

TERRAN TRADE AUTHORITY HANDBOOK

STARLINERS

Commercial spacetravel in 2200 AD

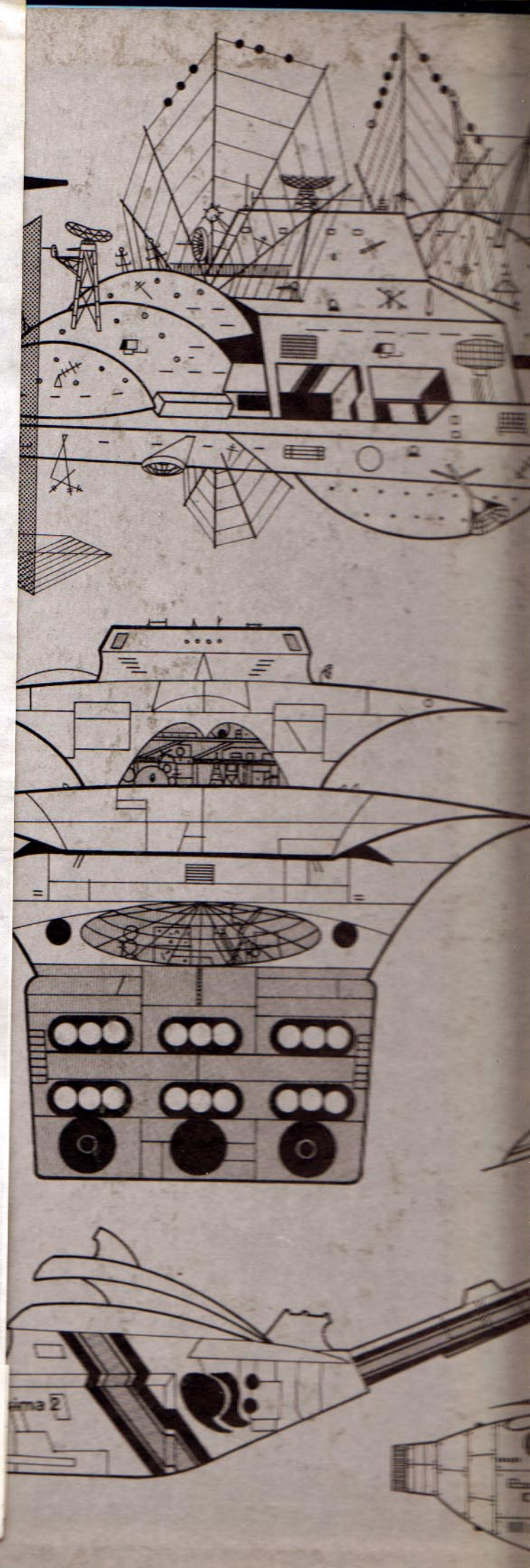
Stewart Cowley

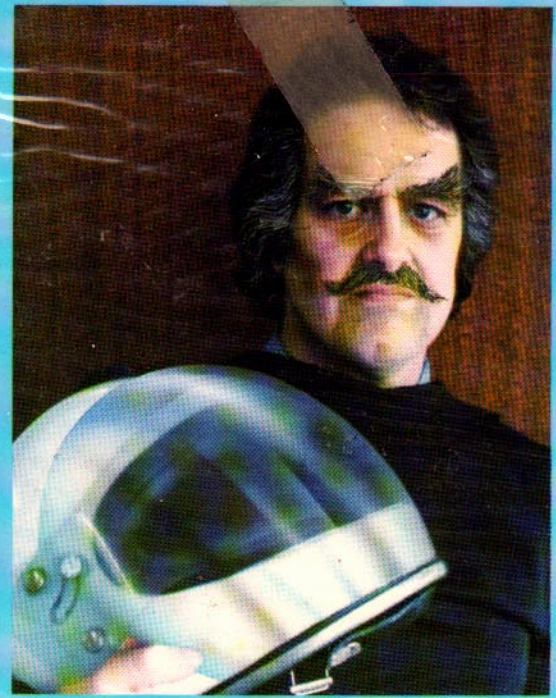
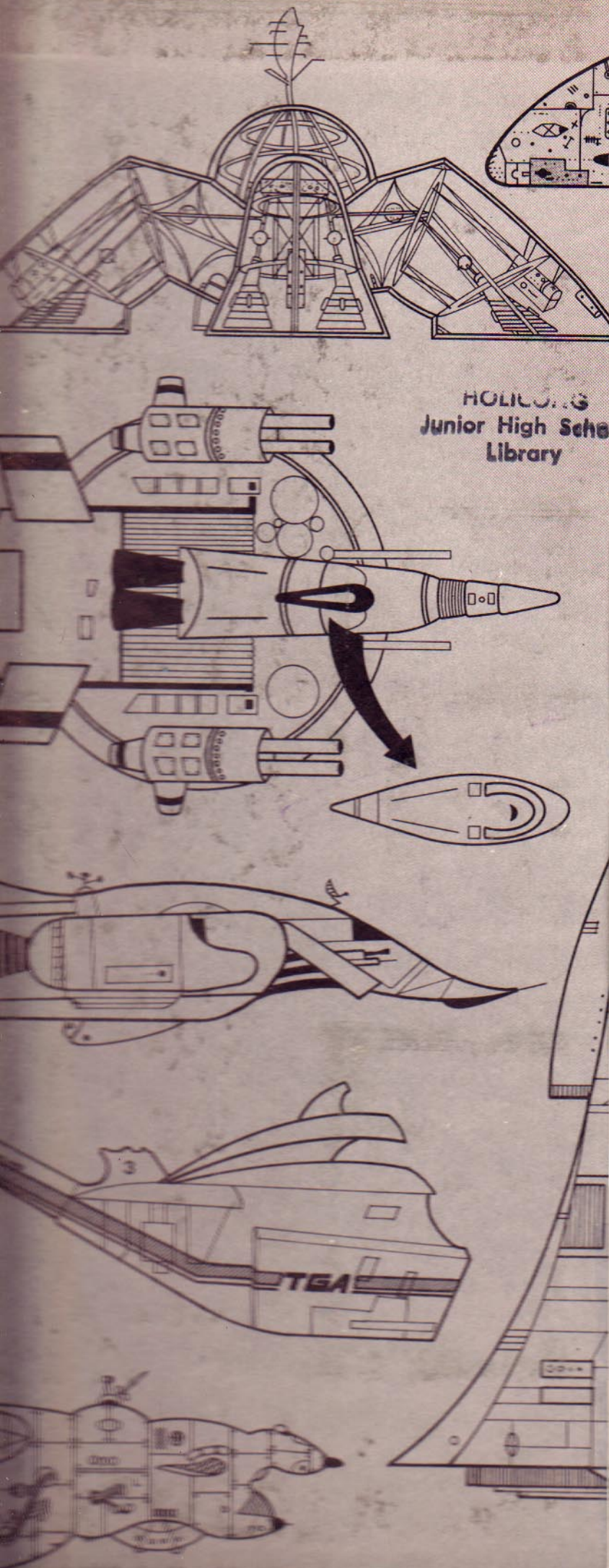


STARLINERS

It is the twenty-third century and the territories of the Terran Federation stretch deep into the spiral arm of the Galaxy. Hundreds of solar systems lie within its perimeter and scores of inhabited worlds contribute towards the interstellar economy. A complex web of clearly defined spacelanes links the various members of the Federation and a host of vessels, from freighters and passenger liners to the patrol craft of the Federal Security Service, voyage across the vast reaches of darkness that separate the occupied systems.

Starliners is a comprehensive, illustrated guide to the monarchs of the spaceways; the huge and luxurious vessels operated by the great spacelines. It not only describes the ships themselves but also examines the individual histories of the companies that laid the foundations for interstellar expansion, and provides an exciting glimpse of the strange and distant worlds that lie among the stars.





As Information Officer for the TTA, Terran Defence Commander Stewart Cowley spends a considerable amount of time travelling on many of the Federation's spacelines in the course of his work. The number and variety of companies and craft has led him to produce this guide to the spacelines most likely to be encountered by the average traveller.

He continues to add to his considerable collection of synthetic macaroni models and, in producing a duplicate collection more quickly than in his previous best time, has been awarded the distinction of being a 'faster plaster pasta master'.

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 Spacecraft 2000-2100 AD
 Great Space Battles
 Spacewreck
 Starliners

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STARLINERS

Commercial spacetravel in 2200 AD

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STARLINERS

Commercial spacetravel in 2200 AD

Stewart Cowley

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*The times
I didn't do
much work*

**And to Kim, my love.
The greatest gift a girl could ever hope
for is a dedication in a scanned
book about spaceships.
- ARRAKIS**

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Introduction

For those who have been fortunate enough to have travelled beyond their own planetary atmospheres, there are few experiences more fascinating than the swift transition from familiar surroundings, through the empty, endless vacuum of space, to cultures and environments entirely alien to their own. Any commercial spaceflight, whether a leap to another star system or a short-haul interplanetary run, is a unique experience—from the moment of arrival at one of the highly automated surface terminals to the slow climb through the atmospheric envelope and the unsettling sensations of the Hyper-drive jump that will hurl them through the very fabric of space at several times the speed of light.

For the inexperienced voyager, the field of commercial spaceflight is one of bewildering complexity and infinite variety. Although civil traffic flowing within the perimeters of the Federation is strictly controlled and administrated by the Commercial Travel Institute of the Terran Trade Authority, each licenced company reflects the individual cultures from which it is derived.

Provided that they conform to the statutory regulations, the ships and services of each national spaceline represent a broad and varied spectrum of tastes and technologies, often providing an intimate glimpse of the various species and civilizations existing within the Federation's boundaries. Every

spaceport acts as an interstellar meeting point for cultures that may have little else in common with each other. The pads of the larger termini are a kalaidoscope of colours and shapes as craft from every corner of known space settle on the blast-stained aprons to disgorge their cargoes.

The story of civil spaceflight encompasses some of the greatest milestones of achievement for the species that have contributed to its development. Although certain races whose origins lie far from the Federation's hub had achieved spaceflight and operated isolated and local commercial routes independently, it is significant that the TTA was one of the single most important factors in the evolution of interstellar travel and is inextricably bound up with its history.

The first passenger flight was that made by Avery Astronautic's Martian Queen in early 2015 when its primitive Meteor thrust engines lifted it from the tarmac of Miami Spaceport on Earth and sent it on its way to the mining camps of Mars with the first load of fare-paying passengers. From that epic and somewhat uncomfortable voyage grew a vast web of commercial services that spans the length and breadth of known space and links together all the widely dispersed members of our galactic association.

Within a few short years the people of the Sol System had

succeeded in bridging the black gulf that lies between the stars and had made contact with the inhabitants of Alpha and Proxima Centauri.

Though our first association was less than happy and resulted in the costly setback of the Proxima Wars, time and our mutual interest in the regions beyond our respective stellar systems led to a rewarding degree of co-operation and mutual advancement. Characteristically, it was commercial spaceflight that made the most significant contribution to the process of exploration and consolidation.

For the next sixty or seventy years the spacelanes were dominated by the Interstellar Queen also built by Avery under licence to the TTA. This basic design stands as a classic and in its various forms was operational for longer than any other craft in the history of commercial spaceflight. Her contribution to the development of the Federation is incalculable and even today some examples which have been converted to medium capacity freighters are still operated by private traders in the Perimeter Territories.

Her successor was the elegant and much larger Starblade built by the nationalized shipbuilders of Alpha Centauri. This sophisticated vessel was in service from 2096 to about 2130 when competition from the growing civil ship-building industries of the outer worlds rendered her obsolete. The

expansion of individual development programmes within the Federation rang the death-knell for the great single design production processes which could be supplied to all independent spacelines. Although many mourn the passing of these classic craft, they were replaced by a fascinating variety of locally constructed ships.

The Federation's principal manufacturers are still found on Earth and in the Alpha Centauri system but they face increasing competition from the many smaller yards scattered among the member systems, and the attempt to produce a multitude of designs to suit a broad variety of tastes and requirements has destroyed much of the overall identity shared by earlier craft coming from the slips of a major manufacturer. As a result, it is much more difficult for the amateur observer to identify the homeworld of each ship he sees.

Like the ships, the experience of interstellar flight has also changed significantly over the passing years. Gone are the days when buying a ticket meant applying well in advance and undergoing the physical checks necessary to satisfy the authorities that the passenger would survive the rigours of a long distance flight. Even with the introduction of Hyper-drive, journeys meant long and tedious periods of confinement aboard ship for all those travelling to the mid-region or outer worlds, although the discomfort did little to hinder the dramatic expansion of holiday traffic which began during the later part of the twenty-second century.

At first it was only those with ample resources and surplus time who could take advantage of the rapid growth in the number of routes and services to see at first hand the alien and exotic planets described in telefax broadcasts. As services improved and increased demand brought fare reductions, more and more beings were able to consider trips into the heart of the Federation for pleasure and recreation alone. The introduction of STUD (Space/Time Ultra-Drive) and its adoption by all the independent spacelines brought spacetravel within the reach

of a massive new clientele, for journeys that would previously have taken weeks or even months in a Hyperdriven vessel now took a matter of days. A liner could travel within a sphere of two-thirds of the Federation in no more than two weeks and fares reflected the astonishing reduction in journey time and associated operating costs. The age of inexpensive, fast spacetravel had truly arrived.

The STUD system, like the Hyperdrive process, is essentially a device for controlled distortion of the Space/Time continuum. But whereas the latter operated by piercing a 'hole' in the fabric of space by which the ship entered sub-space (where time-values, and hence speeds, were subject to very different physical laws), the STUD system actually distorted the structure of 'normal' space and folded it up to meet the ship carrying the distortion unit. As soon as the co-ordinates in the flight computer matched those of the destination, a secondary system anchored the craft in the new temporal position so that when the STUD unit was cut off and space/time assumed its original shape, the ship was left 'clinging' to the new portion of space. It was then just a matter of utilizing the conventional thrust units for the final manoeuvres.

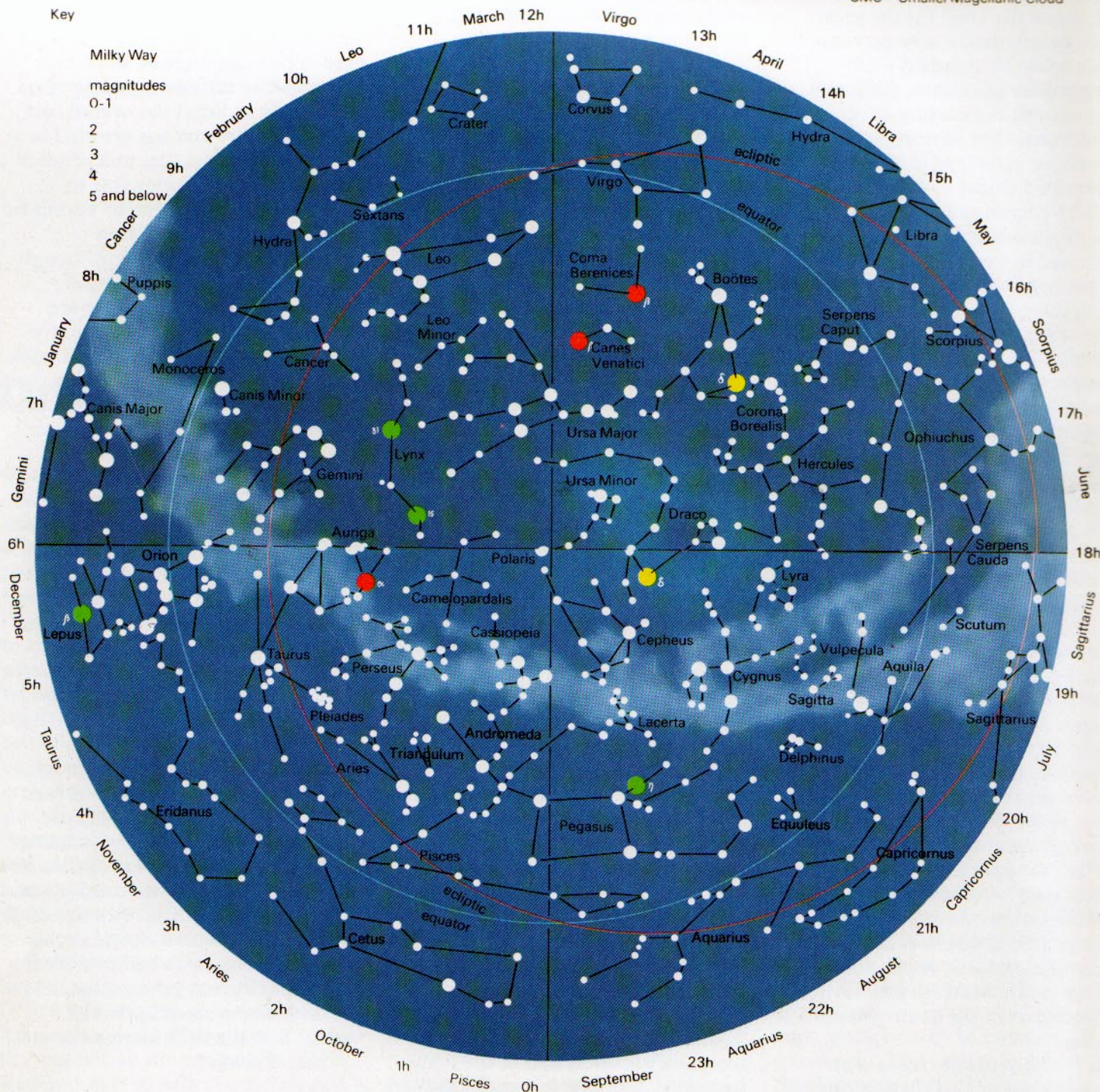
Apart from the previously described advantages in time and cost, one of the more noticeable gains for the average passenger was a significant improvement in travelling conditions. The strange sensations experienced by most passengers making the traditional Hyperspace 'jump', such as nausea and temporary acceleration of the body functions, was now a thing of the past. The new system made the transition imperceptible apart from a very brief moment of emotional disorientation lasting no more than two or three seconds.

For the leisure traveller seeking something new in the way of a holiday, modern spacetravel offers an almost endless catalogue of possibilities and an equally varied number of ways in which he can reach his chosen destination. Most of the planetary systems possessing the required degree of technological

expertise operate their own national spacelines with prescribed routes and scales of charges but these are not necessarily the best carriers in every case. The huge increase in shipbuilding activity in recent years has greatly reduced the overall cost of manufacture and has resulted in a proliferation of smaller independent groups or organizations able to operate their own or leased vessels in accordance with Federation standards and conditions. Although the routes they cover are usually limited to specific areas, they are often able to offer highly attractive prices, particularly on a charter basis. The disadvantage of the latter is that it is not always possible to travel at the exact time desired as passenger loads need to be consolidated to ensure that the charter vessel is carrying its full complement of fares. The sometimes substantial saving, however, offsets any other inconvenience.

It is because of the bewildering variety of spacelines that the TTA Information Service decided to produce this book in order to provide a basic guide to the principal ships, services and destinations which the average traveller is likely to encounter on his journeys through the Federation. As such it portrays something of the richness of our interstellar heritage as well as being an informative guide to the products of a host of differing technologies and cultures. Whether you are a seasoned galactic traveller or a novice to the spaceways *Starliners* will provide a wealth of relevant information, and for those about to embark on a voyage into the dark interstellar seas ... Bon Voyage!

LMC = Larger Magellanic Cloud
SMC = Smaller Magellanic Cloud



The Inhabited Galaxy

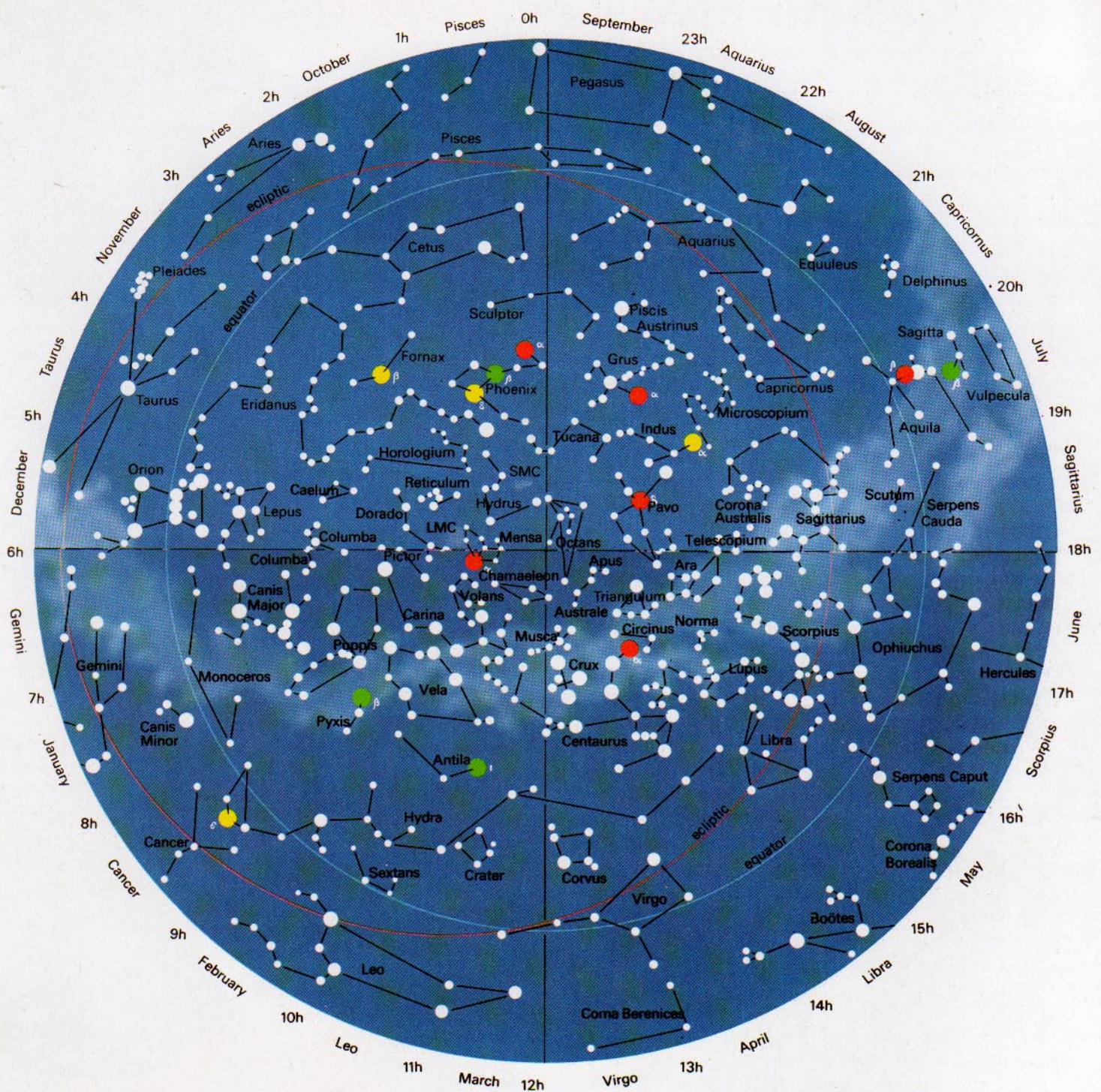
The perimeters of the Galactic Federation now extend over 250 light years from the founder systems of Sol and Alpha and Proxima Centauri and include nearly thirty inhabited stellar systems. Most of these are occupied as a result of colonization rather than by an indigenous intelligence, and not all are yet fully accredited members of the

Federation. Some are, indeed, little more than small, struggling settlements trying to wrest a living from the virgin soil of isolated worlds.

Most of them, however, have progressed beyond that stage and play a vital role in the economic and social fabric of the Federation. Administratively, this vast area is

divided into three sections based on the distance between the central government and the Terran Trade Authority central offices in the Sol System. The first sphere of control runs from Sol to a boundary of 100 light years, the second from 100 to 200 light years and the third from 200 to 300 light years.

The granting of spaceline



DAVID HARDY

operating permits uses the same control bands as a basis for the allocation of routes, and companies can be permitted licences for routes in areas other than the one in which the registered headquarters is based. However, operators can only apply for clearance on routes not served by local spacelines if they can demonstrate that they offer a

particular service not otherwise available. The purpose of this policy is to protect the interests of national spacelines whose profitability is usually of great importance to the stability of the local economy in view of the massive investment required and the contribution made to trade and commerce between systems.

The charts shown provide an easy

reference to the systems served by the major spacelines and the Control Bands in which they are found. In accordance with Federation policy the star systems are located in their appropriate constellations and are marked with their Greek designation.

