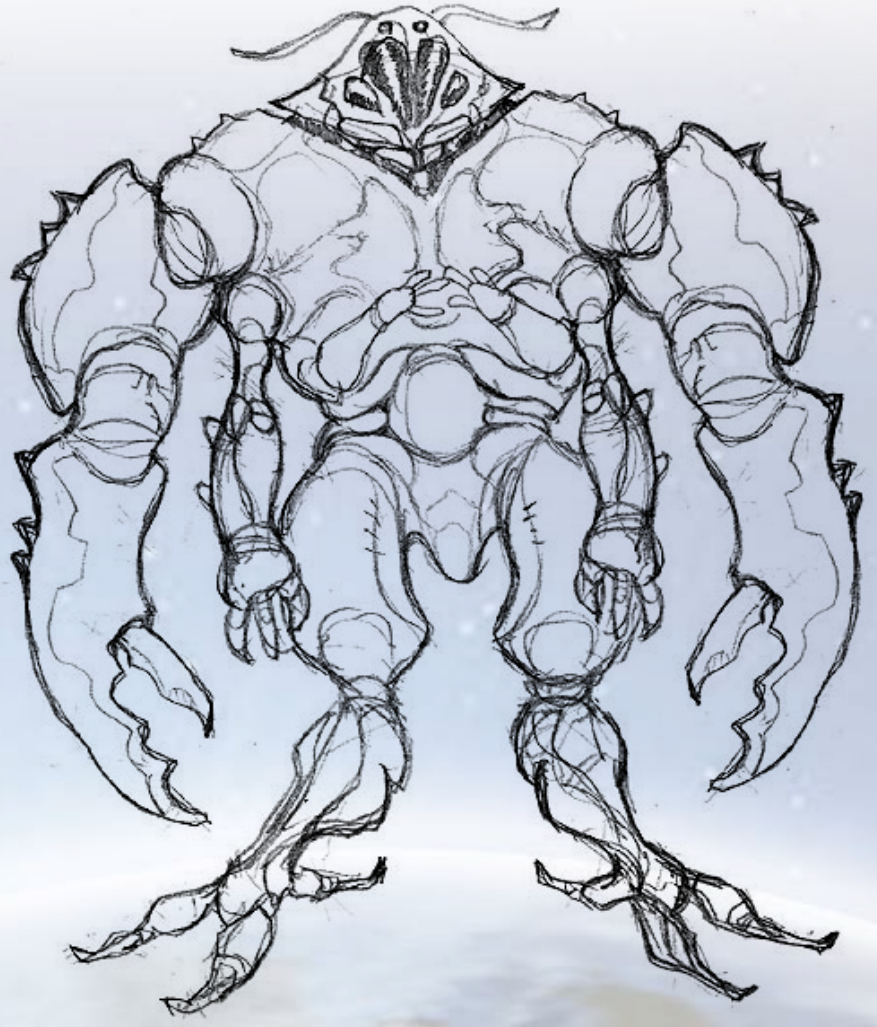
Warrior bugs are generally created to serve a specific function; they are tailored during gestation to perform a specific task as adults. Various features of the warrior are subject to change: size, strength, toughness and thickness of its shell, resistance to radiation and extremes of heat and cold. Some warriors are even adapted to be able to withstand vacuum, for limited periods of time.

Warriors are generally engaged in high-casualty professions. Deep-sea diving, mining, arctic exploration and toxic waste disposal are all generally handled by warrior bugs, as are other tasks involving similar levels of personal risk. Accordingly it is no accident that Warriors, although rare in Hiver society at large, make up a disproportionate percentage of personnel aboard space-faring vessels.

Warriors do not have sexual organs, but their bodies produce a powerful array of hormones, making them far more prone to aggression, ambition, and powerful mood swings. Their interactions are more insular than those of any other Hiver class; Warriors often form secret societies, join dueling academies or participate in athletic contests to channel their aggression. They tend to receive less formal education than Workers do, but far more vocational and martial training.

Like Workers, Warrior bugs are loyal to their families, but they are fanatically obedient to their Mothers. Aware from earliest childhood that they have been born to die for the Queen, and consider it their honor and privilege to do so.

Breeders : Within any given Hiver family, a small community of breeders-a female Hiver, or "princess", and her coterie of male "princes"-will rule over a large number of Warrior and Worker bugs.



Hiver Princess: The Princess of any given Hive is its absolute ruler and reason-for-being; her Workers and Warriors will be loyal to the death, and devote themselves to her welfare for the entirety of their lives. The Workers and Warriors of the Hive are simultaneously her children, her employees, her servants, her subjects and her zealous cult of personality. A Hiver princess is many times larger than a standard Hiver. Depending on her care and feeding, she can grow to a height of 400 centimeters and mass nearly 400 kg. Her wings and chitin are largely ornamental, and often will be cut or painted to enhance her natural beauty.

A Hiver princess can produce any number of Hiver eggs, especially if she has regular access to a male. The eggs she produces are largely generic when they leave her body; it is the care she gives them during infancy that determines their futures. Variations of light, heat and nutrition will produce a variety of changes in the developing Hiver, allowing its mother to not only determine whether the resulting offspring will be a worker, a warrior, or a breeder, but to assign it a number of other physical and mental characteristics.

The one thing a Hiver princess CANNOT do is reproduce herself. Although she can create any number of workers, warriors and male breeders, no princess can lay an egg which will develop into another princess. The power and privilege of birthing female Hivers is reserved for their High Queen-a nigh-mystical and legendary female Breeder who rules the entire species from the Hiver home-world.

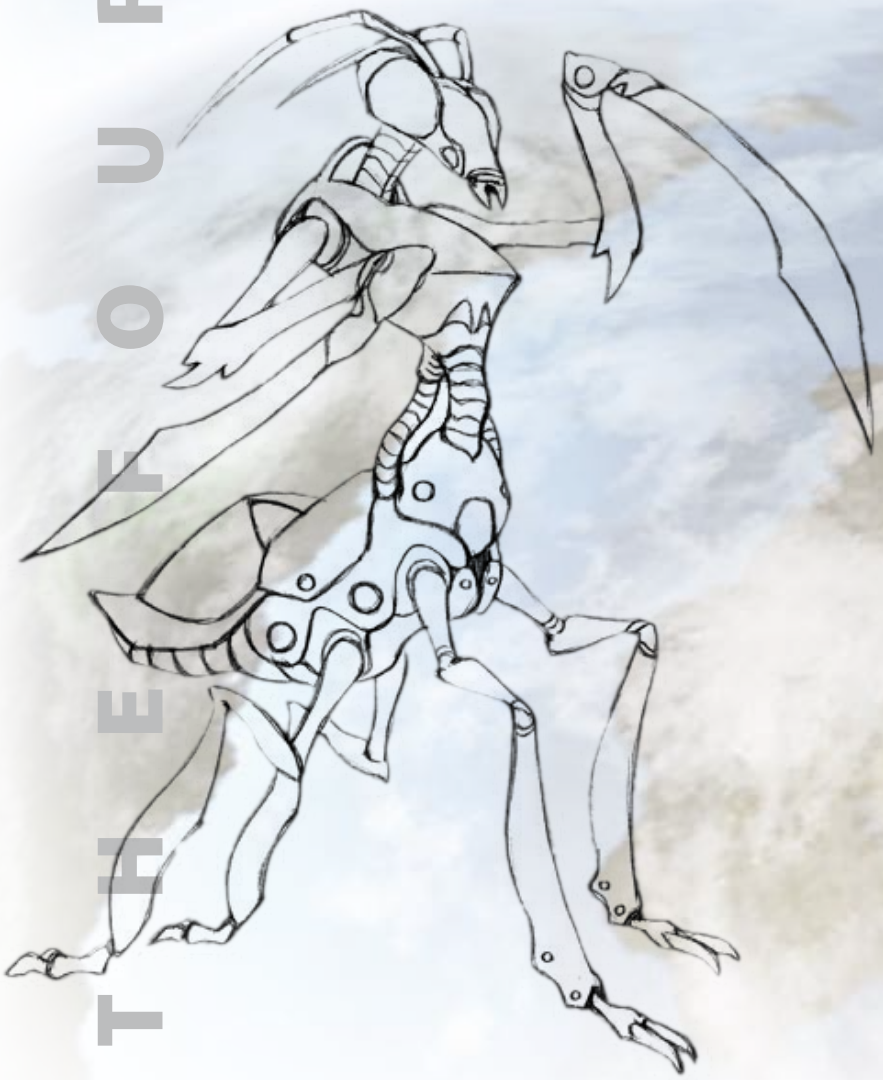
Hiver Prince: Hiver males are somewhat similar to their female counterparts, although they are smaller. They average around 350 centimeters in height and mass in the neighborhood of 250 kg. Physically speaking, they can recognized by their size, the extremely bright colors of

their chitin, the length and strength of their wings, and the sharp, Warrior-like projections on the second pair of limbs-the so-called "dueling blades".