Trans Galactic Spacelines

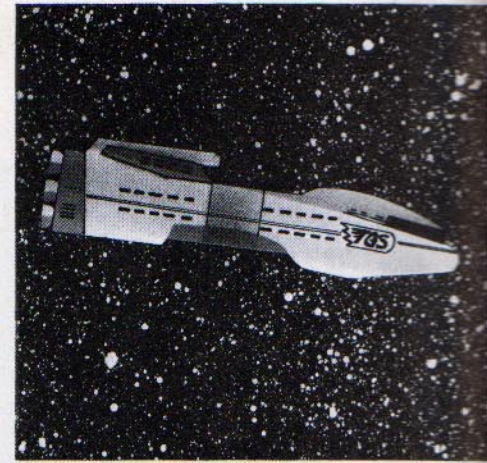
Registered Headquarters: Terra

Date of Registration: 2076 AD

Status: Scheduled

Operational Area: Universal—emphasis on long-haul routes

Fleet: 35 Avery Galactic Queens, 27 Consolidated Constellations, 43 TTA Argosys, 24 assorted short to medium haul ships



Trans Galactic Spacelines is the oldest and certainly the largest independent spaceline in the Sol System, and is highly regarded throughout the Federation for the quality of its service and efficiency. Established during the latter part of the twenty-first century, it concentrated on the more distant destinations right from the start and played a vital role in opening up the little travelled regions of the Federation. The early flights were not for the over-cautious as the liners often operated outside the area of the Space Patrol Service's optimum cover. Because of the slight risk involved in such expeditions, only the best qualified crews and the most reliable equipment was employed, a philosophy which has remained one of the TGS' fundamental policies.

As the outward expansion of the Federal Territories began to slow down, the outer routes lost their element of uncertainty as the main spaceways were gradually consolidated with Traffic beacons and control points. Navigation became less dependent on the individual skills and experience of the flight crews. Nevertheless, the operational officers of the TGS rank as the finest in space and no senior captain has less than twenty-five years of active service behind him.

The tradition of long distance haulage has continued and almost everyone wishing to travel to the furthest points of the Federation from the Sol System will board one of the TGS liners operating from the Miami Spaceport or the Jupiter Orbital Terminal. Because of this policy, the key ship in the TGS fleet

is the celebrated Galactic Queen produced by Avery Astronautics, who had designed and built her illustrious predecessors, the Martian and Interstellar Queens.

Being one of the first vessels to adopt the STUD (Space/Time Ultra Drive) system, its distinctive shape soon became a familiar sight throughout the spaceways and as a result was ordered in considerable numbers by most of the interstellar spacelines interested in operating the longer routes.

Although the Berger Gravity-Resist Generator and its successor the Clayden Negative Mass Unit (which allowed a vessel of otherwise impracticable mass to make a planetary landing under strong gravitational conditions) were no longer in common use due to the prohibitive cost of the Zyrillium they were fuelled by, the Galactic Queen was fitted with the latest of these devices. It was therefore unique among the various long-haul craft produced within the Federation because of its ability to make a surface landing. For those spaceliner observers used to watching the arrival of smaller craft at surface terminals, the Galactic Queen makes an impressive sight as its vast bulk settles silently on the tarmac.

Because of this facility, some of the larger companies purchased modified versions of this craft for hauling large single destination consignments such as mining equipment, whilst others were commissioned by the Federal Defence Force for military use.

For the passenger, there are few ships more sumptuously appointed, a tradition which goes back to the first

Martian Queen operated over 200 years ago. Each ticket entitles the holder to separate, self-sufficient quarters, although excellent general facilities are also provided for those of more social disposition. Unlike many of their competitors, Trans Galactic Spacelines continue to staff their ships with human cabin crews who have to pass through the same first year technical courses as the actual trainee flight crews, before going on to study galactic biology in order to be able to cater for the great variety of life-forms likely to be boarding the TGS ships.

The quality of the Trans Galactic service is generally regarded as being the standard every spaceline should attempt to achieve and which few succeed. Although travelling with TGS is not the most inexpensive way of getting about the Federation, it is undoubtedly one of the most enjoyable.

Powered by the sophisticated STUD system, the Avery Galactic Queen also carries an emergency Hydrion Thrust Engine, and is one of the few high-capacity liners to be fitted with the Clayden Negative Mass Unit.



TTA Lines

Registered Headquarters: Mars

Date of Registration: 2144 AD

Status: Scheduled

Operational Area: Universal—mainly medium haul routes

Fleet: 8 Avery Galactic Queens, 9 Consolidated Constellations, 34 TTA Argosys, 23 TTA Sunliners and assorted short haul craft



At one time the Terran Trade Authority itself was the largest single passenger carrier in the Federation, but increasing pressure from various member worlds anxious to develop their own shipbuilding and operating industries led the TTA to terminate their virtual monopoly of the business. Large portions of the many services were either taken over by local planetary government or purchased by large independent concerns. It was not an overnight devolution and is a process that still continues. At present, however, the TTA Lines organization is among the largest of the medium to short distance carriers, its long haul operation having been completely disposed of near the turn of the century.

Although the TTA Lines are better known for their freight carriage, which has not been reduced as part of their long term plans, their vessels are a familiar sight within the recognized medium haul limit of 100 light years from point of origin. Every spaceport or terminal within this area boasts several of the distinctive green-liveried ships at any one time and there are a small number of TTA Lines long distance craft in service, at least for the time being.

As a major manufacturer in its own right, the TTA obviously depends on its own resources for many of the ships commissioned, and one of the most commonly seen is the TTA Argosy. Though not generally regarded as being one of the more elegant vessels in space, the Argosy enjoys an enviable reputation for its efficiency and reliability combined

with a more than acceptable level of passenger comfort. All the medium and many of the short distance examples are fitted with the STUD system, although in many cases this was a later modification. The Argosy has been in regular service for at least forty terran years and therefore originally relied on the Hyperdrive generators first designed by Henri de Vass as long ago as 2027 AD. A number of craft still rely on this equipment and continue to serve on the more local routes where maximum travel speeds are not quite so critical and fares are less price sensitive.

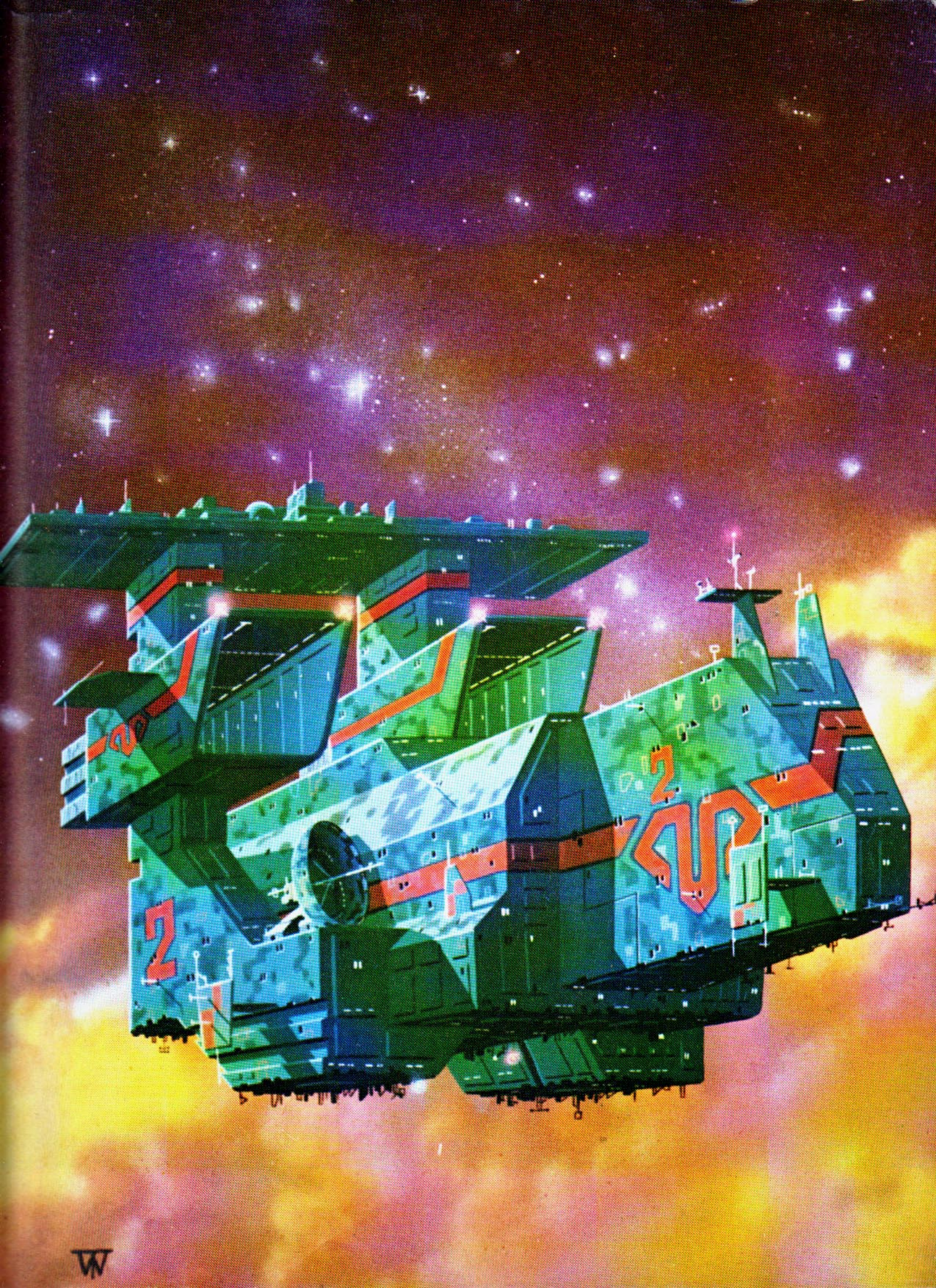
It is worth noting that the Argosy was one of the last designs produced by the late Dr Kenneth Fisher who was probably one of the greatest design technicians in the history of spaceflight and certainly one of the very few who did not operate as a member of a team of specialists. Few shipbuilders today can boast an individual capable of single-handedly conceiving a major commercial craft from first sketch through to final construction; men of his genius are a vanishing breed.

As part of the winding-down of the TTA Lines' passenger services, more and more routes are being taken over by other organizations, but, because of its traditionally intimate ties with the Centauri systems, the service to both Alpha and Proxima Centauri figures strongly in the TTA Lines' schedules, and will continue to do so for some time. Most of their craft fly into the TTA's own terminal off Alpha Centauri which was constructed as part of a trade

agreement with local government before the Alphans chose to build their own interstellar complex. Travellers disembarking there will have the opportunity of descending to the surface in one of the few TTA C-4 Transits still operating. Until such time as wear or damage removes them from service, the four remaining examples continue to give sterling performance as they have done for nearly seventy years.

Most of the TTA flights are scheduled, but a certain number of ships are available for charter, and most of these are retained on a regular basis by such travel agencies as Interglobal Tours and Cooks of Terra. For smaller organizations or groups of individuals, those models of the Argosy still equipped with the older Hyperdrive are subject to a substantially reduced scale of charges and represent excellent value.

Although identical to other models in overall form, some versions of the TTA Argosy were equipped with Hiram thrust engines for interplanetary operation and were distinguished by the twin rectangular casings of the hydrogen scoops.



AC Terminal Beta

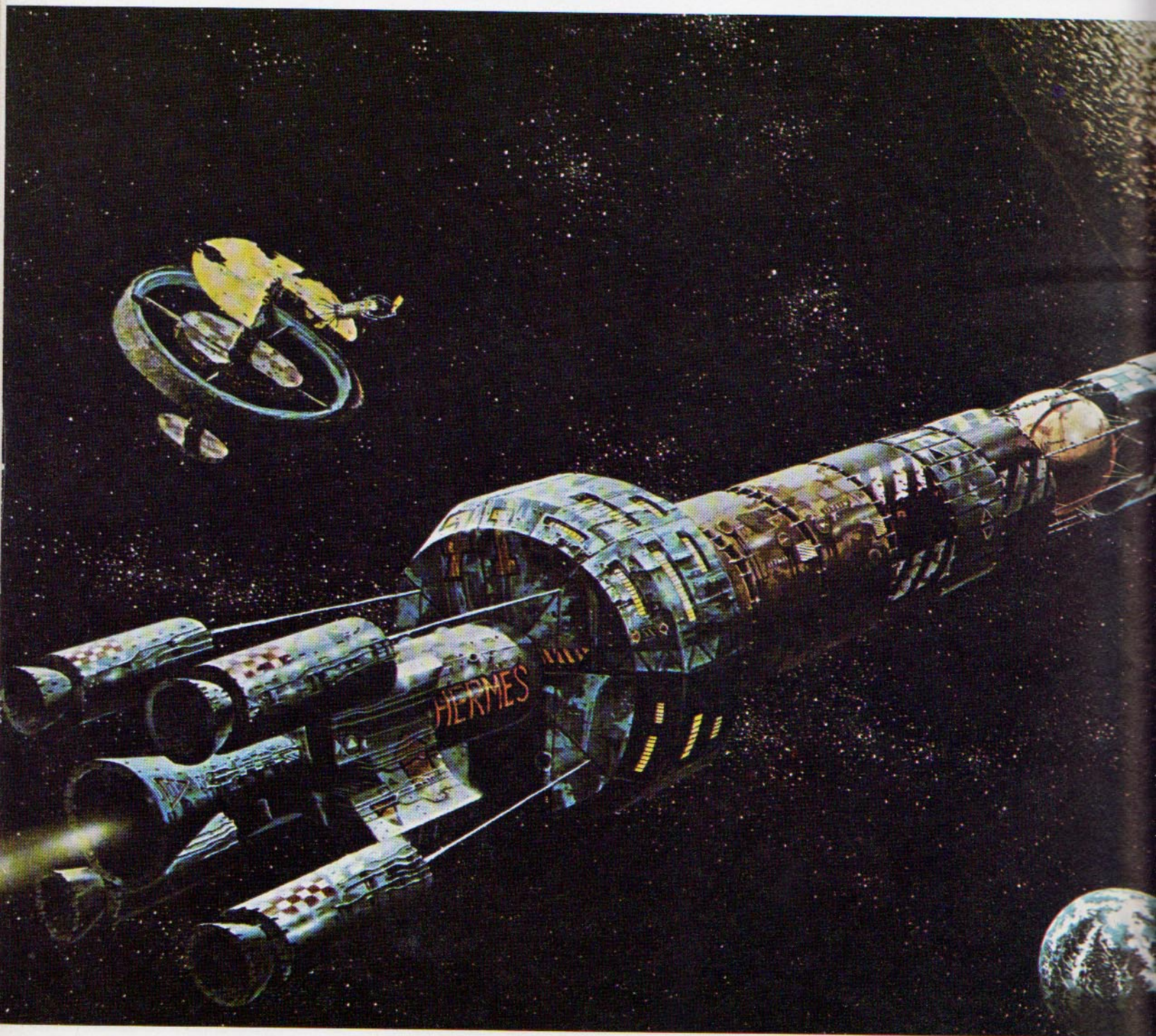
Classification: Civil Terminus Category C-2

Capacity: 350 passenger tons per standard hour, docking facilities for 20 simultaneous sequences and Class C-1 accommodation

Jurisdiction: TTA (Civil Dept.)

TONY ROBERTS

The TTA Lines terminal at Alpha Centauri has been a familiar sight to anyone travelling to this quarter of space for over a century and, apart from extensive modernization about forty years ago, has remained relatively unchanged. Despite the existence of Alpha Centauri's own domestic complex, the terminal, affectionately dubbed 'The Doughnut' by TTA crews after a traditional terran confectionery, continues to handle a substantial traffic load. The numbers of passengers passing through the



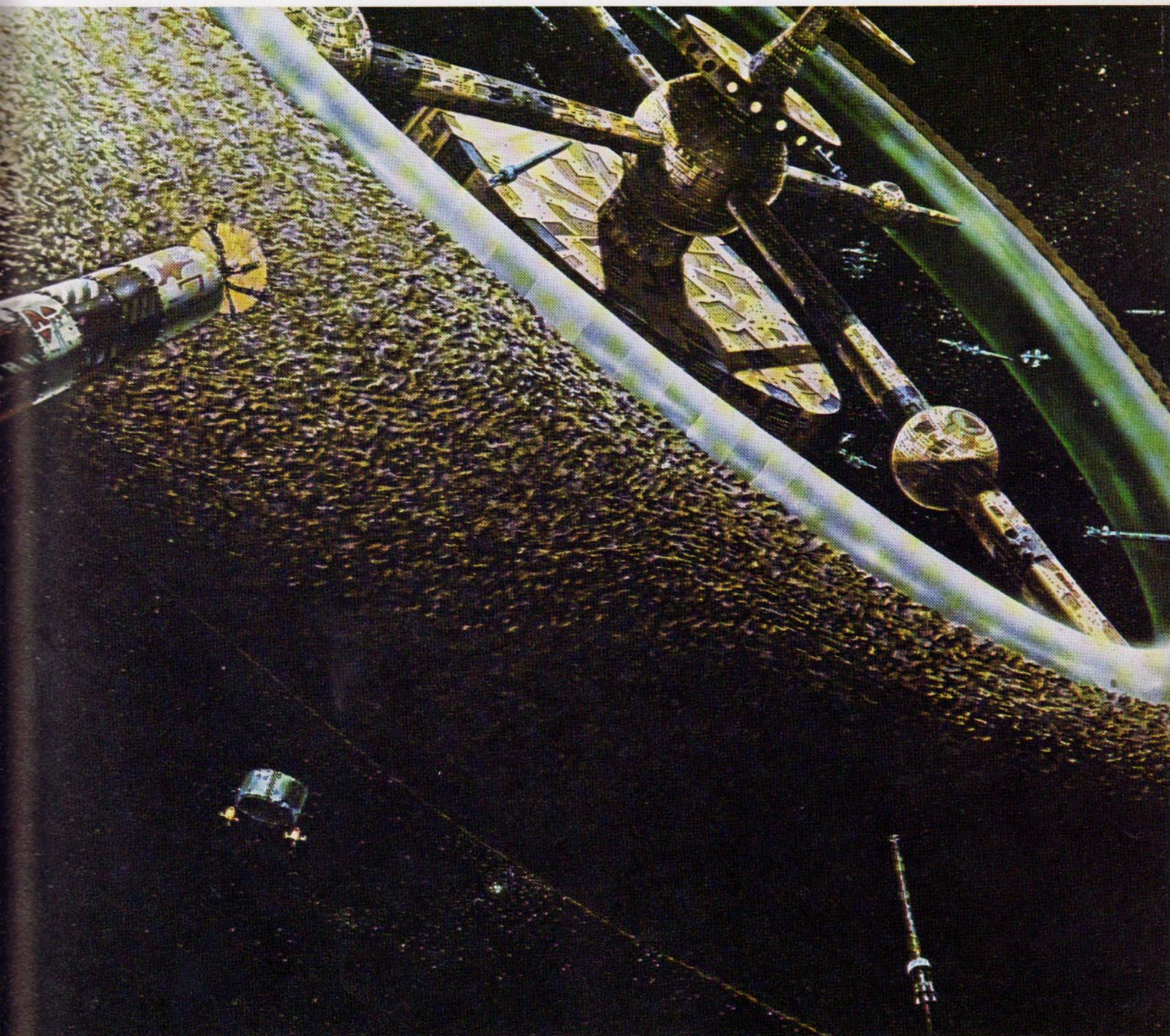
wheel-like construction is gradually diminishing, however, as the TTA withdraw from regular commercial carriage. Applications for conversion into a holiday complex have already been received by the governing body and are under serious consideration. Whatever verdict is reached it will be some time before any such change takes place as the Sol-Centauri route will be one of the last to be relinquished by the TTA Lines.

Despite its impressive size, AC Terminal Beta, like its freight-handling companion AC Terminal

Alpha, is not capable of handling the passenger throughput that its appearance might suggest. Much of its internal capacity was originally designed for fuelling facilities and was never converted to traffic handling after the transition to Hyperdrive as the standard method of propulsion.

During the early days the most common visitors to the terminal were the uncomfortable dual-purpose vessels known disparagingly as the 'Boa-Constrictors'. Interstellar flight at this time was still expensive and

many of the shipping companies adapted their Hermes CA-44 freighters to take passengers as a lucrative second cargo. Being extremely cheap to manufacture and maintain these rather unattractive vessels were produced in large quantities and did provide an alternative to the more exotic liners catering for the higher end of the market, and made space travel available to many who would otherwise have been unable to make such a voyage.



Independence Lines

Registered Headquarters: Terra

Date of Registration: 2239 AD

Status: Scheduled

Operational Area: Universal—mainly long and medium haul routes

Fleet: 3 Avery Galactic Queens, 2 Consolidated Constellations, 12 TTA Argosys, 3 ACP Startrails, 9 TTA Sungliders

The Independence Lines came into being about fifteen years ago when a number of independent operators came together to form a consortium. The advantage of such an arrangement was that they could pool their respective facilities and investment potential in order to offer a higher standard of service than would otherwise have been possible. There were five companies involved, including the old Martian Packet Company, one of the first non-TTA operators who were formed to offer an alternative service to the Martian industrial communities. It is possible to detect various superficial differences in the character of the vessels employed which give clues to the original individual owners, but the overall quality of finish and service is common to all craft.

As one of the largest independent spacelines in the Federation, the IL is able to handle a considerable volume of traffic to destinations scattered all over known space, although some of these services are only available subject to advance notice in order for them to consolidate passenger loads. The fare structure is extremely attractive given the facilities which are the equal of any of the national operators. Much of their revenue is re-invested in maintaining the standards set and craft used are replaced after the same period of service adhered to by the national companies.

Their medium haul equipment is especially fine and they are the only independents to have purchased a number of the excellent TTA Sungliders recently introduced by the

Terran Trade Authority shipyards. These fine vessels, with a capacity of 580 passengers plus a useful freight payload, are powered by a dual system incorporating a medium range STUD system and the latest thrust units of the nuclear Hydrion type called White Star Accelerators. Their aerodynamic design enables them to operate efficiently in most atmospheres and are therefore freed from the need to land at the larger terminals. As a result passengers can travel direct to many of the smaller local stations and are spared the additional expense, in time and fares, of transferring from their main flight to one of the local planetary services.

Although, like most ships serving these routes, the Sungliders are not equipped with individual passenger compartments, the sophisticated cabin areas are sumptuously fitted and afford a reasonable degree of privacy. Those examples flying to regional ports are usually equipped with the Solofax Autonav Unit which allows fully automatic navigational control right up to final approach and landing, thus reducing operational costs to the passengers' benefit.

The first rate quality of the IL operation has led to them securing the franchise to many of the secondary routes and in particular those to the Deskiphyll Belt and the huge vacation centres there.

Independence Lines are one of the few private concerns operating the TTA Sunglider medium haul liners. As illustrated here, the Sunglider has full atmospheric operation without the need for gravity resist mechanisms.

CHRIS MOORE



Sendak Space Lines

Registered Headquarters: Mars

Date of Registration: 2241 AD

Status: Scheduled/Charter

Operational Area: Alpha Indi sector—short/medium haul

Fleet: 6 TTA Argosys, 2 Consolidated Constellations, 4 Belton PL 90s and assorted short haul craft



Sendak Space Line's name is derived from its founder, Maurice Sendak, an adventurous entrepreneur who left his home on Mars to join the rush of settlers heading out to start a new life on the recently opened planet of Alpha Indi II, 102 light years away in the Southern Hemisphere. The harsh life and tedious environment there soon failed to excite his enthusiasm. Determined to leave and seek his fortune elsewhere, he observed that there were plenty of his fellow colonists who also found the life uninteresting.

The principal source of revenue for this drab world was the extraction of minerals from the vast oceans and, though there was a good living to be made there, life was spent working and living aboard the massive, city-sized floating extraction plants. The inhabitants had wealth but almost no opportunity of spending it and there were few places available on the ore freighters which were their only real contact with the rest of the Federation.

Sendak managed to persuade some of his colleagues to help him raise the capital to acquire a second-hand passenger ship which could be used to ferry fare-paying customers to the nearest worlds offering a change of environment and diversity of entertainment. He immediately found himself with more clients than he could handle, despite increases in his scale of charges, and used the profits to acquire further vessels, improve service and hire crews. Gradually he was able to increase the number of destinations offered as there was very little competition

from other spacelines and little interference from the Flight Authorities whose jurisdiction had not been extended as far as what were then the Perimeter settlement planets.

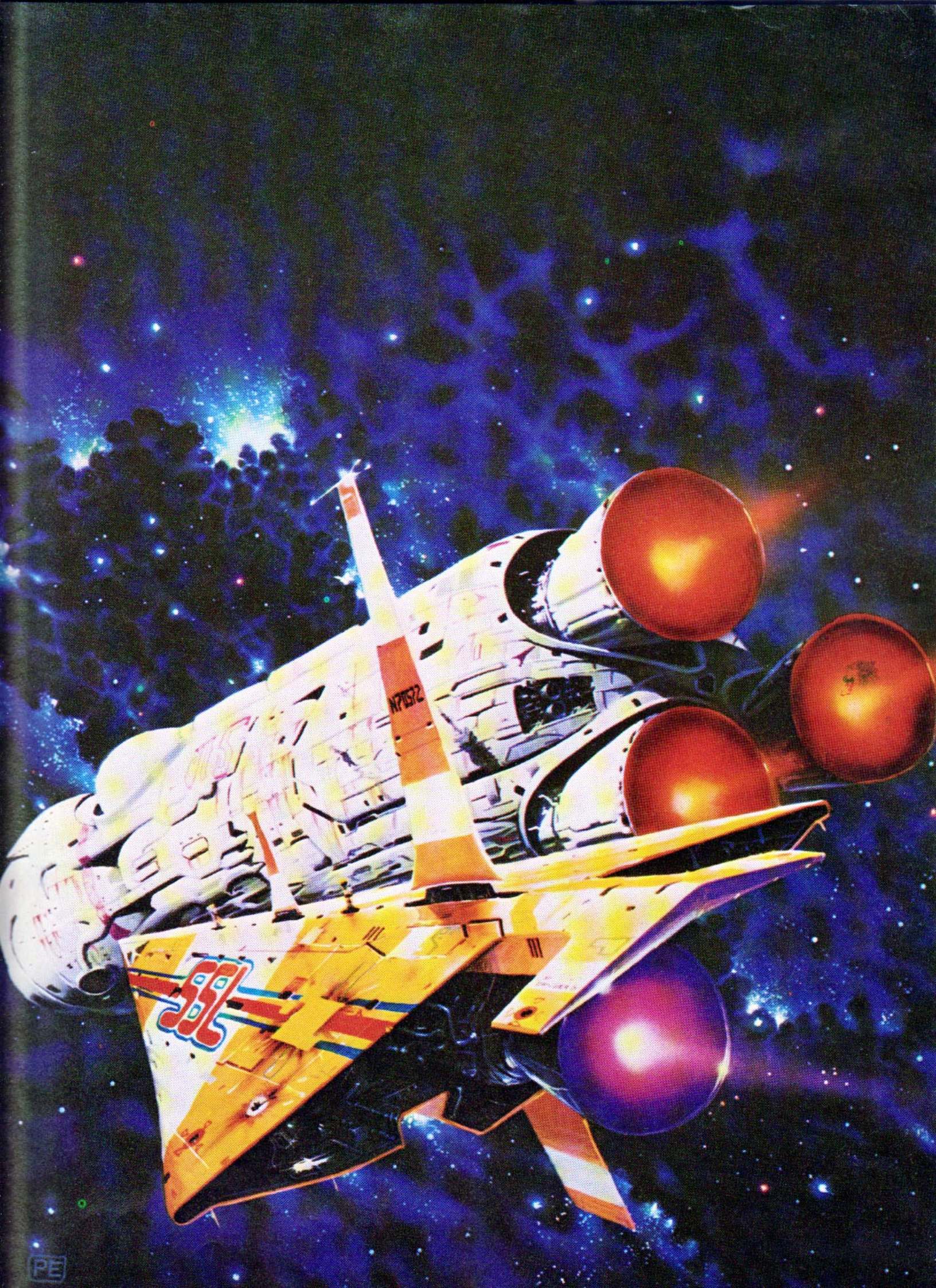
As other worlds were being occupied and the Federation's boundaries expanded, Sendak found opportunities for extending the range of his service and the number of destinations in his schedules. With characteristic foresight he anticipated the inevitable decline of Alpha Indi II. New mineral sources were being discovered which made the sea-water extraction methods necessary on his base world costly and increasingly impractical. By the time the planet's population had dwindled to an uneconomical level, Sendak Space Lines were well established in other expanding markets. One of his last actions before his death was the fulfillment of a long held ambition. He initiated a service to the system of his birth and also re-registered the company base on his home planet, Mars.

Today SSL continue to be one of the largest operators in the mid-range regions, but still fly two Consolidated Constellations to the Sol System. How long this will be the case is open to question as demand for this service has declined over the last few years, and there is a possibility that they will soon apply to the Flight Authority for the cancellation of their licence for this route. Unfortunately there has also been a more general decline in the volume of passenger traffic throughout the sector served by SSL and they have diverted an increasing

proportion of their revenue for investment in the field of freight transport.

Something of Maurice Sendak's spirit must linger on in the management of the company for they have found this to be a highly profitable departure. The same regional decline that undermined their passenger services also made the larger freight hauliers reduce the number of high-capacity cargo vessels they operated here. SSL opted for investing heavily in a fleet of small to medium capacity mid-range ships and the gamble appears to be paying off. Despite this major change in direction, however, SSL continue to feel committed to passenger transport and will certainly continue to maintain services at their present level. This policy has been underlined by the fact that they are using some of the profit made by their freight division to underwrite the passenger flights and to maintain the latter's charges at the recommended rates.

One of SSL's short-haul freighters, powered by a rare temporal coil-assisted electro-magnetic flux drive, momentarily shares course with one of the company's Consolidated Constellations bound for the Sol System.



Delta Travel

Registered Headquarters: Jupiter Orbital Terminal

Date of Registration: 2228 AD

Status: Charter

Operational Area: Universal—mainly short haul

Fleet: 4 TTA Caravan B3s, 6 Avery Compacts, 3 Belton PL 90s and assorted short range craft

Delta Travel are a subsidiary of Pan Star Enterprises, the huge Terran conglomerate whose interests range from engineering, mining and electronics to specialized agricultural products and entertainment. It was their activities in the last area that ultimately led to the acquisition of Delta. Pan Star owned a number of orbital leisure complexes in both the Sol System and Alpha Mensae, a G6 dwarf sun about 28 light years from Earth, and were interested in ensuring adequate transport to and from these sites.

At the time, Delta was basically a private line of fewer than a dozen assorted craft operating only on an interplanetary basis within the Sol System. Despite their restricted size they enjoyed a first rate reputation for value and efficiency, but were experiencing financial difficulties resulting from their limited area of operations. All their craft were coming up for replacement and were, in any case, unsuitable for the purposes Pan Star had in mind. However, Pan Star bid for and secured the company, because of the goodwill attached to the Delta name, and immediately injected a substantial amount of capital to revitalize the concern and equip it for longer range flights.

At first Delta flew only to the Pan Star leisure centres on two-weekly round trips, but as the number of centres increased, the voyages became more frequent. At first the service was heavily subsidized by the parent company and was viewed as little more than a service for the centres' customers. However, the increase in traffic gradually allowed

Delta to start showing a profit and together with its growing knowledge of the leisure industry it began to explore other opportunities.

Some four years after its acquisition by Pan Star, Delta began to invest the profit it was allowed to retain in plant and ships suitable for conversion into luxury cruisers. Pan Star's centres, though immensely popular, were fairly expensive and beyond the resources of many potential customers. Delta sought to offer a cheaper alternative which combined novelty with similar facilities to the leisure centres at a significantly reduced cost.

Luxuriously equipped ships with private accommodation and a wide range of recreational options were introduced, and these craft flew to a number of points within the Sol System on a three-week round trip. The enterprise was a great success and today Delta operate four of the large TTA Caravan B3s on these trips, and it is important to remember to book places on these well in advance.

For the leisure centre shuttle services, Delta fly the smaller but equally well equipped Compacts built by Avery Astronautics. Although they are not fitted with the new STUD system they have had their Hyperdrive units updated to the latest specifications which minimize any side effects of sub-space travel.

One of Delta's TTA Caravans blasts off from Miami Spaceport for a three-week pleasure cruise around the Sol System.

PETER ELSON





Tee Gee Charter

Registered Headquarters: Terra

Date of Registration: 2158 AD

Status: Charter

Operational Area: Free charter—mainly short/medium range

Fleet: 2 TTA Argosys, 1 ACP Startrail, 4 TTA Sungliders, 11 Avery Astrofleets and various short haul ships

Tee Gee Charter was established during the middle of the last century by Trans Galactic Spacelines to exploit the fast-growing market for charter hire. Unlike the scheduled services for which operators have to apply for a franchise, the charter companies can operate more freely. The attraction of the charter business for Trans Galactic was that it would then be able to fly routes in addition to their normal scheduled services. The regulations relating to charter vessels, though still extremely strict, are not quite as limiting as those for the scheduled flight equipment, and TGS was able to utilize ships which had fallen below the minimum specifications for their original category.

The advantages of adapting these craft for charter hire were two-fold: not only did it mean that they could initiate a comprehensive charter service without the massive investment in new equipment that would otherwise have been unavoidable, but the active life of their existing fleet was significantly extended without the need for a major refit. These gains compensated for the fact that the ships were often less than ideal for the purposes they were required to fulfill, and the operating costs of a long range liner being employed on medium or short range journeys reduced the profitability.

As a result of this policy, TGS caused quite a stir among its new competitors by appearing on the scene almost overnight as Tee Gee Charter, with a fleet of a size that would have taken other organizations years to build up. The other charter

companies, realizing that the higher operating costs of the TGS ships forced them to accept lower profit margins, initiated a fierce price-cutting war that reached almost epidemic proportions. Tee Gee Charter was losing money hand over fist within a few weeks of entering the field, and only the determination of the parent company to stay in and its ability to stand the losses kept them going.

After a few more weeks, some of the larger independent charter groups escalated the war by seizing the opportunity to try and drive some of the smaller companies, who had been competing with them long before TGS entered the field, out of business. By now matters were getting out of hand and some of the smaller licence holders were folding up. Tee Gee Charter made use of the parent group's financial muscle to buy out as many of these unfortunate operators as it could, and through being able to employ the purpose-built charter ships it acquired by this means, managed to reduce its losses and prolong the disastrous battle for the spaceways.

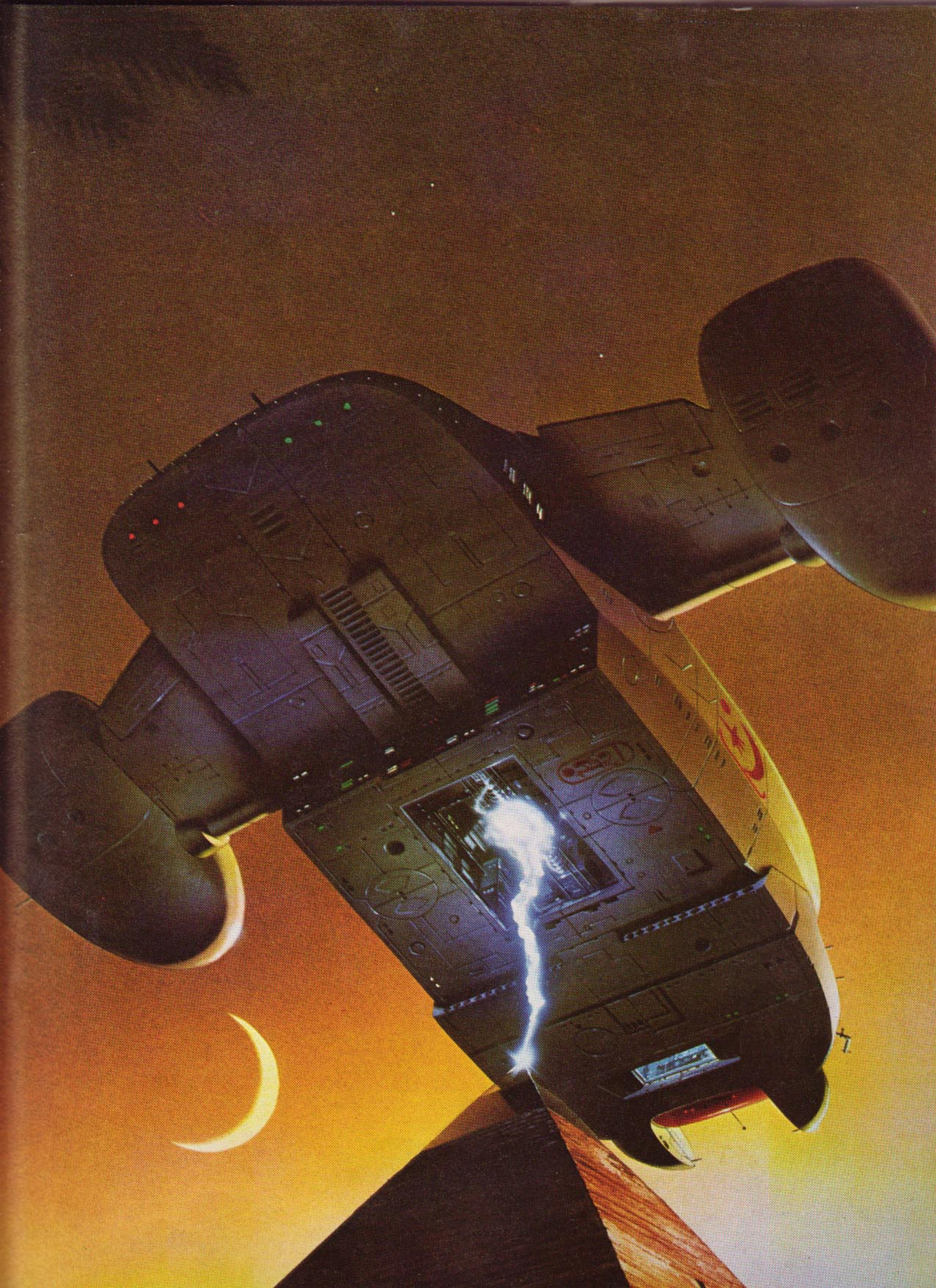
When many of the services themselves began to suffer as a result of severe cost-cutting exercises by all the charter companies, and in response to appeals made by the worst hit individuals, the Federation Council and the TTA stepped in to prevent what might have become a dangerous deterioration in safety margins, a complete collapse of what was an important Federation-wide service or a virtual monopoly of the charter business by the survivors. This marked the beginning of the

Federal Trade Agreement for Charter Services, or the Charter Charter as it was referred to by the spacelines.

Under this agreement all operators were required to submit proposed flights and relevant charges to a central commission for approval, and a more rigid code of practice was established to ensure that the public were adequately served. With profitability restored, Tee Gee Charter once again found that there was an advantage in employing Trans Galactic ships on the longer runs, and they continue to do so today. Passengers chartering on long flights therefore enjoy almost identical facilities to those experienced on the TGS scheduled voyages.

The ship purchased by Tee Gee for short journeys is the popular Avery Astrofleet with its unique Pulsed Ion Discharge engines. Some of the global shuttle companies also operate these economical craft so they are a familiar sight to many travellers together with their distinctive pyramidal fuelling points. Their engines, much smaller than more conventional units producing the same power output and therefore permitting improved carrying capacity within the hull, are limited in their maximum power output and are only suitable for the shorter routes. Electrostatic energy is picked up from the fuelling point and is stored and metered out during transit. This avoids the need for in-board power generators such as nuclear packs, the raw energy being stored in the hull fabric itself.

An Avery Astrofleet of Tee Gee Charter picks up its energy supply from one of the distinctive fuelling points.



Alphatel

Registered Headquarters: Alpha Centauri

Date of Registration: 2094 AD

Status: Scheduled

Operational Area: Universal—mainly long distance

Fleet: 29 ACP Startrails, 31 Beelshliff ACP 47s, 43 Alcadol Maxliffs, 35 ACP Doralillows, 7 Incoflit Wiskins, plus assorted short range craft

Alphatel is the national spaceline of Alpha Centauri and was founded with the assistance of a Terran advisory delegation in the later years of reconstruction after the appalling devastation of the Proxima Wars (which were finally ended in 2068 AD). At this time the Federation had not been formed and Alpha and Proxima Centauri, the nearest stars to the Sol System at 4.2 light years, were the extent of our galactic exploration. In a spirit of healthy competition, Alphatel operated services to various destinations within our system and the improved service as well as the friendly rivalry did much to further our understanding of one another. It is probably true to say that it was partially responsible for the founding of the Galactic Federation.

As the advancing technologies of both systems resulted in the discovery of other habitable systems and, later, alien worlds and civilizations, Alphatel, like the major Terran spacelines, extended the range of its services and developed its own breed of long distance craft. Alpha Centauri possessed a shipbuilding technology long before our association and while available routes were somewhat restricted there was substantial trading of ships and equipment between the two races. Once the market began to expand more quickly, however, it became less usual to see the ships of one species in the other's livery. Probably the only example of this practice today is the small number of Alphan ACP Startrails operating in Sol System colours that were the result of a recent trade exchange for

certain mineral supplies needed by Alphan industry.

The Alphan ships all reflect the native culture and are usually easily recognizable as a result. Probably one of the most distinctive is the ACP Doralillow which takes its name from the leader of the design team that was responsible for its development. Its unique mushroom shape is drawn from the flying spores of one of the plants found on Alpha II and demonstrates clearly the Alphan ethic that art is inseparable from industry. Spaceflight offers a great deal of scope for the application of this philosophy as, unless a craft is required to operate in an atmosphere, external form is relatively unimportant.

Although this design is less efficient under normal space/drive conditions than many of its competitors, it does not adversely affect performance in alternative space. Most of them have been modified to employ a version of the Terran STUD system which is manufactured under licence on Alpha II, and can be seen operating in all corners of the Federation. Alphan local government takes great pride in its national spaceline and most of the profit is ploughed back into improving the services and providing the best in passenger comfort. A prime example of this approach is found in the Incoflit Wiskin, a fine vessel which can fairly be considered as one of the best equipped and most luxurious ships in commercial service. Operational costs are staggeringly high with sixty-five per cent of the

costs resulting from the passenger services on board. To put this in perspective it is necessary to point out that the best equipped vessel in service anywhere else requires only thirty-seven per cent of costs for passenger services.

Alphatel, who view these remarkable vessels as loss-leading flagships, are the only spaceline to use them, and indeed, only two examples exist anywhere else in the Federation, having been purchased privately by certain wealthy individuals. For those travellers hoping for first-hand experience of these luxurious ships it must be said that although Alphatel charge only a nominal amount over the usual fares, it is almost impossible to obtain passage through the normal booking facilities. Tickets for the Incoflit Wiskins command prices on the black market that have been known to be up to seven times the quoted fare, and even used ticket stubs are very sought after by collectors. One consortium of businessmen attempted to lease one of these ships in order to exploit the extraordinary interest, but were refused permission by the Alphan government. The subsequent attempt to commission the manufacture of a Wiskin replica was also thwarted. Not to be so easily frustrated, the same consortium chose to build a new design to similar specifications but the single vessel produced failed to generate the same degree of interest and the venture was a disaster.

The unique mushroom shape of the ACP Doralillow is taken from the spores of a plant native to the principal world of Alpha Centauri. Here a number of these ships approach the terminal of their home planet.



Alphaflettor

Registered Headquarters: Alpha Centauri

Date of Registration: 2209 AD

Status: Charter

Operational Area: Free charter—mainly medium haul

Fleet: 7 ACP Startrails, 4 Beelshliff ACP 47s, 2 Alcadol Maxliffs and 6 Doralillows

Alphaflettor is one of only two national charter lines in the Federation, the other being run by the government of Esthymon, the pleasure planet of the Beta Phoenicis system. The Alphan social structure is different from that of the Sol System and there are relatively few privately owned companies on the planets there. Like Alphetel, the scheduled spaceline, the charter organization is superbly equipped but in view of the exaggerated costs of each craft employed the governors are restricted in the number of ships they can purchase and so the service is limited in the number of charters it can offer. Only the most popular routes tend to be available where stronger demand keeps the prices reasonable. Unlike the scheduled spaceline which is regarded by the local authorities as something of a promotional exercise, Alphaflettor is expected to make profits, or at least to be self-financing, and the charges tend to be slightly higher than for similar services elsewhere.

The general trend seems to be less concern on the part of the charterers to the level of comfort and more on economy and therefore Alphaflettor has suffered a decline in activity over recent years. Those willing to accept higher charges for a greater degree of comfort generally fly with the scheduled spacelines and Alphaflettor is having to re-think its policies. New ships with specifications similar to those used by other charter organizations have been ordered in an attempt to reduce fares in the future while some of the existing machinery is being modified to increase carrying capacity as an

interim measure.

However, the over lavish standards of the ships themselves are not the only problems faced by the company; its chief obstacle to expansion is competition not only from other charter companies but, more significantly, from Alphetel itself. The strong subsidized support received by the latter enables it to operate many of the routes that would otherwise have been covered by the charter group and, as Alphaflettor is hard put to offer more competitive fares than its sister organization, its volume of trade has been seriously eroded. The effect of all these tribulations has given rise to a situation which has accelerated Alphaflettor's problems (which will be discussed in the next chapter), but the government is aware of the situation and plans to mount a new drive to strengthen the Alphas charter business.

One short-term measure planned to come into effect very soon is the injection of finance to peg prices at an artificially low level in order to maintain operations until the new equipment becomes available whilst some of the minor routes operated by Alphetel are being abandoned and left clear for the charter company, at least for the present.

The Alphan Doralillow is the mainstay of their mid-range fleet and has proved an extremely reliable design, which has been exported to several other spacelines. Modification was needed for the latter to equip them for more conventional docking systems than the usual tower-slot system of Alpha.



Centauri Charter

Registered Headquarters: Alpha Centauri

Date of Registration: 2248 AD

Status: Charter

Operational Area: Universal—but long and short haul exclusively

Fleet: 5 ACP Startrails, 1 Doralillow, 16 Clayden Skitters



As indicated at the end of the last chapter, a new development in the local charter situation on Alpha Centauri added significantly to Alphaflettter's already considerable problems. In 2248 AD a group of independent investors spotted the opportunity created by the ineffectiveness of the Alphan charter company and seized the chance to establish a new service tailored to supply the very areas in which the latter was weakest. Centauri Charter was born and the company registered on Alpha II itself to avoid the restrictions that were normally applied to off-world competitors.

The new organization decided not to operate any of the mid-range routes that were still reasonably served by Alphaflettter and Alphatel but concentrate on the long haul routes and the short haul market which was especially wide open. To satisfy the government regulation that any Alpha registered enterprise must invest at least fifty-five per cent of its total budget in Alphan produced goods or services, Centauri Charter purchased Alphan vessels for their long distance services, as well as employing Alphan staff and ancillary services. The remaining forty-five per cent was spent on sixteen of the excellent Clayden Skitters, a fast and very economical short haul craft that was manufactured on Mars by the same group that developed the Clayden Negative Mass Generator. These ships were initially designed as private cruisers and were fitted with a modified Avery Hydrion drive system. However, their potential as short-haul commercial craft was quickly recognized and a modified

version was put into production which was powered by a new engine built by Claydens using the principal developed by Avery Astronautics for their Pulsed Ion Discharge engines.

With this fleet of roomy and economical vessels, Centauri Charter completely transformed the short-haul services from Alpha Centauri by being able to operate a comprehensive itinerary at low cost. Of particular significance was its effect on the traffic between Alpha and Proxima Centauri. Here Centauri Charter's success not only pushed Alphaflettter out of the field but also began to replace even the scheduled services operated by Alphatel. There was very little Alphatel could do to redress the balance as their ships, which were not really designed for the kind of short distance and frequent service that the Alpha-Proxima route represented, were already operating at a loss.