Socially speaking, a male Breeder is essentially a free agent; unlike the warrior and worker bugs of his family, his devotion to any one hive is not strong. The reasons for this are obvious; a female Hiver generally seeks out males which are NOT her own sons, for breeding purposes. Although a Hiver Princess can reproduce with males hatched out her own eggs, if given no other option, this practice would quickly lead to stagnation, both socially and genetically, if it were common-place.

Breeder males, accordingly, are the only Hivers who are socially and psychologically capable of moving from one Hive to another at will. They are more self-interested than any other class of Hiver, with far weaker attachments to their mothers and families of origin than would be normal in a Worker or a Warrior. A prince's chief loyalty is to himself, his breeding partner, and the hive to whom he is a Father.

Highly competitive, career-oriented and motivated to succeed, Hiver princes seek out positions of authority and opportunities to lead, perform in public, or otherwise draw attention to themselves. A prince's ability to draw attention to himself and his achievements makes him a desirable mate, and puts a premium on his services.



Since heredity in a Hiver is based 60% on the contribution of the male, a Prince who is cunning, strong, gifted or beautiful can become a prize that many Hives will vie to win. Savage wars have been fought over the kidnapping or defection of a valuable Prince.

Hivers at War: Wars are common among Hivers. The Hiver military impulse is generally driven by population pressure or the urge for supremacy. Because each Hiver princess can produce countless offspring per year, the population of Hivers in any one place can spike very quickly, leading to intense competition for space and resources. A hive under pressure has one of two options: either they can cull their own population, or eliminate the competition.

Although there are more than 30 words for "suicide" in the Hiver language, many Hiver families choose to go on the warpath rather than institute any other population control measure. Wars of this kind are grim and brutal battles-to-death, in which the full time and resources of all Hive members are devoted to destroying the enemy Hive and its princess.

Occasionally an ambitious Hiver princess will take it into her head to become the High Queen of her species. The global wars of dominion in Hiver history are many, and some have assumed legendary status over time. The destruction and loss of life associated with a battle for the throne has often left the planet almost completely depopulated, with only a few exhausted clans left alive in the rubble.

Death Among the Hivers: Due to the quirks of Hiver physiology, death is not necessarily the end for any given Hiver's life. A great deal of short and long-term memory is stored in crystalline form in a Hiver's brain case, and these chemicals can be extracted intact for up to 72 hours after death. With the help of the princess, who passes these chemicals through her own digestive tract, the memory of the fallen Hiver can be injected into the thorax of a freshly laid egg. The result is a new-born Hiver which has many of the memories, skills and experiences of the Hiver who died.

This form of limited reincarnation is central to the spiritual beliefs of the Hiver population, who conceive of the Divine as a female Hiver, constantly devouring and renewing the universe. It is also very useful in preserving valuable skills, and giving Hivers access to information which would otherwise be lost. However, the practice has led to a few unfortunate incidents in which some Hivers which had been exposed to a lethal plague were carried back to the queen for renewal, resulting in a predictable disaster for the whole family.

Hiver Art: Due to the extremely strong emotional attachment that most Hivers have to their mothers, a great deal of their art, sculpture and literature is devoted to glorifying their mothers, extended families and ancestors. A great deal of their engineering and architecture is also based upon the female form, or on scenes vaguely remembered from the hatching period.

Hivers seem to find curvilinear shapes comforting and pleasing to the eye, and often design storage compartments and living quarters which remind them of the geometric egg chambers they slept in as infants. Buildings and ships are sometimes highly suggestive of a female Hiver's body, and may even be direct portraits of a given Princess.

Tarkas

General Description: The Tarkas are a reptilian species, sharing many outward physical characteristics with terrestrial lizards. Although their internal structures and highly evolved brains are very different from anything seen in the reptile species of Earth, their appearance has nonetheless earned them a variety of derogatory nicknames among human spacers, who commonly refer to them as "Lizards" or "Crocs".

Not much is known about the origins of the Tarka, but scientists have speculated that their species must have evolved in a dense arboreal environment, because they have retained many features we still associate with tree-dwelling species. They can live in a variety of gravities and temperature zones, but they seem to prefer warmer worlds for their large colonies.

Their culture is very ancient and has been remarkably stable in the long term, allowing for hundreds of thousands of years of recorded history and over five hundred years as a space-faring race.

Technology: Tarka ship schematics and weapon systems fall within standard parameters. The Tarkasian Warp Drive, however, is a unique technological achievement; no other species has mastered this technique of faster-than-light travel, and the secrets of the Tarkasian warp engine are jealously guarded.