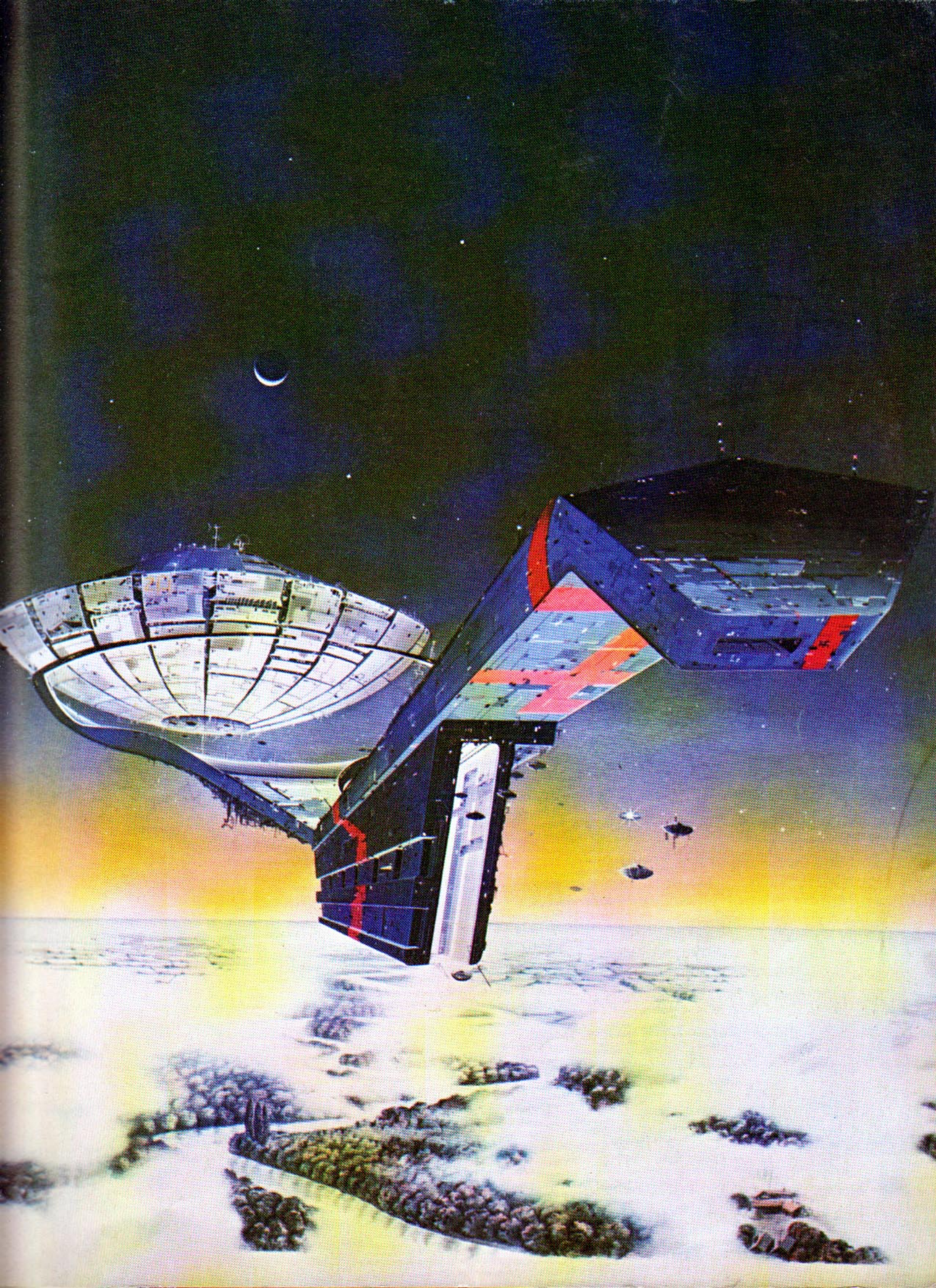
The success of Centauri Charter in this area provided a sound basis for expansion and about half of their Skitter fleet was adapted to carry a small STUD system which allowed them to extend their short-haul service to the Sol System and even Alpha Mensae with its valuable business trade relating to the vast manufacturing complexes based there. The rapid expansion of this enterprising company greatly alarmed the Alphan government and its spaceline interests. Several attempts were made to restrict the activities of Centauri Charter, but, following the latter's appeals to the TTA and the Federal Council of Trade and Industry, the Alphan

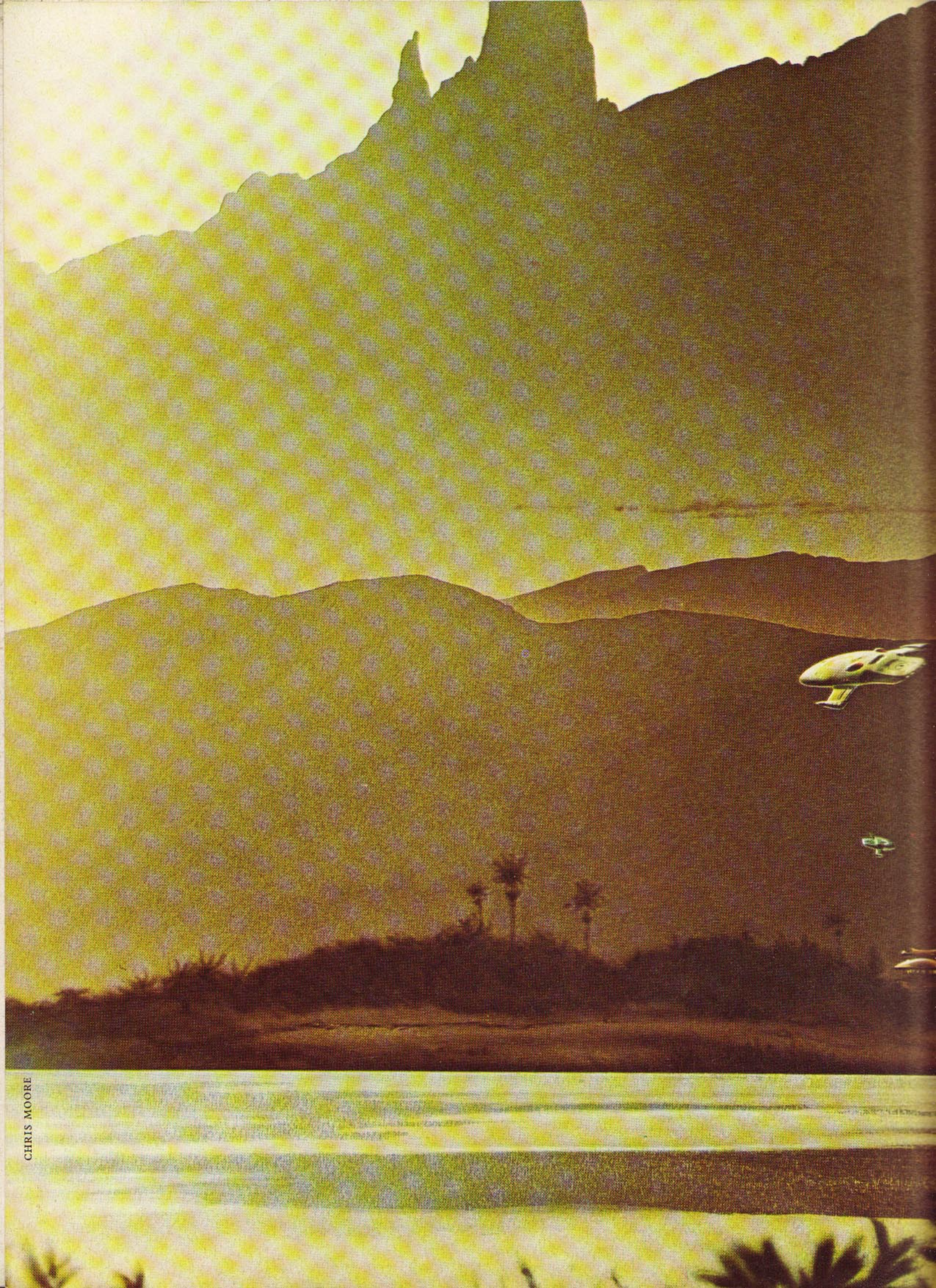
government were informed that Centauri were operating within the legal requirements and that special limitations would infringe their federal trading rights. The local government was forced to concede that they could only combat the effects of Centauri's superior service in the short-haul area by restructuring Alphaflettter and make a massive investment in new craft better suited to the needs of the market. In view of their already prodigious commitments in commercial spaceflight, particularly regarding the national spaceline, Alphatel, they decided to concentrate on the medium range services which Centauri were not operating.

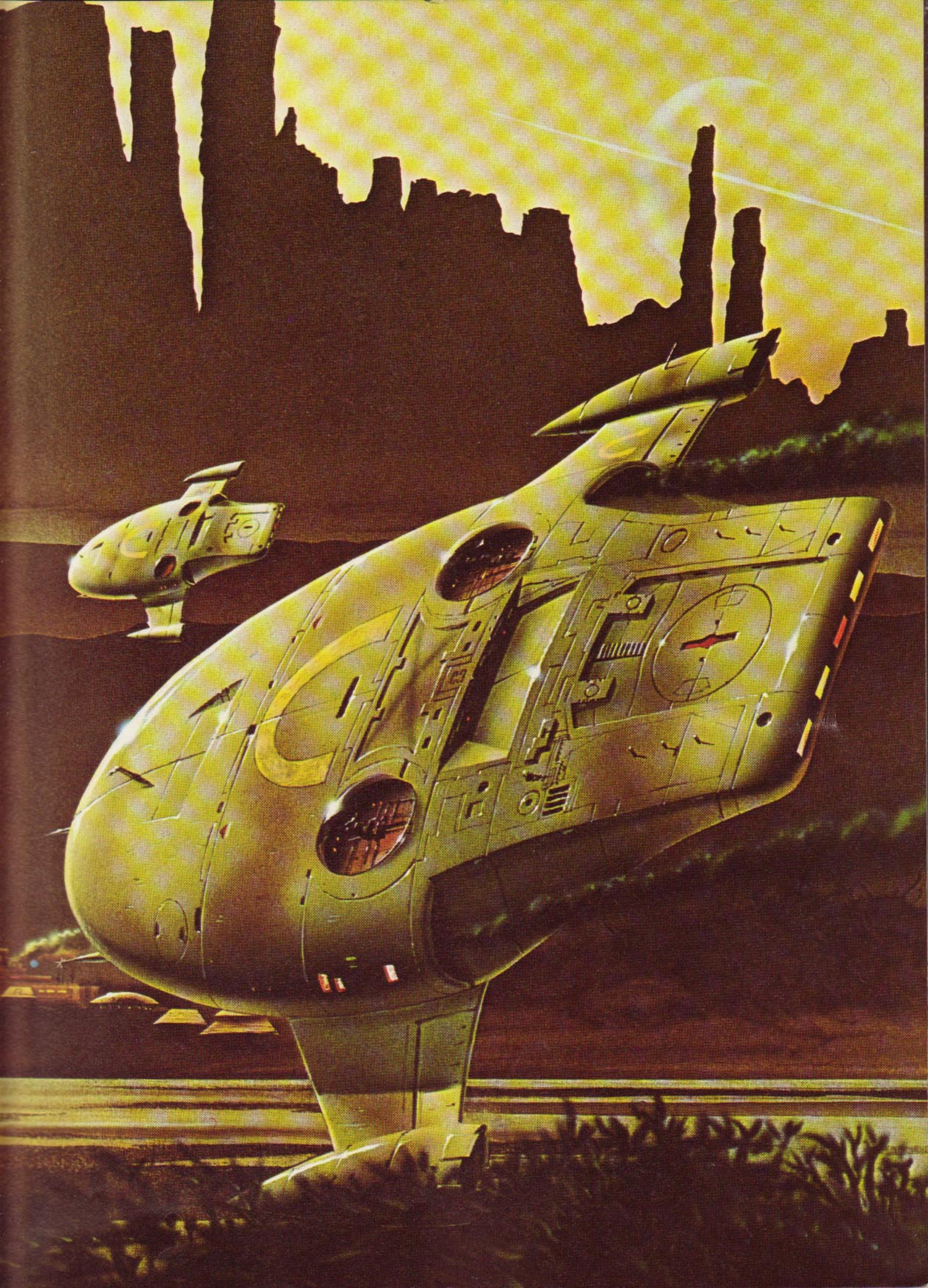
With the competitive environment more stable, Centauri Charter were able to divert more investment to the consolidation and improvement of existing services, and is rapidly becoming a model for charter lines throughout the Federation.

Although this ACP Startrail bears the colours of Trans Galactic Spacelines, it is the same model as operated by Centauri Charter on its long distance flights.

Overleaf: The Clayden Skitters, shown here approaching the Centauri Charter terminal on Proxima, were powered by a modified version of the Pulsed Ion Discharge engine developed by Avery Astronautics. These spacious and economical craft completely transformed short-haul services in the Centauri and Sol sectors.







New Proxima Lines

Registered Headquarters: Proxima Centauri

Date of Registration: 2102 AD

Status: Scheduled/Charter

Operational Area: Short range only

Fleet: 2 Doralillows, 12 Avery Astrofleets, 4 Clayden Skitters. Rest of fleet primarily freight with some passenger capacity

The Proxima Wars left the Proxima worlds utterly devastated, their industry totally destroyed and their culture fragmented and dispersed. Even with the assistance of massive aid from both the Sol and Alpha Centauri systems, the road back to self sufficiency was a long, hard one, and the process is still far from complete nearly 200 years later. One of the results was a preoccupation with the domestic markets which were developed to the exclusion of the export possibilities opening up further out from the Federation's hub. Self sufficiency had become a bye-word for the Proximan economy and trade with other races was slow to develop.

Although a national spaceline was founded at the turn of the twenty-second century, it was never really able to compete effectively with those of other worlds and was rather left behind in the race for the stars. For decades the New Proxima Lines struggled on from financial crisis to financial crisis, being rescued at fairly regular intervals by the local government who were anxious to retain some presence in the world outside their system. Lack of funds, however, even when supplemented by substantial interest-free loans from the Federation Bank, prevented them from providing the kind of service that was expected by the public and they could never compete with the services provided by the more prosperous communities of the Federation.

One of the directors of New Proxima Lines, however, had travelled extensively throughout the Federation as part of a study of other

spacelines, and realized that although competition was extremely fierce among those actually carrying passengers and operating both scheduled and charter services, this was not the case in the flight support areas. Large spacelines, of whatever type, require a host of peripheral services to handle passengers, provide terminus facilities and keep the craft operational. The director was Harmel Phlastogryl and his idea was enthusiastically supported by the government, and later the TTA department who was approached for assistance in implementing the scheme.

Up until this time, terminals and other docking facilities were provided on a rather random basis, usually by the planet most likely to benefit from the through traffic. This resulted in a considerable variation of standards despite attempts by the TTA and Federal Council of Trade and Industry to ensure that the minimum specifications were maintained. Even where the larger spacelines constructed their own facilities, they were not viewed as a primary aspect of the travel business.

Harmel Phlastogryl's suggestion to the board of New Proxima Lines was that they should cease trying to compete with the other spacelines and redirect their finance and energies in supporting them through the development of rationalized, high-quality terminals and docking facilities which could be built either

Although the New Proxima Spaceline is still registered as a carrier, they are now best known for their production of spaceline terminals such as the familiar Harmel Globe shown here.

TONY ROBERTS





by Proxima itself or under licence by local construction companies. The advantage to the other operators would be to ensure that all flight facilities were of the same high standard and that they would be able to concentrate their investment on the craft and services directly related

to the business of carrying passengers or freight.

Within a few years the first New Proxima Lines terminals were opening for trade at a number of key points along the Federation's spaceways. The best known of these are the Harmel Globes, huge crimson

free-fall spheres with highly sophisticated docking and supply equipment, efficient and totally automated transfer facilities and spacious hotel accommodation with recreational resources that rival those of some of the best leisure centres. NPL's experience as a spaceline was

PETER ELSON



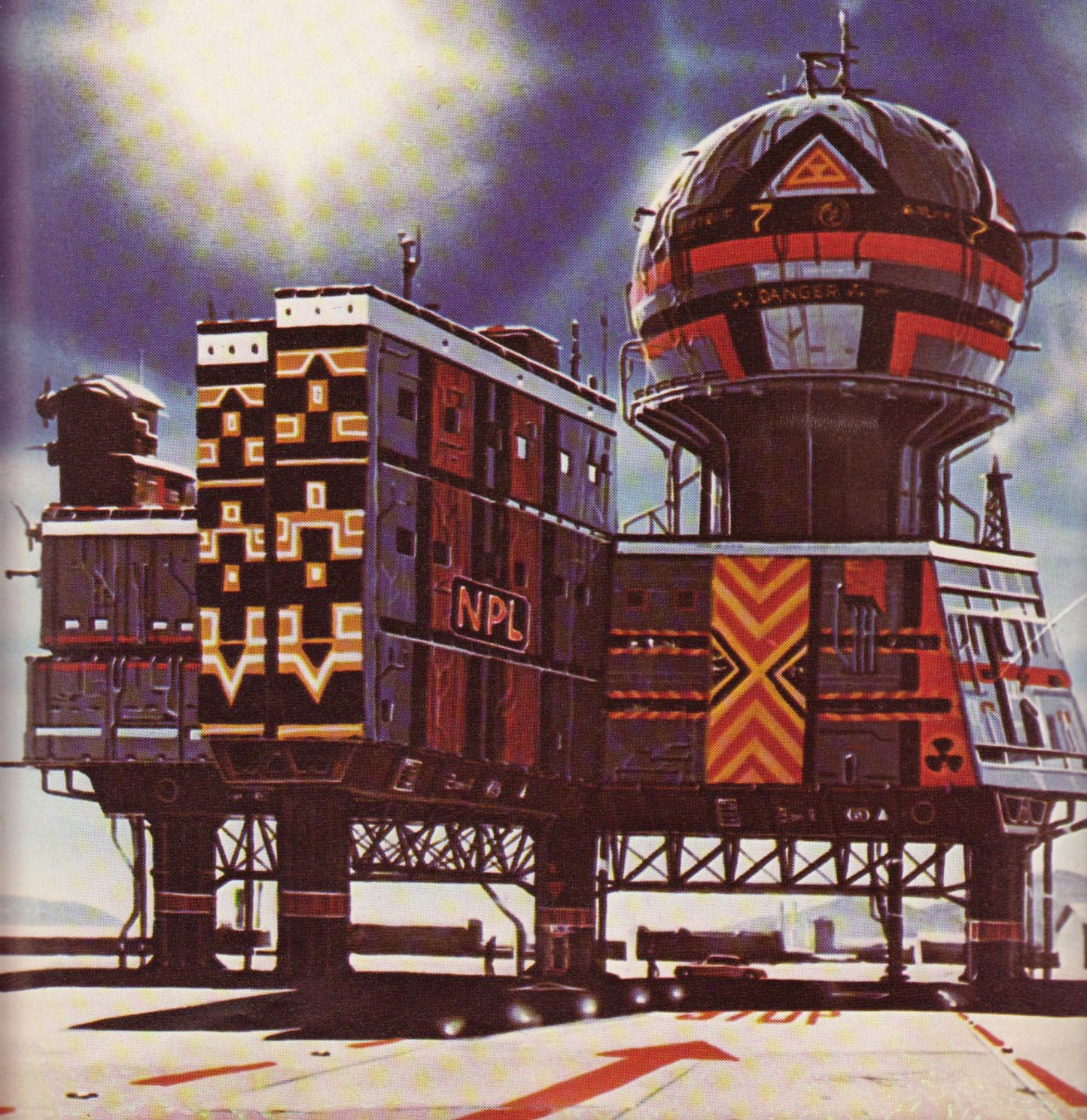
utilized by providing an efficient shuttle service between these terminals and the planets they served, and the globes themselves were either operated by NPL staff or leased.

The success of this venture encouraged NPL to expand into

similar areas and now produces ready-made terminals for a variety of purposes and conditions including the construction of transportable structures much in demand for mining and research organizations. The spaceline activities are now only secondary, but the company still

operates a limited schedule and charter service, mainly from selected terminals they have constructed.

New Proxima Lines have extended their terminal construction business to include mobile freight stations such as this Type 14 Chemplex on Altathia.



Monk's Field Spaceways

Registered Headquarters: Alpha Mensae

Date of Registration: 2172 AD

Status: Scheduled

Operational Area: Inwards—long and medium range

Fleet: 1 Consolidated Constellation, 2 TTA Argosys, 1 ACP Startrail, 16 Belton PL 90s, 3 Avery Astrofleets

For a long time the Alpha Mensae G6 dwarf sun was the home of a vast industrial and mining economy equalled only in its importance by the huge orbital complexes of Jupiter. It is a three planet system that was colonized during the early twenty-second century following the expedition led by Dr Edward Monk. Originally only one of the worlds, Monk's Field, was settled, and after a difficult initial period the enormous mineral resources of the planet began to provide the basis for a wide variety of manufacturing industries. The great prosperity of the planet resulted in the ambitious plan to entirely recondition the inner of the two uninhabited worlds, which, though still in progress, has provided it with an adequate atmosphere and the other benefits of terraforming. Already a significant number of companies are based there and it is expected that almost thirty per cent of the capacity will be filled by the turn of this century.

Despite the rapid expansion of the Beta Phoenicis system into what is now the largest industrial centre in known space, Monk's Field remains vital to the well-being of the inner regions of the Federation. Whereas Beta Phoenicis lies nearly 180 light years away from Sol, Monk's Field is only twenty-eight light years away, and the lower transport costs of goods produced there are reflected in the prices.

Among the many heavy industries in the Mensae system are several shipbuilding concerns manufacturing a wide range of components for the assembly plants of some of the Federation's biggest manufacturers,

including the Terran Trade Authority. One company, however, produces finished ships in limited quantities. Belton Aerospace only constructs about thirty craft a terran year, of which about ten are one-off private cruisers. The rest are units of the PL 90, an expensive but immensely durable and efficient commercial liner. The order book for these superb ships is always full despite the very slow production rate and even second-hand models fetch a high premium.

When Belton first produced the prototype they were so delighted with the result of the tests that they went straight into production before a single customer had been approached. The chairman, Antony Belton, a direct descendant of the founder, was so determined that the new craft would make the maximum impact on interstellar flight that he decided that the best way to introduce the ship was in the livery of a brand-new spaceline. Monk's Field Spaceways was formed as a result and a year later the first Belton PL 90 carried a full complement of passengers to Miami Spaceport on Earth. The spaceline continued to operate even after the reputation of this delightful ship had been established and still does today although the only regular run is to the Sol System and back. Other routes are served on a charter basis. Profitability is low but the value in terms of publicity is well worthwhile as one of the ships employed is the original prototype hull even though the on-board systems have been updated. The only concession made by the Belton works to products

manufactured outside their own factories is the STUD system with which they have been fitted.

In order to satisfy TTA regulations that scheduled spacelines should offer a minimum number of flights per franchised route, Monk's Field Spaceways has found it necessary to purchase a few vessels from other manufacturers, but in some cases they bought only the hulls and fitted them out with their own products and drive systems. As a result of being able to make first hand comparisons themselves, they have found that a Belton PL 90 has a service life that exceeds that of most other commercial craft by an average of twenty-four per cent with significantly lower maintenance. As the general purchase price in terms of amount per head capacity is only seventeen per cent higher than average it is not surprising that the order books continue to overflow. Nevertheless, the arrival of one of these fine ships, particularly when in the bright orange livery of Monk's Field Spaceways, at any of the Sol System orbital terminals is a rare enough sight to cause a stir of interest. Some examples operated by the Federation Defence Force can also be seen in the spaceways on occasion, while one is used by the Space Patrol for Perimeter Patrol duty which will soon be joined by a second.

Generally regarded as being one of the most reliable commercial ships in everyday use, the Belton PL 90 has remained largely unchanged since its introduction in 2173 AD. The only component not manufactured by Belton themselves is the STUD system. Here one of these sought-after vessels approaches the Earth at the end of the voyage from Monk's Field.



Commeck Carriage

Registered Headquarters: Capella

Date of Registration: 2229 AD

Status: Charter

Operational Area: Aurigae to Homeworlds—medium range only

Fleet: 4 TTA Argosys, 3 Consolidated Constellations, 2 TTA Caravan B2s,
3 Belton PL 90s



In 2128 AD a number of giant colonizer ships left the Homeworlds carrying a dismal cargo of unfortunate beings whose genetic codes had been irretrievably altered by the terrible effects of the Proxima Wars. These mutants were assisted in their wish to emigrate en masse to a planetary system of their own by the Federal authorities (see *Terran Trade Authority Handbook—Great Space Battles* page 82). Some years later in 2212 AD, a TTA Welfare team making one of its routine visits to the colony in the Alpha Aurigae (Capella) system was starting its forty-five light year journey back to Sol when a minor technical fault forced them to make a landing on one of the other planets in the system to effect repairs.

There they made an extraordinary discovery, for although no sentient life existed there it was clear that a highly developed civilization had once flourished on this semi-tropical world. It was their legacy that astonished the welfare team most for they found that a sophisticated society of robots continued to inhabit the world. The news excited considerable interest among technologists back in the inner systems and several expeditions were immediately mounted to investigate further.

Ample evidence of the extinct species remained to allow the scientists to unravel their history and a strange story emerged. It seems probable that, despite the high level of technology they had evolved, a fatal combination of changing climatic conditions and the appearance of a virulent and fatal

strain of virus slowly wiped out the race. However, by the time this occurred they had developed a complex robot technology with mechanical devices attending to almost every aspect of daily life. The devices were capable of maintaining and repairing each other as well as constructing replacements and additions as required. The entire planet was dependent on these robots for every service and activity and, when their masters slowly died out, the intimately inter-related activities of these devices continued without pause. They were entirely self-sufficient in that their various forms controlled the acquisition of raw materials, processing and the design and manufacture of any new machine required.

The investigators found themselves in the middle of a thriving society of artificial creatures so highly developed that it raised the question of whether they should be considered as the legal occupants of a planet within the jurisdiction of the Federation. They were clearly the originators of an intelligent society that had progressed well beyond that created by their original masters, and were in control of their own affairs, namely the perpetuation of the status quo and their own survival. Had it not been for the fact that these creatures stated that they had no desire to play a part in the affairs of the Federation, the authorities would have been faced with a major dilemma. As it is the philosophical arguments rage on.

These unusual inhabitants had no objection to off-world visitors and seemed, in fact, to enjoy the

opportunity of providing numerous amenities and services for those that came to look at this remarkable planet. Before much time had passed, many of the tour operators were advertising trips to Commeck, as the planet had been called, and found themselves inundated with bookings. After the first few excursions took place it was clear that the planet possessed almost everything a holiday charter company could have hoped for; an agreeable semi-tropical environment and climate, the relics of a fascinating and long dead civilization, the marvels of a sensational artificial one and a wide range of entertainments provided by their mechanical hosts.

It was only a matter of time before some enterprising party based a transport organization on the planet itself, and in 2229 AD a wealthy industrialist from Esthymon managed to secure the franchise from the TTA and established Commeck Carriage in the equatorial regions. It was an overwhelming success right from the start as not only was there no shortage of customers, but operating costs were among the lowest in the Federation. The local inhabitants were quite happy to repair and maintain Commeck Carriage's ships without charge and were even capable of manufacturing replacement parts.

The TTA did intervene, however, when the company attempted to make use of the robot inhabitants to design and build ships from scratch as this would have seriously undermined the entire fabric of Federation commerce and economy. Once a delegation from the

Federation Council had explained the problem to the robots, the latter understood and would not consider any further applications from unscrupulous traders.

The original civilization appears to have been humanoid in general form, a fact which made the TTA Welfare Division take great pains over establishing that the cause of the former's demise had eradicated itself over the intervening centuries. Their racial philosophy was an exaggerated version of that held by the Alpha Centaurians, who are, in fact, among the most frequent visitors to Commeck, and seemed to be based on the idea that art was the fundamental justification for intelligent existence. The robot technology was evolved in order to free them from the need to devote any great amount of time to the problems of physical existence.

The methods of expression they subsequently developed took many forms, from a return to primitivism to complex, computer-based works. It is worth noting the considerable effect that the heritage of these long vanished people have had on contemporary art throughout the Federation, and a visit to this strange world is worth the expense.

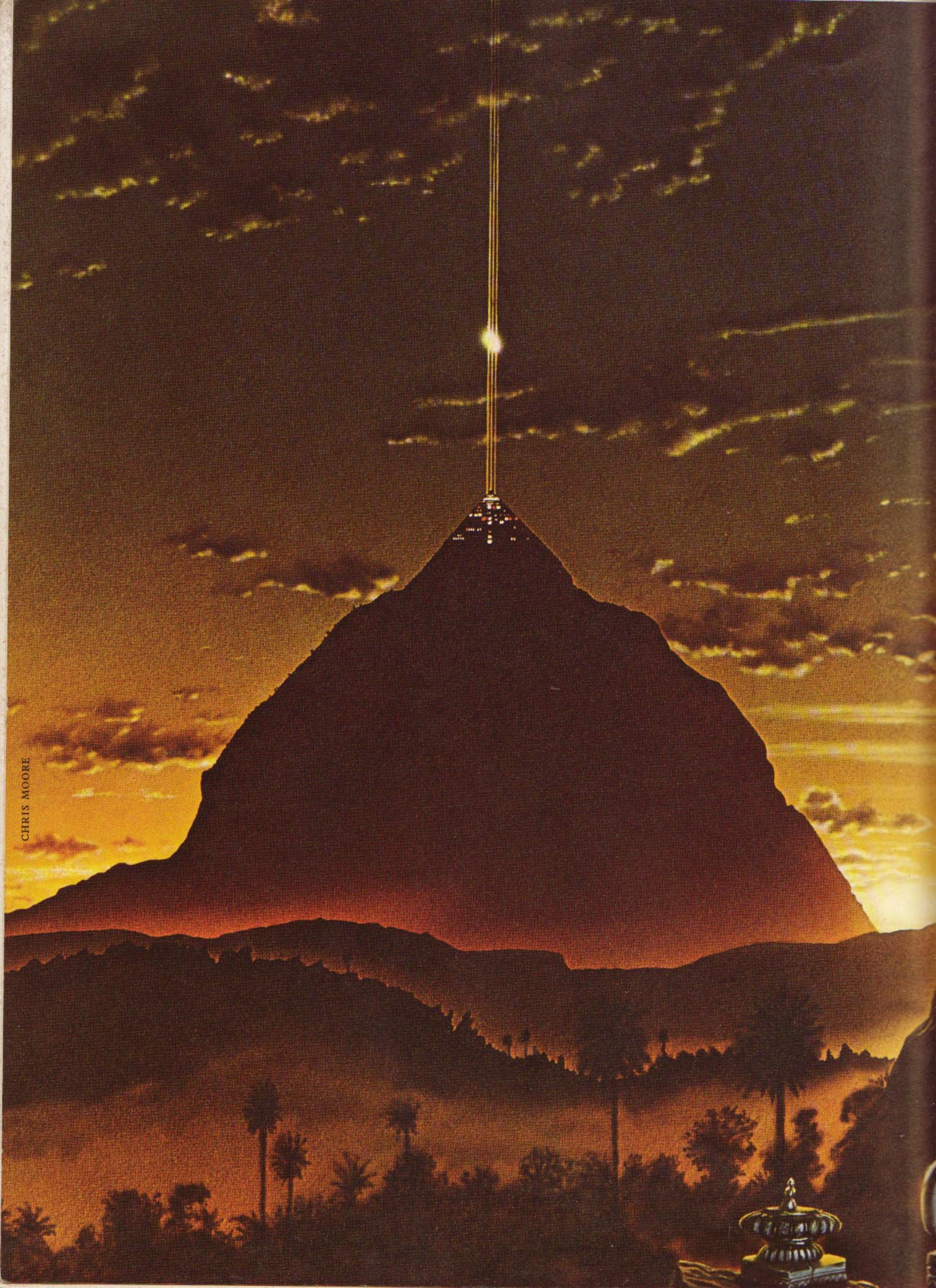
This railed robot could be one of the original designs as it bears a close resemblance to the images of the living inhabitants that have been found in some of the tombs.

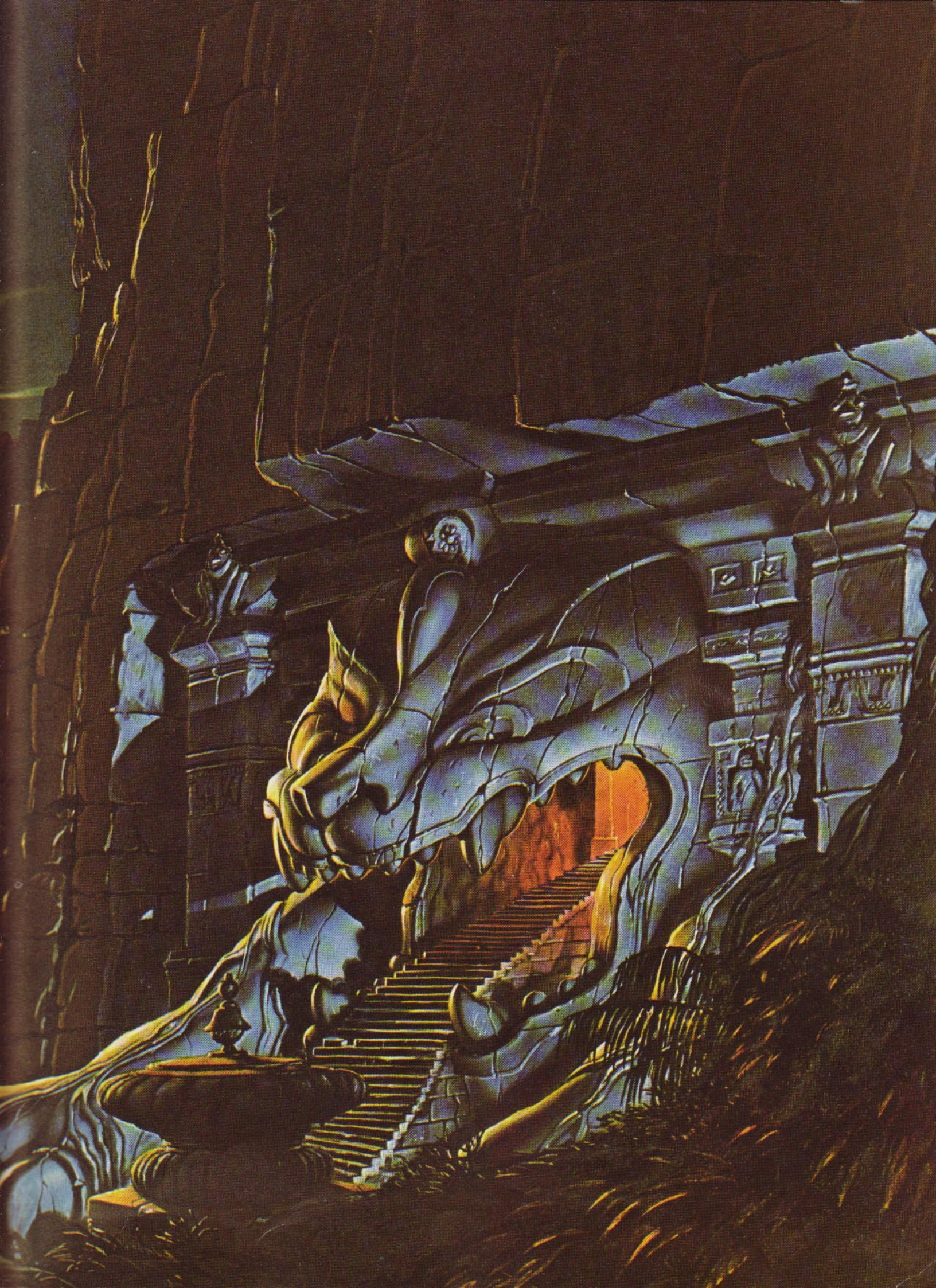
Overleaf: The extraordinary variety of artistic expression pursued by the long dead peoples of Commeck is amply demonstrated here. In the foreground is one of the primitivist works carved by laser from the mountainside, while in the distance is a sophisticated computer-based work which transmits a powerful beam of light thousands of metres into space.

FRED GAMBINO



CHRIS MOORE





Synakkah Frynysh

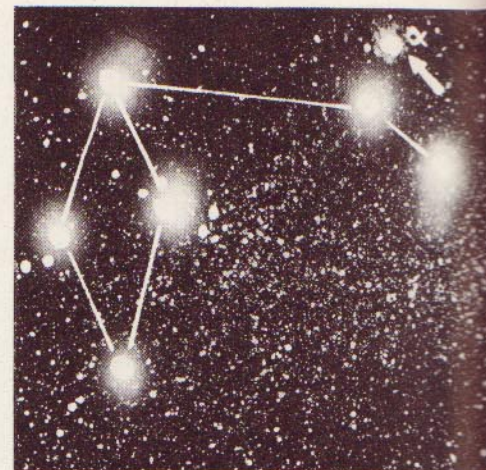
Registered Headquarters: Alpha Phoenicis II

Date of Registration: 2218 AD

Status: Scheduled

Operational Area: Selected destinations—short range only

Fleet: 1 Avery Galactic Queen, 4 Consolidated Constellations, 3 ACP Startrails, 33 Synakkah/Avery P4s



Seventy-six light years away from Earth lies the G5 sun of Alpha Phoenicis, and among its four captive bodies is the world called Synakkah Musfor, a watery planet with a land mass of only fourteen per cent of its surface. Ignored for some years by the authorities in favour of more promising sites, it was not until late in the last century that the world was discovered to be the home of an advanced species with a highly developed technological culture. As might have been expected on this watery world, the dominant species was aquatic and are, in fact, not unlike the terrestrial lobsters. However, despite, or possibly because of, the handicap of their massive limbs they developed metal-working skills far back in their history and have, through the evolution of various types of mechanical 'slave' units capable of very fine manipulation, built up a mechanized culture the equal of any in the Federation.

Their dependence on a substantial water supply and a lack of shortcomings in their home environment meant that there was never any previous inducement for them to leave their planet. In fact, they never had cause to explore the potential of space travel until the arrival of Federation ships made them aware of the universe beyond their misty skies. Their natural curiosity, however, spurred them into a desire to visit other systems and they willingly entered into a trade agreement with the Terran Trade Authority to supply various goods and raw materials in exchange for technical advice and training

related to the development of spacetravel potential.

They proved swift to learn and industrious in applying the knowledge they acquired so that within ten years they had successfully produced a handful of craft capable of taking them to other parts of the Federation. As a valuable by-product of this activity, combined with their considerable medical science, they developed a remarkable artificial respiratory system which allowed them to exist outside the vast seas of Synakkah Musfor. Since then their contribution to life within the Federation has been enormous and, apart from exporting important minerals extracted from the seas, the planet has become a major medical centre.

Patients and scientists from scores of worlds converge on Synakkah Musfor to receive treatment for any serious illness that has proved beyond the resources of their native planets or to study in the various research centres that have been established there. It was to encourage and trade on this traffic that the Synakkahans decided to establish a commercial spaceline. Because an increasing amount of the limited land surface was being taken up by medical laboratories and interplanetary treatment centres, they opted for the purchase of the necessary craft from existing manufacturers rather than develop and produce their own. Once they received the ships ordered, however, these were adapted to incorporate control and guidance systems more suited to their unusual anatomy.

This spaceline, Synakkah Frynysh,

is also responsible for surface communications and transport, particularly important on a world where what little land mass there is comprises hundreds of small islands and atolls. To overcome the difficulty of getting the thousands of off-world visitors to their many separate destinations once they had arrived at the main terminals, the Synakkahans designed and commissioned a large number of sea-going passenger craft. It is a credit to their technical ability that, in a field in which they were novices, they produced a design which proved extremely efficient and swift, requiring the minimum of revision before it went into production.

The final manufacture was carried out elsewhere, some parts being made up by Belton, the engines by Clayden Engineering and the rest of the fabrication and final assembly by Avery Astronautics. The result was the Synakkah/Avery P4 Aquabus, which was basically a spacious hull running on two slender aquaplaning stilts and powered by a medium-sized Hydrion thrust motor. The carrying capacity of each vessel averages about 300 passengers plus a useful freight payload. These interesting craft, capable of speeds up to about 400 miles per hour, have minimal maintenance costs because

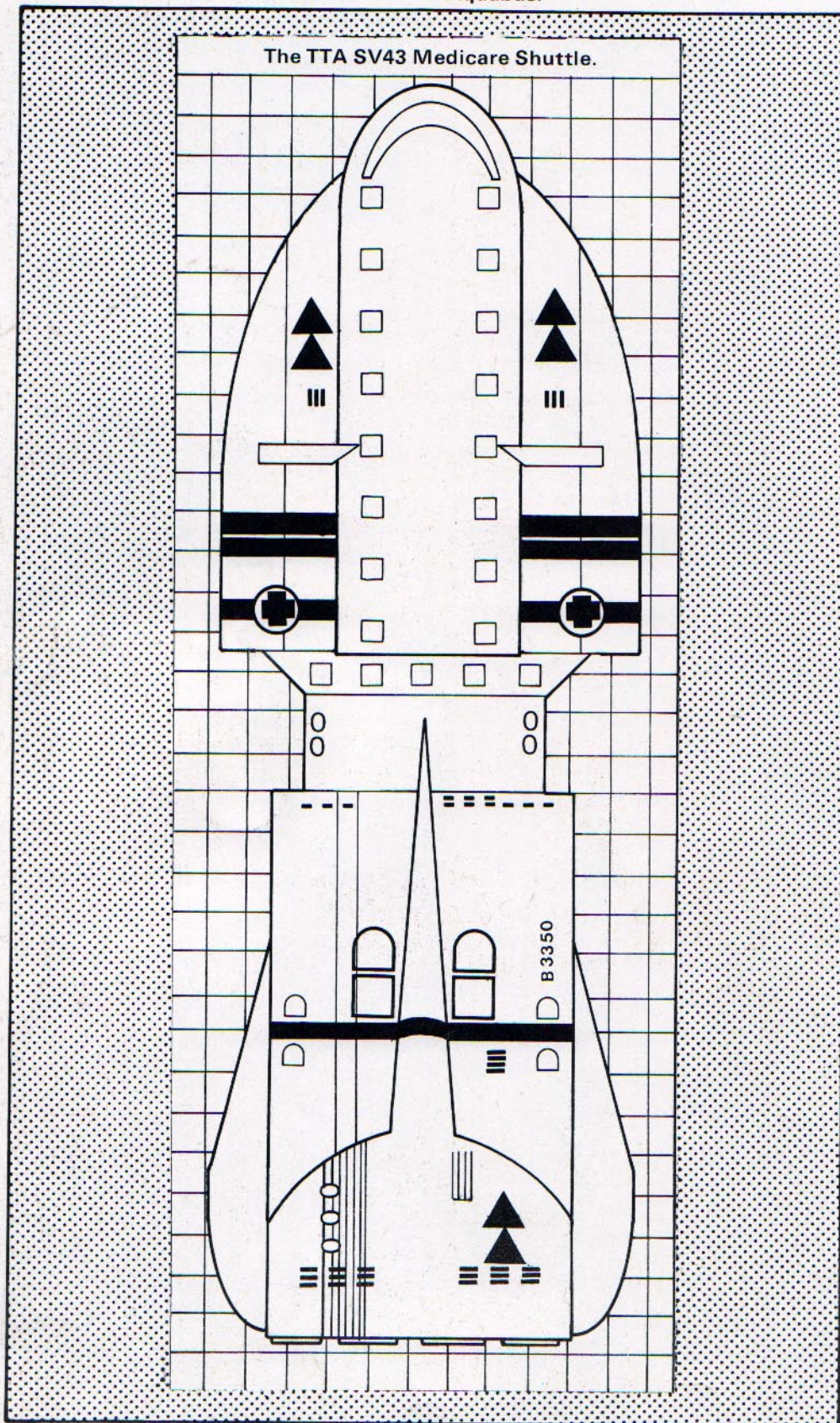
The Governor-Elect of Synakkah Musfor, Brineclai Den, gave his enthusiastic support for an association with the Federation that led to the founding of their own spaceline, Synakkah Frynysh, and the development of medical facilities for off-world patients.



the thrust motor is working well under its capacity.

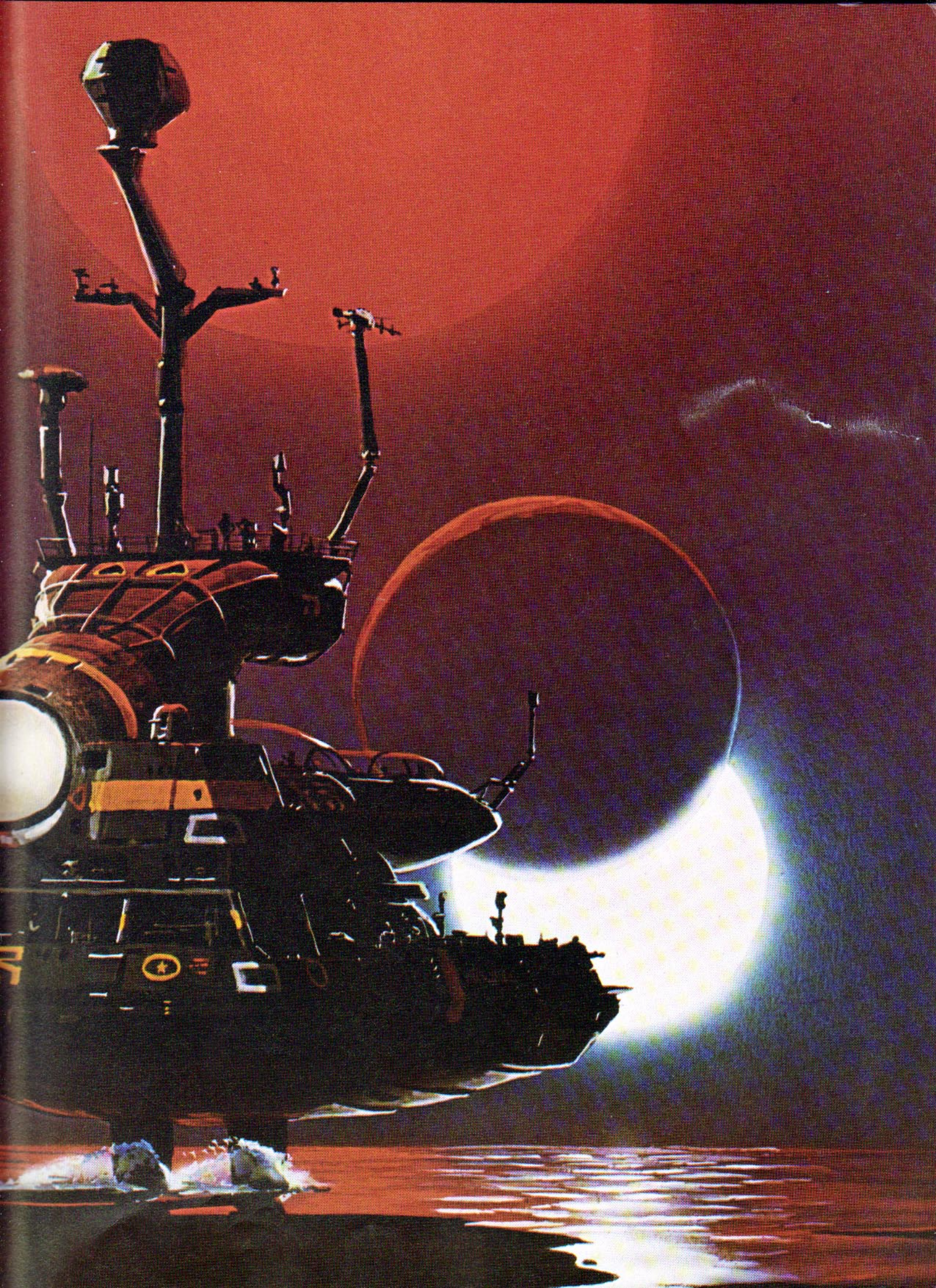
Even if you have no need of the extensive medical facilities on Synakkah Musfor, the magnificent submarine cities and gardens of the inhabitants are well worth a visit on one of the Synakkah Frynysh tours.

The Synakkahan planet consists of vast tracts of sea with the only land masses comprised of thousands of small, scattered islands. In order to provide surface transport for visitors, the Synakkahans designed this jet-ship, which was manufactured in association with Avery Astronautics, and is named the Synakkah/Avery P4 Aquabus.



PETER ELSON





Magnum Charter

Registered Headquarters: Alpha Gruis I

Date of Registration: 2199 AD

Status: Charter

Operational Area: Universal—subject to declared flight approval

Fleet: 14 Deelian Type 2s, 3 Deelian Type 3bs

Note: Although operating approval has been granted in principle, Magnum Charter have yet to apply for a full permit, and flights are subject to change

The sun Alpha Gruis, otherwise known as Alnair, is a B5 white star about ninety-one light years from Earth in the southern hemisphere. It is the centre of a four planet system of which only one is habitable, and occupied by a sentient life-form. These creatures, the humanoid Natans, did not originate on this planet but from the regions beyond the Federation's Perimeter. Researchers and the Natans themselves believe that they are the descendants of the survivors from a Natan ship journeying from the home world that crashed in the Alpha Gruis system and were marooned there. This theory is supported by the existence of certain artefacts held sacred by the people there, which appear to be fragments of constructions that may well have been part of an interstellar vessel. These fragments have, however, been reliably dated as being over 2,500 years old.

The Natans are a quiet, serious-minded race with little interest in the rest of the Federation, despite their declared wish to become members. In exchange for medical supplies, various foodstuffs and luxury goods, they export only enough minerals and works of art to pay for their imports and despite a high level of technology do not generally travel beyond their own system. Rather uncharacteristically, however, they expressed a desire to extend their freight-carrying services to include passenger transport, and applied for the appropriate licences some years ago. Provisional approval was granted to permit the carriage of a small passenger quota, subject to the

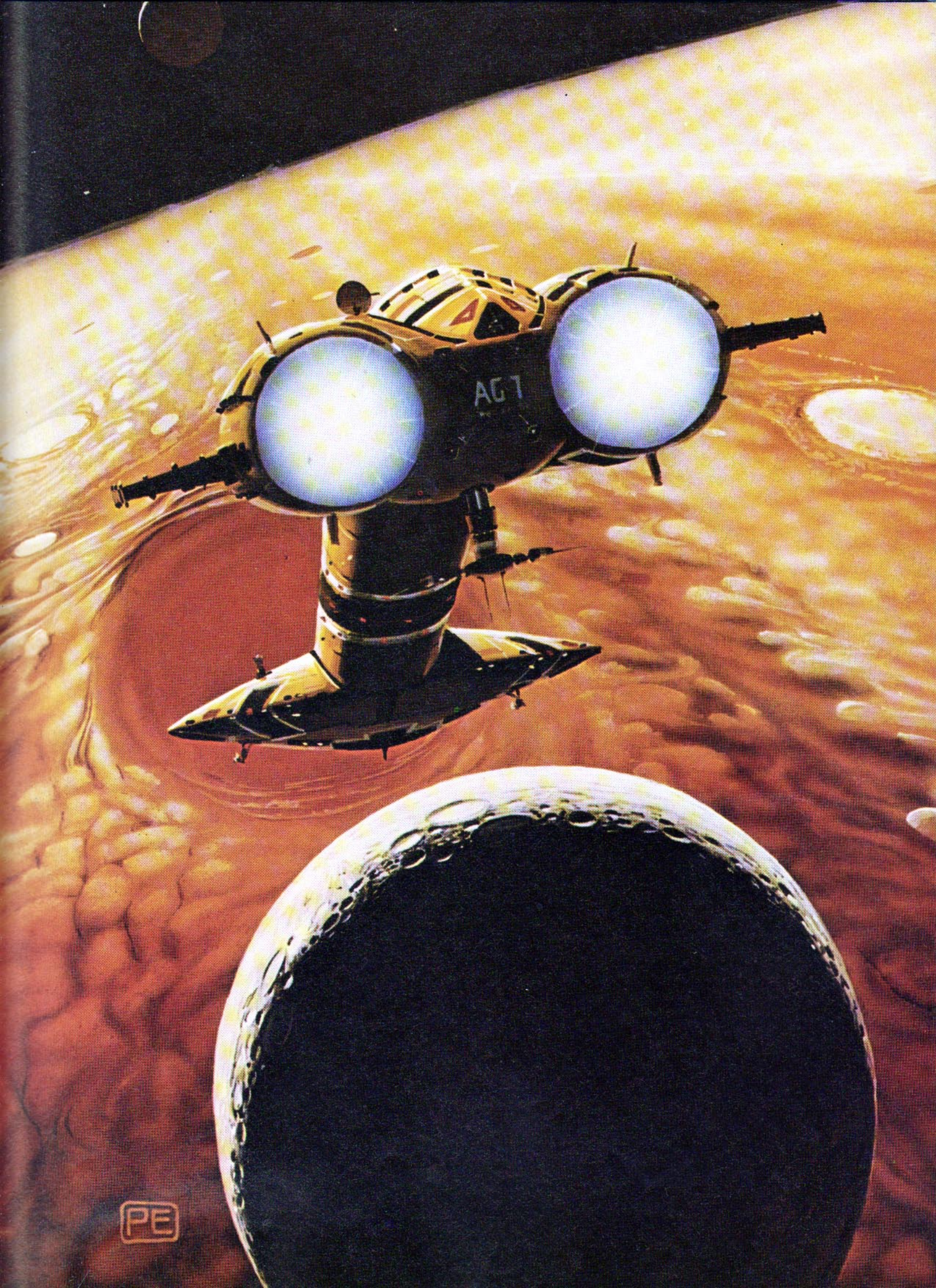
approval of all the various facilities and standards of equipment required for full scale commercial operation.