The basic principle at work in the Tarkasian faster-than-light system appears to be the generation of a warp "field" -- an envelope of force, which surrounds the body of a Tarkasian ship. While within this envelope, the ship is essentially a non-event in space-time, having very limited interaction with the standard four dimensions of the Continuum. Once the warp engine of a Tarkasian ship is fired, the normal physical laws governing mass, energy and acceleration no longer apply to that ship. Accordingly, a Tarkasian vessel can achieve superluminal speeds and travel at these speeds for any distance, its range limited only by the available fuel for thrust and by the available power for the generation of the warp envelope.

Physical and Social Characteristics: The external characteristics of the Tarka race point toward an origin among the reptiles, but they are as far removed from their lizard-like ancestors as humans are from the tree shrews from which they evolved. Tarkas have a coat of scales over their bodies, the patterns and thickness of which vary with the individual--although males traditionally have thicker and tougher scales than females, especially as they grow older. Tarkas also have three sets of eyelids and claw-like nails on both fingers and feet, which can become quite thick and sharp if they are allowed to grow.

Tarkas have five digits and an opposable thumb on their hands, and their feet are also prehensile. Their tails are muscular, shorter in the male than the female, and capable of manipulating objects and striking with significant force. It is standard practice for a Tarkasian martial artist to use his or her tail in combat.

Internally, Tarkas bear little resemblance to terrestrial reptiles. They have a very large and complex brain, warm blood and an advanced circulatory system. A Tarka's heart has five chambers: four are engaged in standard respiration, and one is activated by the Tarka's adrenal system. This auxiliary chamber rapidly flutters when a Tarka's fight-or-flight reflexes are engaged, pumping a complex stew of chemicals and stimulants into the bloodstream. These act on all aspects of Tarka physiology, doubling or trebling the speed at which nervous impulses are transmitted, greatly dampening the feedback associated with pain or injury, profoundly affecting brain function, and flooding the body with blood and hormones. The resulting battle fury is legendary, and renders an adult Tarka extremely dangerous when "the little drum is beating".

Tarkas are omnivorous, able to consume and digest a wide variety of plant and animal foodstuffs. They enjoy a natural lifespan of about 100 years, barring injury or disease. Tarkas have two genders and a standard mode of sexual reproduction; an adult female Tarka produces an unfertilized proto-egg within her body at standard intervals, and if a male does not fertilize this egg, it passes from her body and she disposes of it (see Sidebar: A Lady's Favor). Fertilization of Tarka eggs occurs in utero, and once fertilized the egg will remain within its mother's body for several weeks, forming an extremely dense mass of compressed nutrients and a tough, thick leathery outer skin. Thereafter, the egg passes from the female's body and begins an independent cycle of growth. If tended properly, the infant will hatch from its egg in approximately 18-24 months.

Tarka females average 120-180 centimeters in height and weigh from 60-100 kilograms. They reach their full adult size within 20 years of hatching and maintain roughly the same dimensions throughout their lives. Tarka males, by contrast, can go through two distinct phases of growth and development: the standard development from egg to adult which their female counterparts undergo, and a second stage of maturity which begins later, triggered by a special dietary regime. Tarkas refer to this secondary growth cycle as "the Change".

Not all Tarka males will undergo the Change; in fact, it is estimated that only one in a thousand Tarka males ever reaches this phase of development. When the Change occurs, however, a male Tarka undergoes a profound physical and psychological transformation, which affects every aspect of his life.

The production of sex hormones in his body increases, which causes him to develop a broad spectrum of sexual traits. Firstly, he becomes fertile: although he has been able to perform as a sexual being from early adolescence, it is not until the Change that he begins producing viable sperm and becomes capable of fertilizing an egg. Along with this primary change in his reproductive capacity, he also develops a host of secondary sexual characteristics, which signal his availability to females and enable him to compete vigorously for mates.

His physical size increases enormously; he may grow up to 50 additional centimeters in height and his mass is likely to double -- some senior males may weigh in at 200 kilograms or more. His vocal chords thicken and his voice becomes louder, deeper and more resonant. The coloring, arrangement and thickness of his scales will change radically, often forming entirely new marking patterns. His personality is substantially altered as well; in general he becomes much more aggressive, extroverted, ambitious, and prone to intense emotional outbursts and moodswings.

The pheromones that a mature male exudes have a variety of psychological effects on other Tarkas. Younger males, who have not undergone the Change, seem to find their senior counterparts extremely magnetic; they are docile and cooperative toward seniors, and easily influenced by their charismatic leadership. By contrast, other senior males become immediately hostile and competitive toward a male of their own stature, reacting automatically to every signal of maturity with anger. The rival's voice, coloring, bearing and attitudes will be found offensive at an almost cellular level, and if the two are brought within range of one another's pheromonal signatures, this effect increases many fold. Put two senior males into one room and a physical altercation is almost sure to result.

Females Tarkas, by contrast, have a less intense emotional reaction toward senior males. Although they find seniors personally, professionally and sexually attractive, they do not mirror the docility of their young male counterparts. Culturally speaking, female Tarkas tend to view all male Tarkas, both young and old, with a certain amount of prejudice, regarding them as emotionally unstable and prone to poor judgment. However, the ability of a senior male Tarka to command and control his juniors is often very useful in politics, in the military and in business affairs; most female Tarkas are inclined to harness and direct this power rather than suppress it.

Tarka society is extremely stratified, with many castes and many tiers of hierarchy in every walk of life. Reproductive viability for Tarka males is a privilege with a high premium, and a prize, which every junior male desires. Unfortunately, achieving the Change is often difficult for Tarka males who have not been born into a family with great wealth and power; reproductive viability carries a high premium, and many females must cooperate in order to raise one male to full maturity. Accordingly, males who cannot buy their way into this favored state must earn it, and are highly motivated to do so through success in their careers .

Male Tarkas are discriminated against in the majority of educated professions, and are unlikely to rise high in any field which does not involve a great deal of creative passion, personal risk, or violence. Although they are not forbidden to become diplomats, scientists, technicians or academics, they are subjected to a great deal of sexual prejudice and it is difficult for them to be taken seriously by their entrenched female counterparts. By contrast, a sizable majority of Tarkas in high-risk physical pursuits are male -- common soldiers, firefighters, pilots, spacers, miners, etc. -- and the same is true of many creative and artistic fields, where the stereotype of the impassioned male Tarka is not considered a drawback.

A Lady's Favor: The rarity of senior males among the Tarka population was a subject of some interest to human biologists, who for many years could not understand the process by which an average Tarka male could become a senior. For years after first contact, these questions remained unanswered: why did so few Tarka males ever achieve the Change? And of those who did, why did some undergo the Change so early in life, while others waited literally decades longer to go through the same physical process? If the Change was a random event, visited on only a tiny percentage of the male population, then why was it so common in members of the highest castes, and less often achieved by lower caste Tarkas? Was the caste system based on a genetic tendency to produce more viable males? And if this was so, why were male Tarkas from humbler origins able to achieve the Change so readily after they had made some noteworthy contribution to society? Was there some correlation between the social recognition these Tarkas achieved and the production of male sex hormones?

Due to the social taboos surrounding the open discussion of the Change and its triggering mechanism, it took years to find the answers to these questions. The key to understanding was finally discovered not in the laboratory, but in the library; the answer was revealed when our linguists were finally able to translate the Tarka gutter dialects. A great wealth of pornographic literature had been written in these lower-caste languages over thousands of years, and a sizable majority of the fantasy scenarios in Tarka pornography are directly concerned with the Change -- and its aftermath, of course.

The mechanism by which Tarka males achieve the Change is simple: they must eat the unfertilized eggs of Tarka females. Because these eggs are her personal and highly sacred property, and because all Tarka females are aware of the prize that their eggs represent, no female will relinquish an egg to a male without reason. If she does not have a worthy male available at the end of her egg cycle, a female Tarka will simply eat the egg herself. The act of giving an egg to a male as a reward for his achievements, or for services rendered, is sometimes referred to in more civilized circles, but always obliquely. The act carries a delicately euphemistic name: "Shal mek Tot", or "the Lady's Favor".

No data is available on how many eggs a male Tarka must consume in order to trigger the Change; there is some evidence that the onset of the Change may vary with the individual. However, it is obvious that a single egg, or even several, is not sufficient to trigger the transformation; it seems far more likely that the Change is brought on by a fairly steady diet of eggs over a significant period of time. It is also apparent that when a male Tarka consumes even a single unfertilized egg, the broth of fertility chemicals consumed has an immediate, powerful effect on his body and mind. All authors willing to discuss the subject describe the consumption of the egg as an ecstatic, almost psychedelic experience -- imminently desirable even if it does not lead immediately to the onset of maturity.

Once the mechanism of the Change was revealed, the behavior of lower-caste and less affluent Tarka males was far more easily understood. Their lives can be seen as a never-ending quest for reproductive viability, and all the privileges that go with it; their willingness to accept great personal risk is balanced by what they perceive as the possibility of great personal gain. Achieving the Change is an important goal for any male Tarka, but only one in a thousand is ever able to become a father; under the circumstances, male Tarkas who are not born into wealth and power are extremely motivated to prove their worth to the females that surround them, and to achieve as much wealth and status as possible.

Primary Education Among the Tarkas: Tarkas remain in the egg phase of development for a long time; the infant Tarka gestates within a protective shell for a period of almost two years between fertilization and hatching. During a substantial portion of this gestation period, the Tarka infant within the egg is self-aware and alert to its environment, responsive to stimuli and communicative with the outside world.