An excellent terminal was constructed on Alpha Gruis I, capable of handling a substantial throughput, and a number of ships designed to satisfy the criteria laid down by the TTA were built in the Natans own yards. After the inaugural flight, almost a year passed without any further application being made. When approached by the TTA, the Natans stated that they had decided not to apply for full schedule status and that they wished only to retain provisional status for the time being. Each time the approval is due for renewal the reply is the same; it seems that they are reluctant to invite a larger flow of visitors than they have already. They place no limit on those wishing to land, but the number of entrants is automatically restricted by available seats. In holding charter spaceline classification they are not obliged to maintain a published schedule and flights are infrequent and irregular. Launch and arrival times can only be obtained direct from the Magnum Charter Office at the point of departure.

One of the few routes served on a fairly regular basis is between Alpha Gruis I and the industrial complexes of Jupiter. Here a Deelian Type 3b of Magnum Charters makes its final approach to one of Jupiter's moons.

PETER ELSON





Starlink

Registered Headquarters: Delta Bootis

Date of Registration: 2201 AD

Status: Scheduled

Operational Area: Universal—mid range. Large freight division

Fleet: 4 Galactic Queens, 8 Avery Astrofleets, 3 ACP Startrails,
6 Consolidated Constellations, 4 Adams C23 Ensigns

The yellow G4 sun of Delta Bootis lies about 116 light years from the Sol System in the northern hemisphere. Its planetary system consists of eight bodies of which seven are no more than large chunks of airless rock. The eighth is the planet of New Mars, a small but fairly dense world, which bears an uncanny resemblance to its Sol System namesake. It was settled in 2163 AD and was expected to prove a valuable source of minerals for the hungry processing plants of the industries of the inner planets. The rich ore lodes discovered during the pre-settlement surveys, however, proved to be fairly exceptional pockets, and it was soon apparent that mining and processing were not going to support the colony.

A number of fortunate accidents came to the rescue and flora unique to New Mars proved to be of quite extraordinary medical value, becoming a lucrative source of revenue. The equatorial regions were capable of supporting a spectacular range of plants and the planet became well known for its cultivations. Gradually, New Mars' second industry, tourism, began to grow, and the local authorities decided to expand the national freight line to offer a passenger service. Initially it was scientific interest that was attracted but as the culture of artificial environments was extended an increasing number of laymen began to pay the planet a visit.

The Starlink spaceline invested in several large liners to provide a basic fleet but intended to develop their own manufacturing facilities in competition with the major

shipbuilders on other worlds. The first design to be approved for public transport by the TTA was the Ensign built by Adams Engineering, a small but well regarded works which received additional finance from the government in order to increase the scale of their operation and purchase the necessary machinery. It entered service in 2245 AD when two examples began the New Mars to Sol run and was followed by a further pair eighteen months later flying the Centauri route.

They were finely made ships with all components except the STUD system and the Avery drive units being manufactured by several concerns on New Mars. Unfortunately the government's hopes of establishing a substantial shipbuilding industry on the planet have not come to fruition as it has so far proved impossible to secure sufficient orders to be able to offer the Ensign at a competitive price. Through the experience gained in producing the Ensign, however, Adams Engineering have gained a strong foothold in the private market and continue to design and build a growing number of commissions.

Starlink is a spaceline with a very relaxed and informal approach to the business which has earned them great loyalty among those flying regularly to and from New Mars.

Built on New Mars by Adams Engineering, the C23 Ensign is driven by Avery Hydrion units and is equipped with the STUD system for the longer runs.

PETER ELSON





Mercantile Passenger Services

Registered Headquarters: Delta Phoenicis

Date of Registration: 2187 AD

Status: Scheduled/Charter

Operational Area: Universal—combined freight/passenger charter service.
Enquiries to any regional office

Fleet: 8 Avery Galactic Queens, 4 Belton PL 90s, 5 Consolidated Constellations, 2 Alcadol Maxliffs, 2 TTA Connestoga IIs. Assorted freight vessels with passenger capacity subject to advance bookings only



Mercantile Services has grown from its early days as a small shipping company on Antico, in the G4 solar system of Delta Phoenicis, into one of the largest transportation groups in the Federation. Its activities now cover almost every form of carriage from ore removal to the transfer of dangerous materials and they are often employed by governments to advise on particular or unusual transportation problems.

Some years ago they began to offer passenger cabins on some of their cargo ships and, as the destinations were often those not served by any regular spaceline, the TTA granted a limited licence to do so. Mercantile Services found the trade very profitable and decided to set up a proper charter division within the group. Backed by adequate finance, Mercantile Passenger Services opted for the main routes while continuing to offer rudimentary passage to the more obscure destinations as before. With this in mind they purchased only the larger passenger craft and are the only privately-owned company to operate the huge TTA Connestoga II. This gigantic craft was designed as a high capacity freighter, the replacement for the old Connestoga supply ship produced to carry all the requirements of the early colonists during the heyday of exploration in the early twenty-second century.

Mercantile completely redesigned the interior of this ship to provide a huge amount of passenger accommodation and facilities as well as a large travelling hotel section for

cruising. Although the cost was extremely high for the two vessels they equipped in this way, they appear to be profitable, being used exclusively for the Inner Worlds—Esthymon route which represents the busiest in the Federation. Because they were originally conceived as military craft and therefore had to be as flexible as possible, they are the largest ships in service to be equipped with Clayden Negative Mass Generators. As a result Mercantile had to construct their own landing areas on the edges of the major spaceports to avoid interfering with regular traffic.

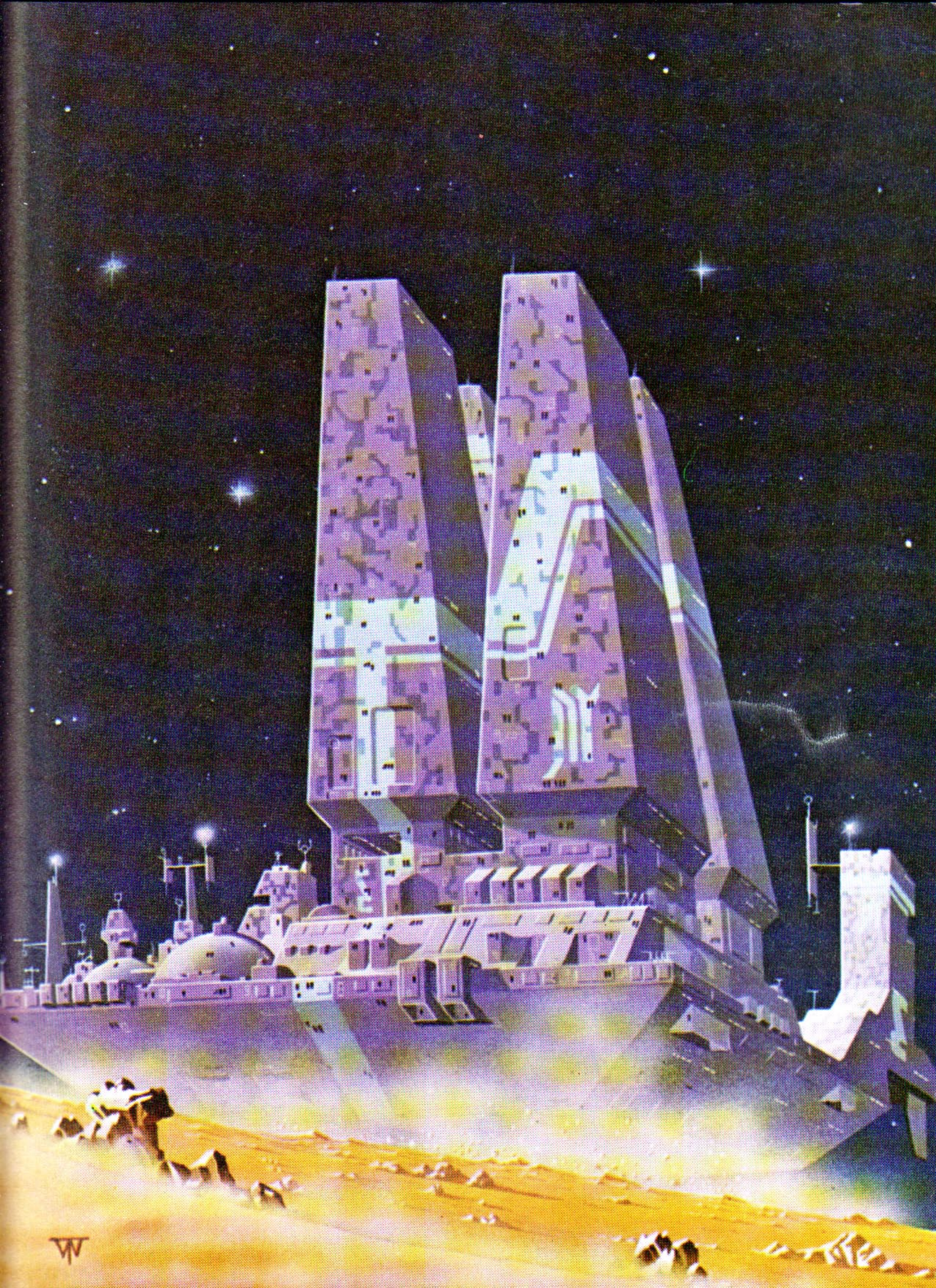
At the end of each scheduled flight the great ships swing out past the last landing point and round in a wide arc to carry those passengers on board for the cruise through the most interesting parts of space beyond, before returning to pick up the regular clients for the journey back to the first scheduled departure point. Although the scheduled flight time is as quick as any available, they are less frequent as a result of the cruise element of each voyage. The experience of travelling aboard one of these extraordinary vessels, however, is well worth any inconvenience caused by the infrequency of the service.

In complete contrast to the vast magnificence of the Connestogas, travelling aboard one of Mercantile Passenger Services freight/charters is also an unusual way to reach your destination. The freighters used are all approved by the TTA and carry all the safety provisions customary

for civil passenger ships, but recreational facilities are only those found on any cargo vessel. Flight paths are geared to the ship's payload and offer a view of the Federation not normally experienced by travellers. Informality is the keynote of each trip and arrival times are dependent on the speed with which the vessel is cleared through its various trading points. Freight traffic is often less punctual than the rigidly controlled passenger services and travellers using this method of transport should be prepared for delays. In many cases, however, it is the only way of reaching a destination not served by either the scheduled spacelines or the regular charter groups.

The huge Connestoga IIs are a rare sight and are descended from the great ships that carried the early colonists to unknown worlds far from the official boundaries. They are the largest vessels in service to be equipped with the Clayden Negative Mass Generator.

Overleaf: A flight aboard one of Mercantile Passenger Services modified freighters is very different from the usual liner passage, and provides an interesting change of pace.



FRED GAMBINO





Esthymon National Spacelines

Registered Headquarters: Beta Phoenicis

Date of Registration: 2231 AD

Status: Scheduled

Operational Area: Universal—all ranges

Fleet: 16 Galactic Queens, 21 TTA Argosys, 12 ACP Startrails, 6 TTA Sungliders, 14 Belton PL 90s, 8 TTA Caravans, 6 ACP Doralillows, 15 Avery Astrofleets and numerous short-haul and shuttle craft

In 2223 AD an Alpha Centauri and Terran joint settlement group set down on a balmy, lushly vegetated world in the complex system surrounding the G4 star of Beta Phoenicis. At 180 light years from the Founder Worlds it was the furthest point yet explored, but from that small colony sprang the most important commercial and industrial centre in the entire Federation. As the most complex system yet discovered, it contains no less than three huge asteroid belts in addition to the twenty-seven planets, excluding their moons. Only one of these was naturally habitable, Esthymon, but the bewildering wealth of resources represented by the giant system brought the developers and their investment to it in droves. Within a few years it was rivalling the Jupiter complex in economic importance.

The early years were notable for their lawlessness and disorder in this booming frontier environment, but gradually the adventurers and fortune hunters gave way to constructive exploitation. More and more of the secondary worlds were made habitable and the system was soon a thriving and prosperous commercial entity. Esthymon itself became the largest recreation centre in known space, catering not only for the workers on neighbouring industrialized planets, but for the millions of pleasure-seekers flocking to this stellar playground.

All the spacelines operate services to Esthymon as do scores of charter companies of every description. Yet the planet's own national line is hard

put to meet the demand and is constantly increasing its fleet. The main spaceport is itself one of the wonders of the Federation and is fully automated throughout. It is estimated that the average time taken from set-down to customs clearance is only 14.5 minutes, nearly half that of any other large complex. The main terminal is fringed by Esthymon's famous hospitality towers; luxurious stop-over places financed by the government from which clients travel to any of the thousands of hotels and resorts. The first night's accommodation and the journey to the final destination is paid for out of the terminal's landing taxes.

As part of their service to passengers, Esthymon National will, for a nominal extra charge, fly you to any destination on the continent of arrival in one of their delightful jet taxis, known affectionately as 'Go-Bugs'. This is a useful facility in view of the vast number of holiday sites which lie far off the beaten track and therefore the standard travelanes flown by the government service. The 'Go-Bugs' are manufactured by a number of builders on the industrial worlds under licence, and are also available for private purchase.

The skies are always alive with these energetic little craft but after a few hours even the first-time visitor becomes oblivious to their presence. It is the only inescapable sign of the huge temporary population supported by this fascinating planet. Enormous sums of money have been spent by the government to ensure

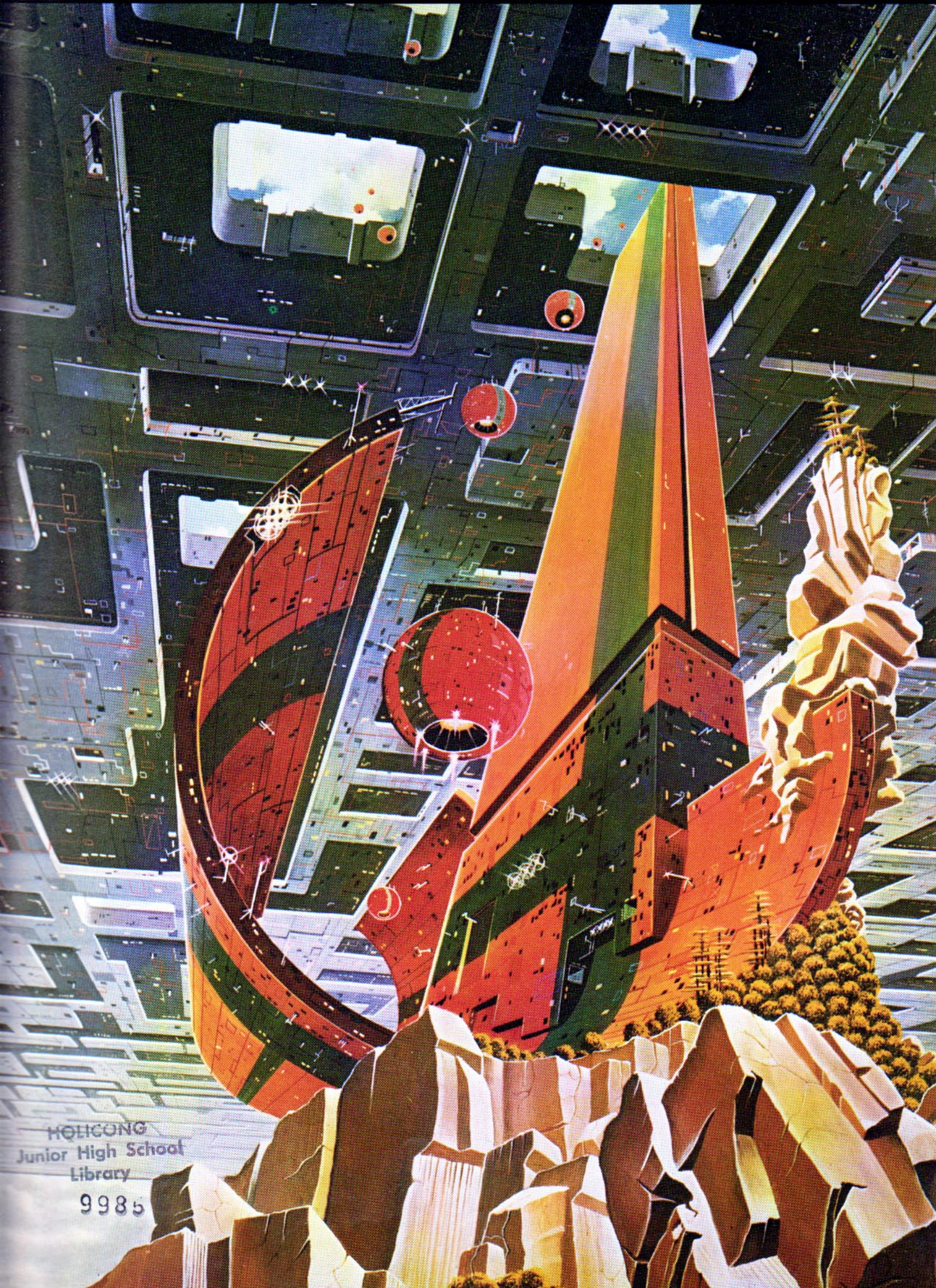
that the world does not become a sprawl of garish constructions and densely packed watering holes. All new developments are carefully monitored and controlled to retain the natural beauty of the planet.

Fierce competition between the spacelines fighting for the custom of the uncountable number of beings drawn to Esthymon has kept fares to a minimum whichever line is used, but the visitor should budget carefully for the facilities of the planet do not come cheaply. Nevertheless, there is plenty here to provide almost any species with all the creature comforts that they could wish for, and a holiday here will provide you with an experience you will surely never forget.

Esthymon main terminal is surrounded by these government sponsored hospitality towers where the first night's stay is free of charge. Customers then continue to their hotel or resort by such means as the scarlet shuttles seen here. These spherical craft built on Proxima Centauri, make use of conventional thrust jets and a miniature Clayden Negative Mass Generator.

Overleaf: One of the free spaceport shuttles speed a fresh band of holiday makers past some of the distinctive pleasure-complexes built by the late Alknin Flortibor, a celebrated local businessman and notorious high-liver.





HOLICONG
Junior High School
Library
9985





Wildway Tours

Registered Headquarters: Esthymon

Date of Registration: 2246 AD

Status: Charter

Operational Area: Restricted short/mid range

Fleet: 1 TTA Argosy, 2 ACP Startrails, 236 PT102 SkimKars (the 'Go-Bug')

Although officially classified as a second level charter organization and therefore outside the scope of this guide, Wildway Tours do deserve a mention because of the unusual package they offer. Most second line operators do not own their vessels but either lease or purchase block bookings on scheduled spaceline flights. A few of the larger ones like Wildway do run a small number of craft but their minimum service excludes them from the higher category. Wildway operates three ships and leases others on a short-term, seasonal basis. Nevertheless, it has considerable capital ties in hardware, namely a large fleet of the ubiquitous 'Go-Bugs' which are all based on Esthymon and play a vital role in their own individual scheme.

From very humble beginnings this enterprising young company has specialized in a field very different from the types of entertainment the visitor to the planet normally expects. In a field limited by the government who prefer to encourage visitors to enjoy the more lavish entertainments, Wildway are the leaders in adventure holidays, a form of relaxation that seems to be growing in popularity.

From the main arrival terminal, the clients are taken by 'Go-Bug' to one of the isolated Wildway camps where they are offered several alternative adventure schemes ranging from simulated settler camps to hunting for robot beasts.

The company has leased substantial tracts of unspoiled Esthymon forest and wilderness in which to distribute its camps, and visitors have no access, except in

emergencies, to the outside world.

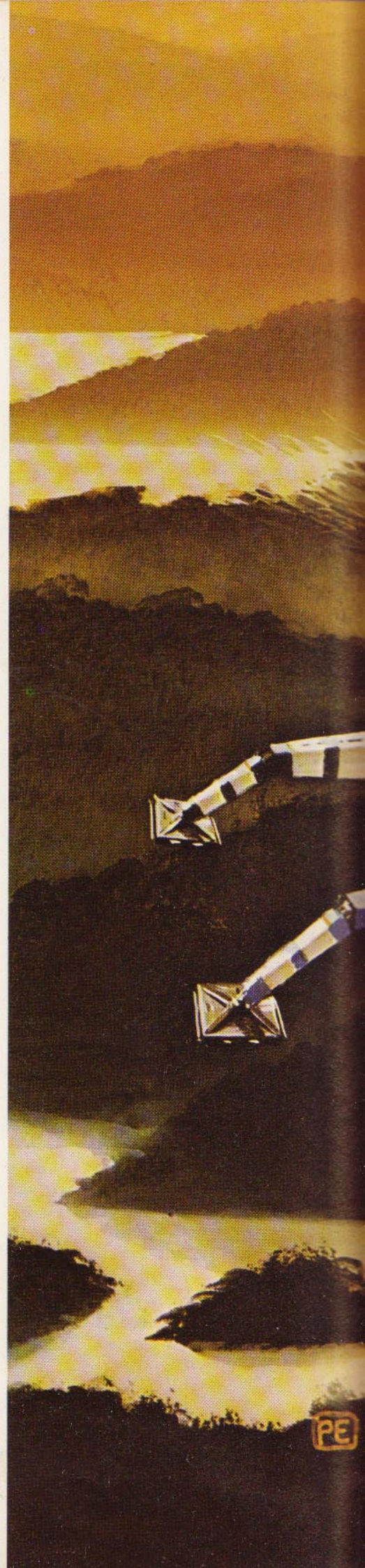
There they will experience, many for the first time in their lives, a complete lack of exposure to modern media and access to sophisticated technology. They will gain an exciting insight into what it is like to venture onto a new and unknown planet with the minimum of modern equipment. Unsettling though this experience might seem to the uninitiated, it is clearly one which has a powerful appeal as Wildways have one of the highest repeat booking records of all tour operators.

Although clients confirm that the sense of personal danger is very real to them, the camps are actually safer than their own home environments. Each one is under constant surveillance and all robot 'predators' are subjected to regular exhaustive checks and services to ensure that accidents do not occur. Those returning from a Wildway tour say that although they feel exhausted in every respect, they feel spiritually and physically renewed. This is particularly true of those whose usual routines are somewhat repetitive or uniform.

Wildways have applied for permission to increase the amount of territory leased and the government will shortly be reviewing the application.

One of Wildways Tour's large fleet of 'Go-Bugs' flies over a stretch of the natural wilderness in which their unusual 'adventure camps' are sited.

PETER ELSON





Challenge Express

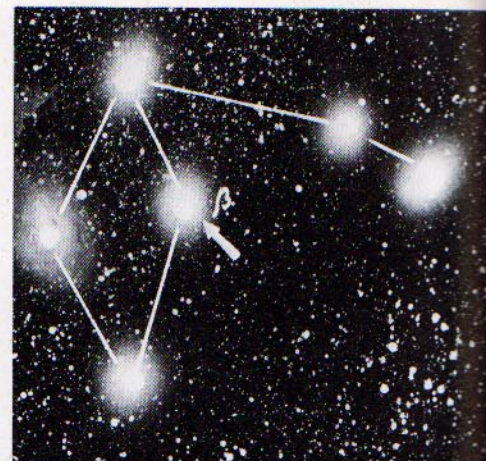
Registered Headquarters: Esthymon

Date of Registration: 2241 AD

Status: Charter

Operational Area: Universal—mainly mid and short range

Fleet: 4 Morkus Fireflies, 3 Morkuss Firestreams, 4 Morkus Firestars,
2 TTA Argosys, numerous short-haul craft



The founding of the Challenge Express Company is again the story of one man's determination to offer a high-quality, specialized service without being forced to compete with the big interstellar groups. Morgan Grantham was a senior officer in the Space Patrol for the best part of his life and proved himself an able and dedicated member of that invaluable organization. He joined as a cadet straight from technical university as he had never considered any other form of employment since first becoming aware of the Service.