Because the Tarka infant is sensitive and aware during this prolonged period of confinement, the care and stimulation of egg-bound Tarka is considered very important. Accordingly, "incubation academies" and ovatariums are a long-standing tradition in Tarka society. Most fertilized eggs are handed over to an ovatarium within a few weeks of being laid.

The regimen provided by any given ovatarium will vary according to the professional and caste affiliations of the parents, as well as their financial and social positions. Certain prestigious "incubation academies" are reserved for the eggs of the highest-ranking and wealthiest Tarkas, while others are considered very desirable for those with military service, academic excellence or artistic achievement in their futures. There are often long waiting lists for the most exclusive ovatariums, and many secondary education programs will not accept candidates who have not been gestated in an ovatarium of the appropriate standing.

In any ovatarium, trained professionals attend to the physical needs of the egg, turning it often and maintaining the proper course of heat and light. The developing hatchling is also provided with a great deal of intellectual and social stimulation, however; Tarka hatchlings are able to perceive light and movement through the shell casing, which becomes increasingly translucent as they grow, and they can also hear a full range of sounds. Primary education during the egg phase includes a wide variety of interactive games, songs, stories, conversations and exercises, with developing eggs in contact both with their adult caregivers and with other infants in nearby eggs. Occasional visits by the parents are usually encouraged, and the parents return to claim their offspring during the Hatching Ceremony, a ritualized "graduation" event which marks the Tarka's emergence into the world and his or her exit from the safety and security of the egg.

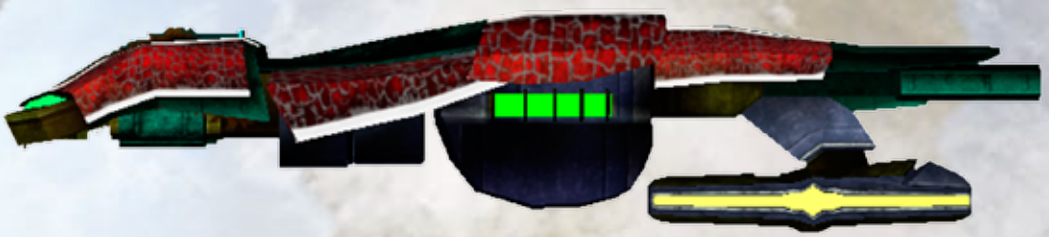
Although they cannot respond verbally to their caregivers during gestation, most Tarka hatchlings respond to stimuli by knocking on the shell from within. Ovatarium workers throughout history have taught infant Tarkas to use this form of communication, and over many thousands of years this Morse-like "Egg Knock" code has become a language in and of itself. The Egg Knock Code is, in fact, the only language which is universal to all Tarkas, who otherwise speak a wide variety of planetary, regional, and caste dialects as adults. Accordingly, the EKC is commonly used in the faster-than-light communications throughout the Tarkasian empire, as it contains a vocabulary of approximately 4,000 words and can be roughly understood and translated by every member of the species.

Life in the Tarka Fleet: The Tarka military hierarchy is unusual in Tarka society, in that the vast majority of soldiers, pilots and fleet officers are male Tarkas, while the majority of commissioned officers and graduates from the elite military academies are female. Within the operating fleet, this leads to a dynamic whereby almost 90% of all commissioned officers are females. A single female or a small, tightly-knit cadre of females is often in charge of an entire crew of "immature" Tarka males, who are highly motivated both personally and professionally to distinguish themselves in combat.

As an example, the typical crew manifest of a Tarkasian destroyer would include a female officer carrying a rank of captain, a pair of immature males at the helm and navigation/communication posts, a female technical officer in the engine room, and four to six male gunners. On a larger vessel, the technical officer would have several younger males under her command, and possibly a junior female engineer; the command staff on the bridge would include the female commander and a small cadre of junior officers who were either less experienced females or male NCO's who had risen in rank due to distinguished service. By contrast, authority positions outside of the command deck or the drive room are far more likely to be occupied by experienced male officers than by female; it is rare for a female Tarka to acquire the experience necessary to become a gunnery sergeant, for example.

This hierarchy of Tarkas in sex-based positions of authority produces highly effective combat units, so long as the officers are always present to keep their men under control and working together. The officers aboard any ship are highly prized for this reason; the command module of any Tarkasian vessel will be more heavily armored than any other part of the ship. Protecting their command staff is not only desirable for personal and social reasons, to the junior male crew; it also helps to avoid the inevitable chaos, which results when a typical Tarkasian crew complement is left to its own devices. Junior males without leadership are rarely able to establish a clear chain of command.

This system of organization would have a tendency to break down if senior males were not available in the higher ranks of fleet command, of course. Senior males are accordingly promoted for distinguished service, and serve a necessary function when it's necessary to group larger numbers of ships and personnel. Ergo, while the vast majority of commissioned officers below a rank of colonel are females, the highest-ranking officer on the line in any given battle group will almost always be a senior male. In combat, a senior commands quick and absolute obedience: his image and the sound of his voice are sufficient to keep several ships organized and acting on his orders.



The Liir

General Description: The Liir are an air-breathing aquatic species, and bear a strong resemblance to the extinct cetaceans of Old Earth. They are the result of a long-term process of environmental change: an ice age lasting millions of years initially allowed for the development of mammalian species on the isolated tropical islands and huge ice shields of their home world, but eventually an extended warming period resulted in a planet with less than 10% of its surface above water. The vast majority of land-dwelling species returned to the sea-including the early ancestors of the Liir.

The Liir have not been a star-faring species for long. Up until 150 years ago, the Liir were a peaceful race with limited technology. Various agrarian and nomadic cultures operated within the rich waters of their home world, and war was virtually unknown to them. Although they had not developed far in the sciences of architecture or ballistics, some Liir societies were extremely advanced in bio-engineering, aquatic horticulture, volcanic engineering and metallurgy.

The Liir were conquered and enslaved by another star-faring race, whom they learned to call the Suul-ka. The Suul-ka established several lucrative industries on Muur, the Liirian homeworld, and force-marched the Liirians through the Industrial Revolution by employing them as slaves in mines, factories and manufacturing facilities.

After several decades of abuse, realizing that the greed and rapacity of the Suul-ka would destroy the aquatic environment of their home world completely, the Liir rebelled against their alien masters. The war was remarkably bloody in its early stages, but finally ended when the Liir unleashed a bio-weapon tailored to Suul-ka physiology on Muur. It is impossible at this point to say what agent the Liir may have used, or what vectors it followed. We only know that the resulting disease was so virulent and lethal that it appears to have quickly spread beyond the colony and completely eradicated the Suul-ka, at least from that sector of space.

The current state of Liirian technology is a result of their successful rebellion. The former slaves of the Suul-ka quickly absorbed the abandoned technology of their masters, and have adapted the old drives, guns and orbital elevators to their own use. Driven by natural curiosity and the desire to preempt any further assaults from the stars, the Liir have now begun exploring space.

Technology: Liirian ships of the line have a very high mass-to-size ratio, as their ships must be filled with a super-oxygenated liquid medium to allow the Liir to breathe and move freely. Fortunately, the unusual system of propulsion employed by the Liirian fleet allows them to compensate for the colossal mass of their vessels.

The Liir use an inertia-less "stutter" drive, which moves through space by teleporting the entire ship in tiny spatial increments of a millimeter or so. The implications of this drive system are many: for example, a Liirian ship does not use thrust to accelerate, decelerate or maneuver. It also allows for the mass of a Liirian ship to be a non-issue, as the ship never develops the inertia of a body in motion; it simply changes its space-time coordinates.

The "speed" of a Liirian vessel is determined by the number of teleports per second its engine can perform. It is not difficult for the Liir to achieve relativistic speeds in open space, but the stutter drive has a distinct disadvantage when operating in a gravity well. Any object massive enough to cause a large space-time distortion - be it a planet, star or black hole - can severely slow the movement of a Liirian ship.

Physical and Social Characteristics: The Liir are an unusual species in more ways than one. Their bodies are sleek and dynamic, allowing for fast movement in water. Although they appear completely smooth, their skins are in fact coated with a layer of dense, fine fur, patterns and colors of which will vary with the individual. They bear live young, and all members of the species are hermaphroditic, possessing both male and female sex organs. The majority of Liir are capable of both fertilizing as a male or bearing young as a female, but only the very oldest Liir can do both at once-it is normally impossible for a Liir to impregnate as a male while carrying an offspring itself.

A newborn Liir is very small, less than half a meter in length and weighing only 8-10 kilograms. By the time they reach the age of majority, after a period of roughly fifty years, a standard Liir will be around 3 meters long and weigh approximate 120 kilograms. There seems to be no natural end to the potential life span of any given Liir, and throughout their lives the Liir never stop growing: some observers have reported sightings of elder Liir over 60 meters long, massing many tons.