Never really comfortable in an administrative role, he endeavoured to spend as much time as his rank permitted in the field, and his courage and dedication in the face of grave danger led to several awards for bravery. But his enthusiasm for fieldwork proved ultimately to be the reason for his departure from the Space Patrol; during an attempt to save a seriously damaged freighter that had suffered a reactor overload, Morgan Grantham was exposed to an almost lethal radiation dosage which left him permanently crippled.

Invalided out of the service, he refused to accept that his active life was over and looked about for some project to occupy his now ample time. He noticed that among the hundreds of charter companies there were very few specializing in an ultra fast service, and resolved to try and institute just such a line. The area in which he was particularly interested was that of emergency medical services, which is hardly surprising since the lack of just such a facility at the time of his terrible accident was

one of the reasons for his premature retirement.

Using his savings and the generous pension he had been awarded, Grantham was able to purchase two examples of the AFP 47 Ranger—a fast patrol ship that was due for replacement and had therefore been de-classified by the Terran Defence Authority. He knew these craft well as they had once been the standard Emergency Response ship of the Space Patrol earlier in his term of service. The remainder of his resources was expended on the modifications needed to restore the ships to operational status and to equip them for their new role.

It was a considerable gamble as up to that time all emergency services were carried out by the Space Patrol, the Medical Corps or one of the other official bodies. Grantham went to the Medical Corps board and outlined his proposal saying that he expected to improve substantially on the existing delivery duration targets and quoted as an example his estimated flight time from the Sol System to the Traffic Control centre orbiting Alpha Centauri. Whereas the official time was targeted at just under four days, Grantham insisted that he could make the run in a fraction under three.

The authorities refused to accept that the improvement was possible and Grantham issued them with the challenge that if they would permit him to share a routine practice exercise along that route, he would, if proved right, forgoe any fees for the first year after receiving the authority to offer his service. The challenge was accepted, and the

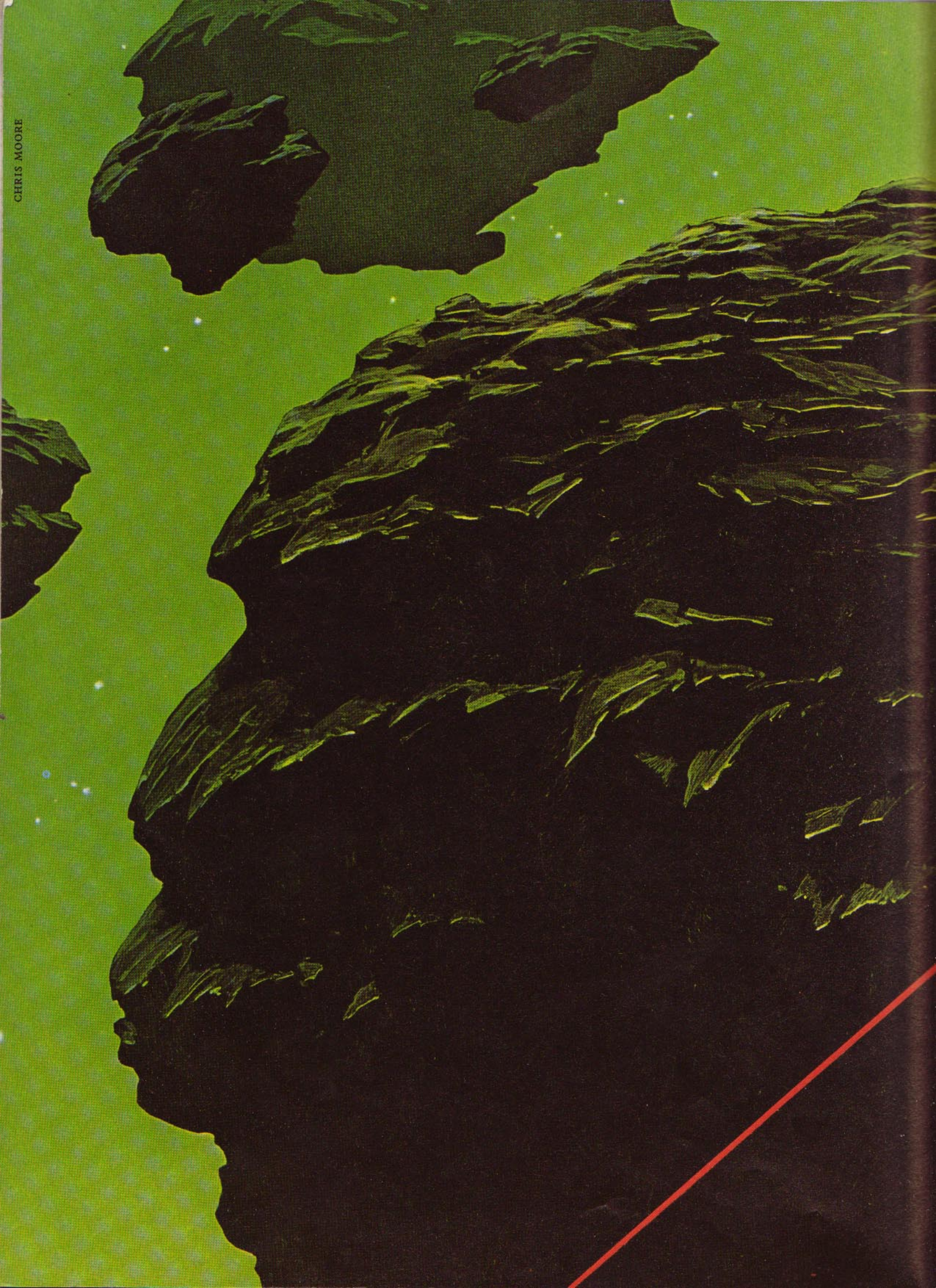
exercised arranged. As he said he would, Grantham romped home ahead of the patrol ship with three-quarters of a day to spare and the contract was his. Delighted with the vital saving in time that he had proved was possible, the authorities refused to hold him to his offer of free service.

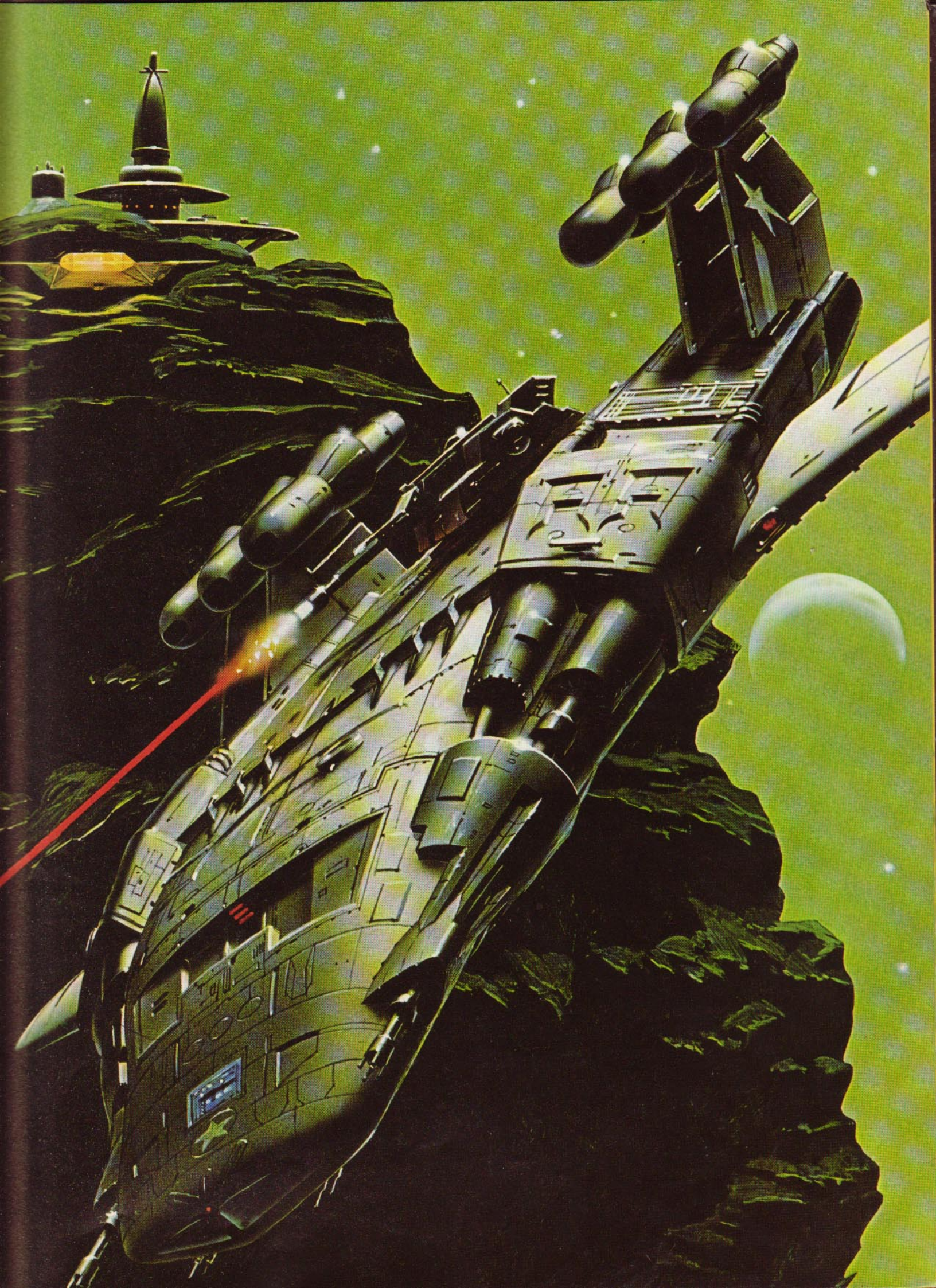
Since then, the Challenge Express Service has gone from strength to strength and has recently expanded their service to include a high-speed passenger service which though expensive has found a ready market.

Express delivery of urgent medical supplies is still the mainstay of Challenge Express' business. Here one of the ex-military craft modified by their own engineering company, Morkuss, blasts off with its vital cargo.

Overleaf: Grantham's ever growing reputation gives him special opportunities to buy de-classified military ships for modification to civil use. The TDA 640b Phaser class frigate shown here is one of the many types employed.







Nihalan Imphit

Registered Headquarters: Beta Leporis/Nihal

Date of Registration: 2219 AD

Status: Scheduled

Operational Area: Universal—long and mid-range

Fleet: 28 Nihal Tagris, 44 Nihal Chorkahs, 19 Nihal Pritadis

About the turn of the last century, TTA survey ships were beginning to explore the Beta Leporis system and a colony was founded on one of the planets that were discovered there. This world became particularly important to the Federation due to certain rare minerals found there of a kind which greatly contributed to faster-than-light drive systems. Because of the immense value of these minerals, the area continues to be administrated by the military; little information on the planet and local space was available for some time.

It was not until the recent introduction of the STUD system of propulsion, which made the earlier Hyperdrive process obsolete, that the region was de-restricted, and rumours which had been circulating for some time were found to have a firm basis in fact. The Beta Leporis system was certainly the home of a highly evolved alien species with a technology advanced enough to have developed spacetravel. They were, however, a retiring people who were quite willing to exchange mining rights with the Federation's Council for privacy.

They realized that when the STUD system replaced existing methods of motive power they could no longer avoid contact with the people of the Federation and decided to begin playing an active part in its everyday affairs. It was already a multiworld society, having occupied three out of the seven planets in the Nihal system, including a small settlement on Nihalan itself, but no attempt had been made to leave for other star systems. For long range travel they had, therefore, never felt

the need to employ any power system more advanced than a primitive Hyperdrive-type device.

After lengthy discussions with representatives from the Federation Council and the Alien Contact division of the Terran Trade Authority, they were offered help in updating their flight technology to bring it into line with that of the other member nations. Advisors from some of the major spacelines were also required to give assistance in the establishment of the Nihalans own passenger line. One of the vessels already in use for their interplanetary communication proved suitable for adaptation to an adequate long-haul liner. Nineteen examples were modified accordingly, and the craft is known as the Nihal Pritadi.

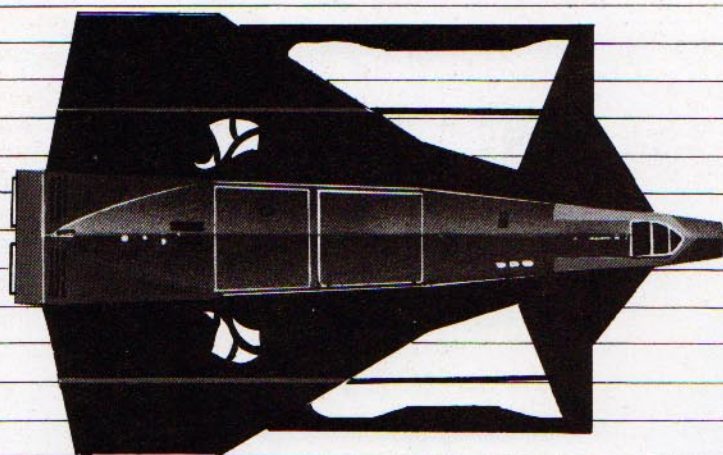
The Nihalan culture is extremely self-sufficient and trade with the rest of the Federation has never reached a significant volume. They have sufficient natural resources for their own needs, an almost impenetrable culture and little interest in the luxury products of Federal society. Few visitors from the other systems have any strong reason for travelling to Beta Leporis and such traffic there is consists primarily of study groups of anthropologists, ethnologists, archaeologists and other scientific groups with a particular interest in

The most dramatic examples of Nihalan culture to confront the visitor are the many huge and somewhat overwhelming effigies which can be found at strategic points all over the system. This one represents the Year God or The God of Seasons.

PETER ELSON







The Nihalan C14 which serves their local routes.

Nihalan culture. However, the tourist trade has become an increasingly important factor, not only to Nihalan Imphit, but also to other spacelines who are always scouting for new market areas.

Until the last two or three years there has been little to attract the casual visitor enough to make the fares to a system 180 light years from Sol attractive, but now that such concerns as Galactic Hotels and Funplex Inc. have taken a stake in Nihal, it seems likely that trade will continue to increase. The Nihalan culture and artistic heritage is certainly dramatic enough to interest even the casual observer and they appear to favour creation on a grand scale. Enormous monuments tower over the landscape at frequent intervals, some of which have origins lost in the mists of antiquity. More recent, abstract and somewhat architectural creations attain even more impressive dimensions and one of the few trade items beginning to reach very strong export levels are Three-Dee tapes of the better known examples.

The people themselves reflect a dour, earthy calmness with almost no interest in learning about the world beyond their own frontiers. Their economy is one of contrasts as striking as their monumental art forms and their highly sophisticated industrial technology seems out of

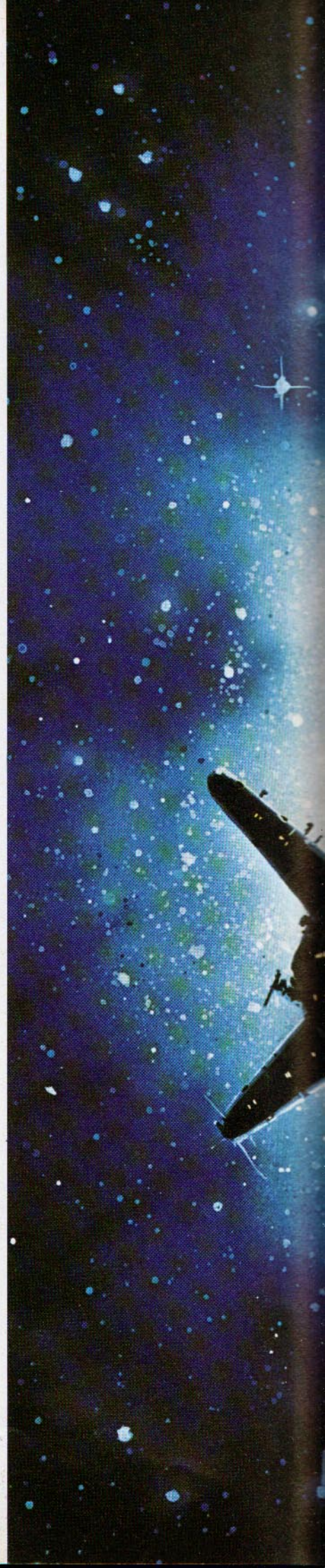
place against a backdrop of an essentially agrarian philosophy. The greater proportion of the species is almost illiterate and, while there is a governing élite of a scientific nature, there is no class structure to speak of; movement between the two groups is free and apparently illogical.

Such forms of religion as can be determined are based on faith in the natural laws of life. Birth, death, the elements, the seasons etc are all viewed as conscious entities whose goodwill is sought through offerings. There is no evidence that rival beliefs exist to challenge this order.

The present spaceport is becoming inadequate for the gradual increase in traffic; work has already started on a large new terminal and leisure complex which should be ready to accept traffic in about three Terran years time. Meanwhile visitors to Beta Leporis can land at any of the three existing ports, interplanetary transport being provided by both a Nihalan shuttle line, and Interworld Carriage, a small charter company recently started by two Proximan businessmen.

Although the Nihalans already possessed a spaceline serving the three occupied planets of the Beta Leporis system, only one spacecraft, the Nihal Pritadi, proved suitable for modification to a long range, interstellar liner.

PETER ELSON





Newbraska Co-operative Spacelines

Registered Headquarters: Eta Pegasi

Date of Registration: 2239 AD

Status: Scheduled

Operational Area: Inner Worlds to Newbraska only

Fleet: 8 TTA Starlances, 6 TTA Juggernauts

The system of Eta Pegasi, a giant G2 yellow star situated in the northern hemisphere about 230 light years away from the Sol System, consists of four planets, one of which is inhabited by a ponderous and insular species. For many years the system remained an isolated backwater with infrequent contact with the rest of the Federation. In 2218 AD the situation changed when the report of a TTA survey team on the uninhabited planets was published. Two were lifeless balls of rock orbiting the outer edge of the system, but the innermost one was found to be a temperate and fertile world with a rich plant-life ecology but few fauna.

Experiments made by the TTA demonstrated the remarkable richness of the soil and settlers in their thousands were soon applying to the Settlement Agency. Within a few years, Newbraska as the planet had been named, was a major factor in the economy of the inner worlds. Its vast prairies, rich loamy soil and a temperate climate with very slight seasonal variations rapidly transformed it into the Federation's most important supplier of foodstuffs. Its subsequent contribution to the economy of the Sol and Proxima systems has been particularly dramatic as food prices here were traditionally among the highest in the Federation due to the extremely high level of industrialization of its various planets. Seventy per cent of all foodstuffs were imported after being purchased on the Interstellar Agricultural Exchange at the current rates, which often fluctuated

considerably according to the supplier's seasonal variations in output.

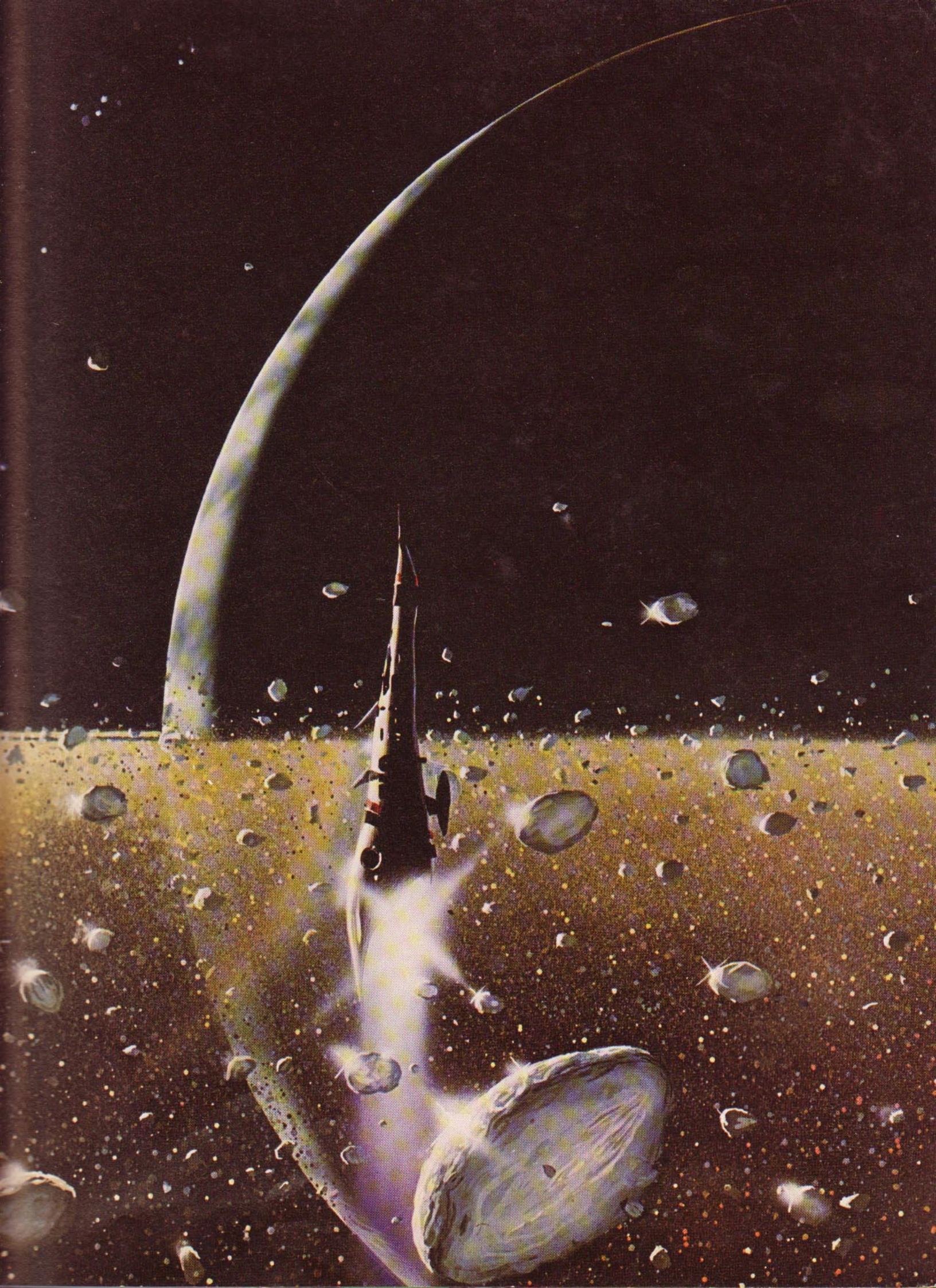
The huge quantities of surplus production exported by Newbraska, even with the shipping costs from the outer region of the Federation, had a dramatic effect on the overall level of prices and was particularly important in that the consistency of its annual output ironed out fluctuations in seasonal prices.