The most unusual feature of the Liirian race is not the shape of their bodies, however, but the power of their minds. Liir do not have opposable digits, tentacles, or any other physical means of manipulating objects; they employ a limited form of telekinesis instead. A deft Liir can use several tools at once, and can often operate many simple machines simultaneously. With some concentration, they can also hurl objects with astonishing force, and the spear was a traditional hunting weapon among the Liir for many centuries.

Although they have large, light-sensitive eyes, the frequency range of Liirian vision is limited. They have a very refined sense of taste and a sophisticated array of sound-producing and sound-receiving equipment, however, which more than compensate for the lack of sight. Liirian echo-location is good enough to allow Liir to draw very sophisticated schematics of any machine or device simply by "singing" to it and reading the sound waves that bounce back.

The Liir communicate largely by telepathic means, although they do have some very rudimentary sound-signals that convey strong but simple emotions-being startled, amused, frightened, angry, etc.

The Liirian Art of War: Culturally speaking, the Liir have a strong pacifistic streak and are inclined to avoid violence. Up until recently, the very notion of "war" was unknown to them; they do not war among themselves, historically, and had some difficulty grasping concepts like "conquest", or understanding why such a thing would be desirable.

Because of their empathic and telepathic abilities, the Liir are always keenly aware of the sufferings of others, and they take no joy in causing pain, fear or anger. They revere life and harmony, and abhor needless death or destruction. Nonetheless, they also value their own lives, and over the past two centuries they have come to embrace survival as a necessary virtue.

The Liir are extremely curious and quick to learn, and have made astounding strides with technology of various kinds in a very short period of time. They are masters of back engineering; the combination of telekinetic tool-use and their ability to form three-dimensional schematics of any machine without having to disassemble it have proven to be powerful advantages. And although most of the weapons in their arsenal are easily recognizable, the unique character of their species does tend to show in their battle tactics.

Liir have a tendency to encircle their enemies, forming an attack ring to assault the target from several sides at once; this is analogous to the standard treatment of predator species on their home world, which are dispatched in a similar fashion. Liir will always target an enemy's engines if possible, not only to spare the lives of the crew but to preserve any useful technology or data that might be gleaned from the undamaged remains of the ship. Their reverence for life has given them a strong aversion for high-explosive weapons, and they dislike the indiscriminate bombardment of planets. When Liir attack, they strike with surgical precision.

Old Age Among the Liir: Liir achieve "Elder" status after having lived for more than three hundred years. At this point, they are over 5 meters in length and usually weigh well over 200 kilograms. Liir who have reached this venerable age generally retire from any profession which might put them personally at risk, and adopt a monastic lifestyle. In general, their days are spent contemplating the mysteries of the universe, composing songs and poems, maintaining the oral tradition of the species, and instructing the young in matters of ethics, morality and proper conduct as a sentient being. No Liirian philosopher is taken seriously before the age of 400.

Any given Elder will usually be surrounded by a cloud of younger Liir, who listen to the songs, ask questions, and telepathically explore the complexities and subtleties of the Elder's mind. This period of "swimming alongside" is considered a vitally necessary part of any young person's education. The aged are highly revered in all Liirian subcultures, and younger Liir will gladly sacrifice their own lives or embrace great personal risk to protect an Elder from any possible harm. Their ancestors are living treasures in their eyes. A sizable number of Liir spacers regard their service as a duty to the species, and volunteer to "scout the black sea" in order to protect the Elders who must remain behind on Muur.

Songs of the Liir: In recent years, a revolution of thought and communication has occurred among the Liir. Up until very recently, the Liir had only limited notions of spoken language. For eons, vocalizations existed only to aid in perception, convey emotion, or for aesthetic appreciation: a traditional Liirian "song" is an artform which has the character of both music and painting. The "words" or "lyrics" of the ancient songs are received telepathically by the audience.

The challenge of commanding and controlling a fleet of starships, however, has forced the Liir to develop new modes of communication. A new class of Liirian "singers" has recently emerged, and they now sing an entirely new type of song. These Liir can now shape sequences of gross physical sounds which are meant to be broadcast by mechanical means-and can be heard at far greater distances than even the strongest telepathic shout can travel.

Once they had developed the concept of "fleet-song", and created a code of physical sounds which were analogous to concepts and strings of ideas which would normally be spoken telepathically, the Liir were easily able to grasp the concept of spoken language among other, non-telepathic species. Since most of the species they come in contact with do not possess even the most rudimentary telepathy, they began to assemble a cadre of Liirian specialists who would dedicate their lives to learning the "fleet-songs" of other species. These specially-trained linguists communicate verbally with other species, and develop software to translate any spoken language into Liirian fleet-song.

There was no traditional word for such a profession among the Liir, but they have invented a new title for the job. Members of the diplomatic corps are now called "Singers to the Deaf."