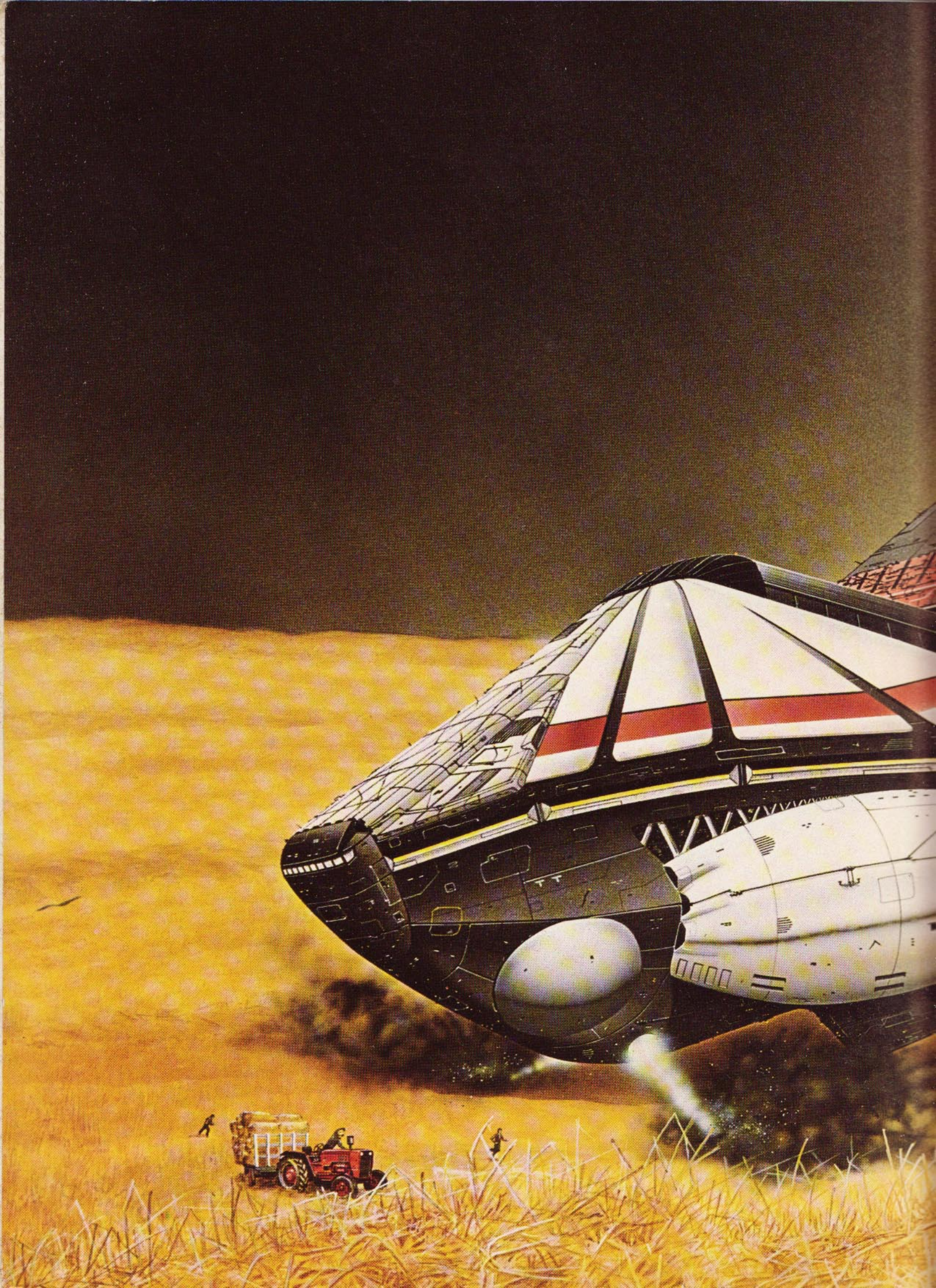
Newbraska Co-operative Spacelines started, like many other passenger services, as a freight haulage company which was financed by contributions from the farmers and producers for the export of their own products. Passenger facilities were later provided to cater for the large numbers of beings wishing to travel to and from the planet on business but, although there are some provisions made for tourists on Newbraska, holiday trade is minimal as there is little to see except millions of acres of farmland. As a result, the passenger facilities are functional and comfortable but significantly less luxurious than those usually provided by national spacelines.

A Newbraska Co-operative Spacelines TTA Starlance passes through the rings of Saturn on its way back to the Eta Pegasi system with its cargo of chemicals and luxury goods for the farming community.

Overleaf: A TTA Juggernaut of the NCOS takes off from a Newbraskan wheatfield with its cargo of grain bound for the industrialized inner worlds. Passenger cabins are provided on these craft but it is really a secondary function of the spaceline.

PETER ELSON







GMA Transport

Registered Headquarters: Beta Pyxidis

Date of Registration: 2194 AD

Status: Scheduled

Operational Area: Universal—restricted capacity

Fleet: 12 Avery Galactic Queens, 28 TTA Starlances, 32 TTA Juggernauts, sundry modified freighters

Like the Newbraska Co-operative Spacelines, GMA Transport is a subsidiary of a commercial guild, in this case the Galactic Mining Association, and is funded by the contributions of its member companies. Its origins also lie in a large freight service which was founded in order to provide the thousands of mining companies who belonged to the association with an inexpensive and reliable service for the delivery of both extracted ore and incoming equipment and supplies. Unlike the Newbraska operation, however, passenger carrying began early in its life.

Mining is not a static business and those who work in this field are constantly moving from site to site and planet to planet. GMA Transport had applied for and received a restricted licence to carry substantial numbers of workers and, in addition to modifying scores of ore freighters, they acquired a small quantity of liners for the purpose. After receiving thousands of applications from people not directly connected with the mining industry who wished to travel to destinations not covered by the regular spacelines and prepared to accept a slightly lower standard of flight conditions in order to do so, GMA Transport applied for a full licence.

After due consideration, this was granted provided that certain minimum specifications for passenger safety and comfort were met. The required alterations were made and GMA Transport went into the spaceline business. The service is naturally very basic and travel time

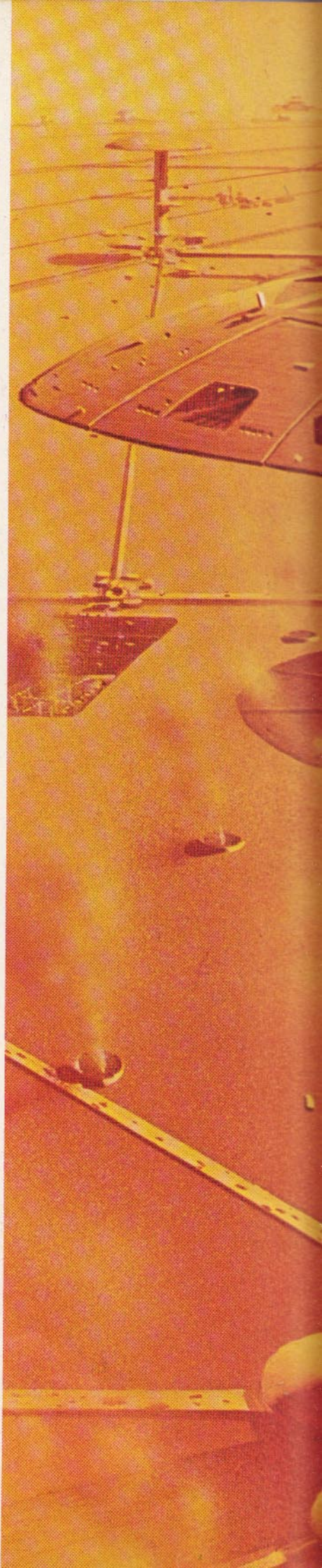
does vary according to the freight schedule of the craft in question but, provided that the customer can bear with these conditions, the charges are significantly lower than for a more conventional flight, and certainly cheaper than chartering a small vessel for out of the way destinations. For those with time to spare, the journey will almost certainly be an interesting experience, and will offer a view of life not normally encountered by most beings.

Aquatours

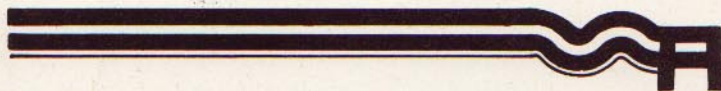
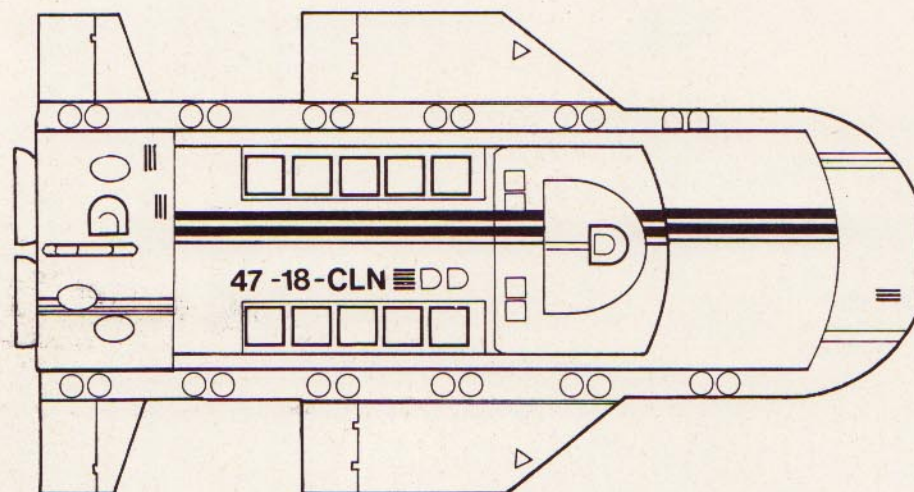
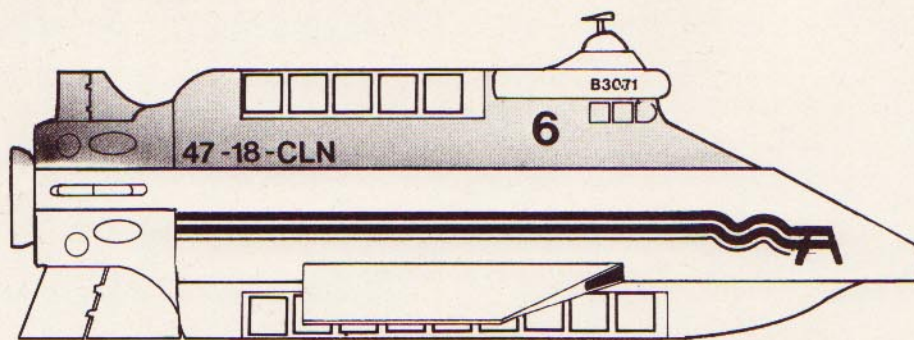
This is even more true of a recent addition to the activities of GMA Transport: the formation of a company called Aquatours. Following the successful development of the GMA Transport passenger service, the company began to consider ways of extending their activities by increasing the scope of their existing operations in other areas. With surface land at a premium on many of the inhabited worlds where extensive mining is or has been carried out considerable sea-floor excavations are becoming more commonplace. The Galactic Mining Association has accumulated considerable experience in servicing these underwater sites, having had to develop the necessary technology for submarine transport on a large scale.

A GMA Transport, the Consolidated Pegasus Mark III, prepares to take off from the main terminal in the Menkalian Orefields. A small number of cabins are provided for fare-paying passengers in addition to the four main cargo bays.

PETER ELSON







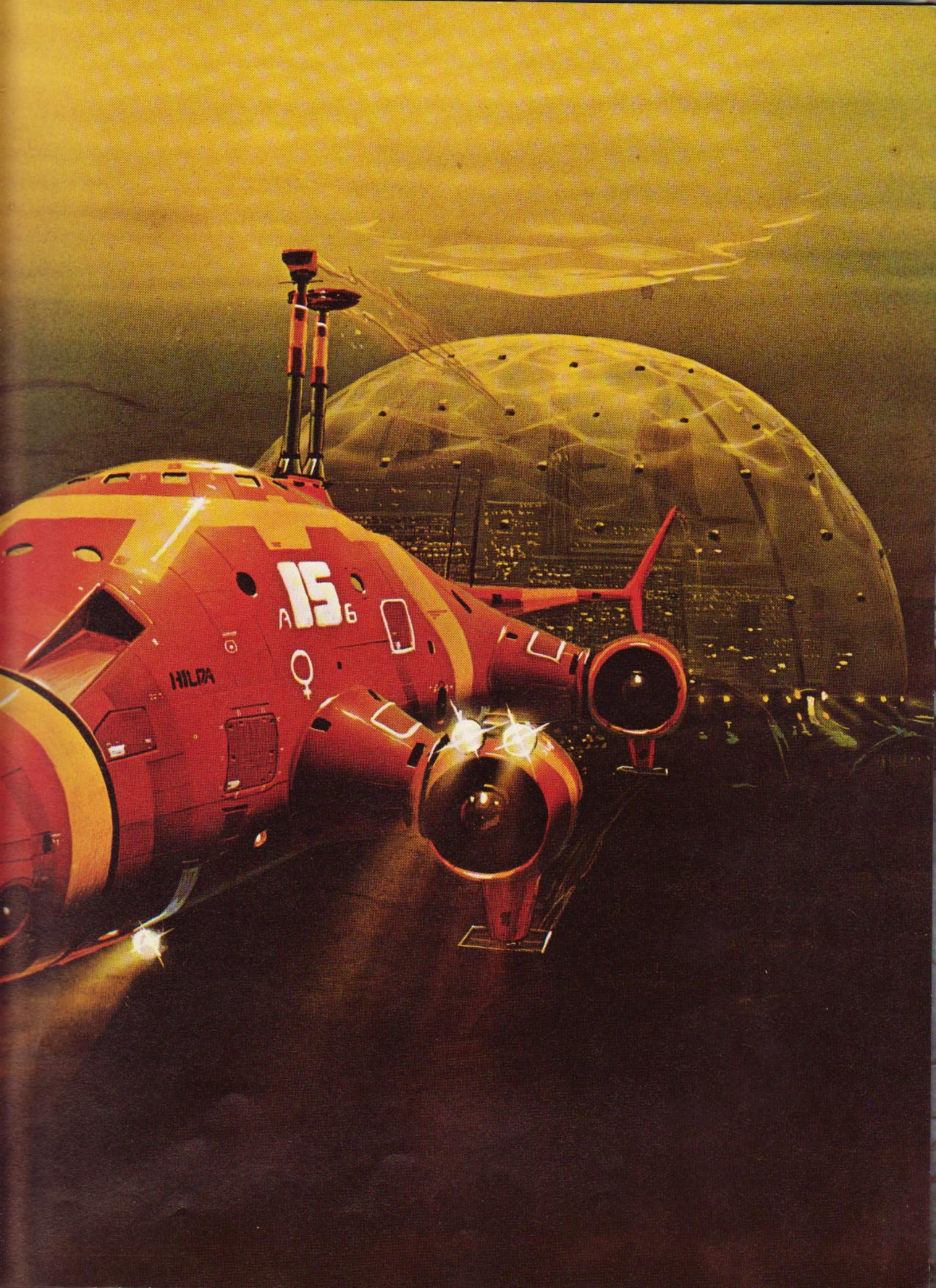
The Avery Subtrain has just entered service with Aquatours.

With the sophisticated specialized equipment already at their disposal in the form of submersible ore freighters and supply ships, Aquatours was able to offer a most unusual form of tourist transport. Customers were offered the opportunity of booking places aboard such vessels on almost any world where under-sea ore extraction took place. At first the ships were the working freighters with modified cabin and recreational facilities provided and the itinerary depended on the working schedule of any particular vessel. As the underwater tours grew in popularity, Aquatours realized that in terms of profit per cubic area they were much higher than for the customary oreload, and

later commissioned a small number of specially designed craft equipped solely for passenger transport, with the full range of facilities normally associated with the holiday trade. They are now the leaders in this field and offer a wide variety of submarine tours on many different worlds, including some that have no under-sea mining sites at all.

Until recently, the specially commissioned Consolidated SF604 Porpoise was used by the Mining Association exclusively for the transfer of ore from extraction sites to the on-shore processing plants. Aquatours now operate examples which have been modified for the tourist trade, and which offer a wide variety of submarine vacations.

PETER ELSON



Archaeo Tours

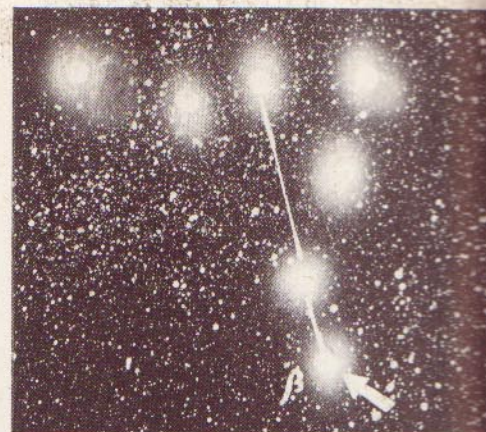
Registered Headquarters: Beta Pyxidis

Date of Registration: 2251 AD

Status: Charter

Operational Area: As tour routes submitted and approved

Fleet: 6 Avery Starschooners, 3 Avery Astrofleets



In addition to the scheduled spacelines and the larger charter companies, there are hundreds of small concerns offering charter services and it is impossible to cover them all in this handbook. Generally speaking, they offer similar services to the larger outfits but on a much more limited scale and usually operate on local routes only. Some, however, are worthy of note in that they offer a service of an unusual or very specialized nature.

Archaeo Tours are one of the latter and their highly specialized service is attracting considerable attention. They first started by providing inexpensive transport for the many independent scientific teams and societies unable to operate their own transport systems and found enough subscribers to expand the service further. Several universities opened regular accounts in order to further the studies of their most promising students and, together with bookings from scores of amateur societies, Archaeo Tours, or Budget Skyways as they were originally called, found themselves on a sound financial footing and were able to significantly improve the quality of their operation.

Most of the early bookings were for out of the way destinations such as historical sites, data gathering trips and so on. One of the most frequent clients was the College of Galactic Social Sciences who regularly booked flights for their Archaeology Department. The captains of the charter ships soon acquired a great deal of experience and knowledge of hundreds of interesting sites throughout the sectors they operated. When they

found that an increasing number of amateur archaeology societies were making enquiries, the company decided to alter their name and concentrate on this aspect of charter flight.

They advertised a number of selected tours with the emphasis on points of historical interest and found themselves inundated with enquiries as a result. The tours fall into three main categories: Social History and Ethnology, Scientific History and Architectural Archaeology. Each tour offered a selected route which would take the passengers to key sites relating to each category which were not normally accessible to the amateur enthusiast.

The Education Committee of the Terran Trade Authority was sufficiently interested in the idea that it provided Archaeo Tours with a grant from its General Education Fund in order for the latter to commission structured courses from the various universities specializing in the relevant fields. Based on these series of lectures, the clients benefit from an excellent study course devised by some of the best known authorities in the Federation combined with the opportunity to examine key sites at first hand.

The tours were an immediate success and Archaeo were able to purchase specially adapted ships fitted with excellent study facilities including 3-D lecture theatres, computer links to various university reference libraries and a host of modern educational aids. Passengers could, therefore, benefit from the finest educational technology available, in extremely comfortable

surroundings and with plenty of fascinating excursions to the very places they were studying.

The company has grown dramatically in size but in exchange for substantial grants much of its flight time is committed to the university network and the tours are now a regular part of many courses. Though immensely popular, the public services remain somewhat limited in size due to the difficulty of consolidating passenger loads for the larger ships now employed. Operating costs are inevitably fairly high and it is impossible for Archaeo Tours to increase the number of flights without reducing the individual passenger loads necessary to make each tour viable. Nevertheless, at least two new routes are added each year and they are at present considering investing in longer range ships in order to be able to operate over a wider area than at present.

The Avery Starschooners of Archaeo Tours are fitted with excellent educational facilities in addition to the usual levels of passenger comfort. Here one such ship, on a Scientific History Route through the Sol System, pauses to investigate one of the ancient lunar modules that has survived from the earliest days of spaceflight.



Antliae Robolines

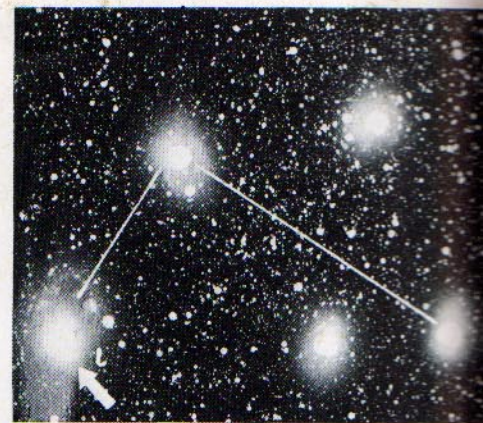
Registered Headquarters: Iota Antliae

Date of Registration: 2252 AD

Status: Charter

Operational Area: As per contract subject to TTA approval

Fleet: 10 Phlorflath Autoshoots, 6 Phlorflath Roboscouts



The latest intelligent species to be discovered and brought into the Federation are the Phlorflathins of Iota Antliae, a yellow G5 sun lying nearly 230 light years from the Sol System. A highly developed species with the capacity for spaceflight already existing between the five planets of its system, they are, however, an unusual race. Contact was at first awkward as they communicate telepathically and realized that even the experienced Alien Contact team found them utterly revolting. There were many different species represented on the team but the reaction was the same in every case, and by the time they appreciated that the Phlorflathins had access to their thoughts it was too late.

Once contact had been re-established, the Alien Contact team were able to communicate with them and discovered that the Phlorflathins were not at all offended by the reaction, as they realized that it was a reaction over which the team had no control whatsoever and had broken off contact out of consideration for them. Discussion continued despite the fact that however hard they tried, the contact team were unable to suppress their overwhelming sensations of utter nausea, and communication had to take place from a distance. It was not merely the physical appearance of the species that caused the reaction, but a combination of natural odour, movement and a sort of subliminal aura associated with their telepathic ability.

The Phlorflathin were, however, very anxious to develop an association with the Federation and

teams of experts from the other worlds came to advise them on various aspects of Federation activities including the refitting of their ships to give them interstellar capability. While they were preparing for participation in the web of interstellar communication and trade, the Phlorflathin tackled the problem of the universal reaction they inspired and came up with an interesting solution.

Basing their approach on the fact that the humanoid, bi-pedal form was the most common among intelligent species, they designed an immensely sophisticated system of robotics who would act as their representatives in any area involving contact with other species. The product of intensive joint development, these robots are by now well-known for their sophistication and reliability and only their prodigious cost prevents them from being Phlorflath's major export.

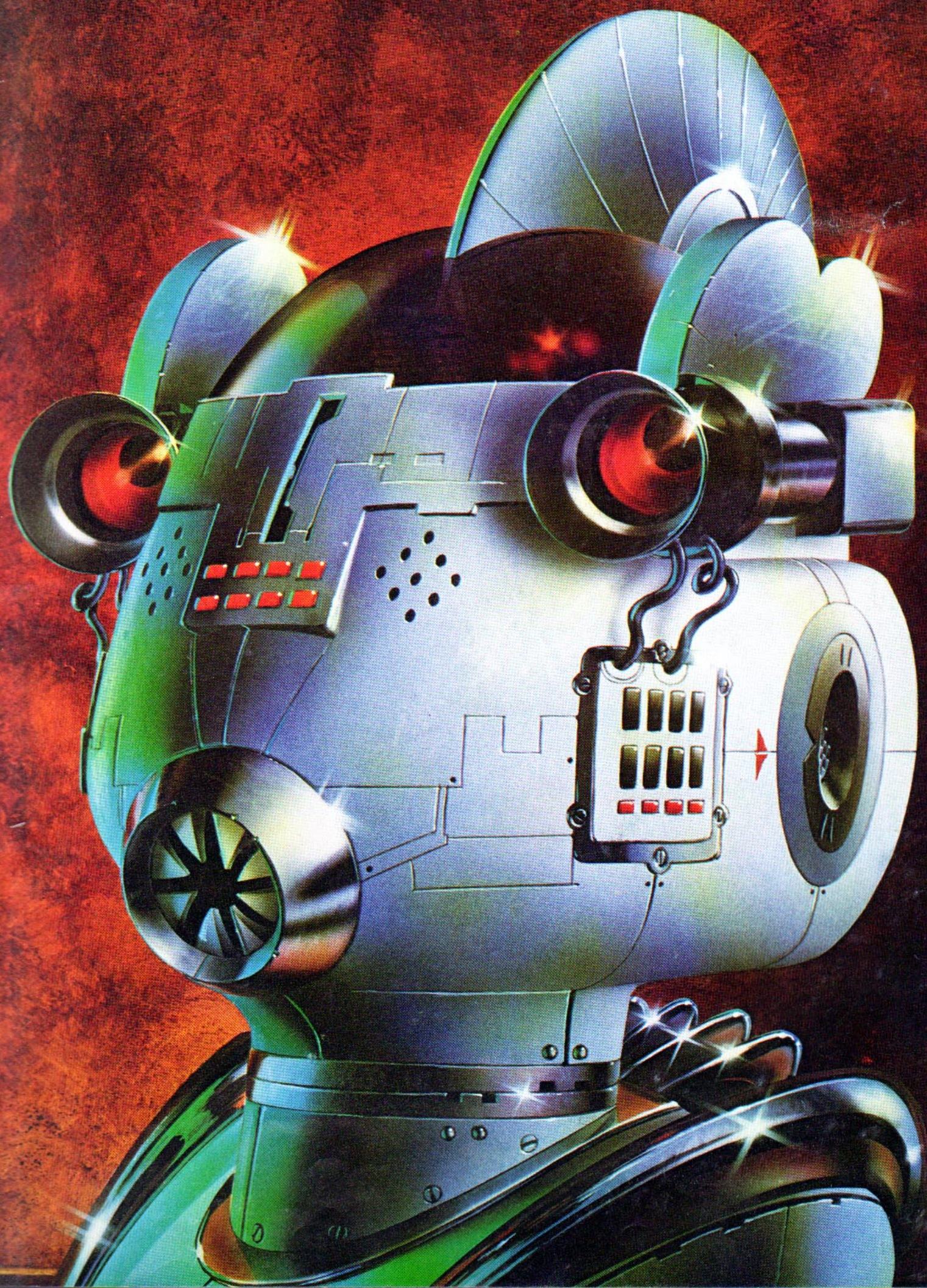
For anyone who has flown on Antliae Robolines, these robots are a memorable experience. Not only are they efficient and highly skilled but they are also capable of a fine degree of self-programming and can provide an enjoyable and personal service to passengers. The captain's walk-through is one of the highlights on any Antliae Roboline flight, as they take great delight in conversation and the opportunity to exploit their comprehensive linguistic programmes. Although they are not considered to be capable of real emotion, simulation is so effective that passengers of various species have become personally involved with members of the crew, and in

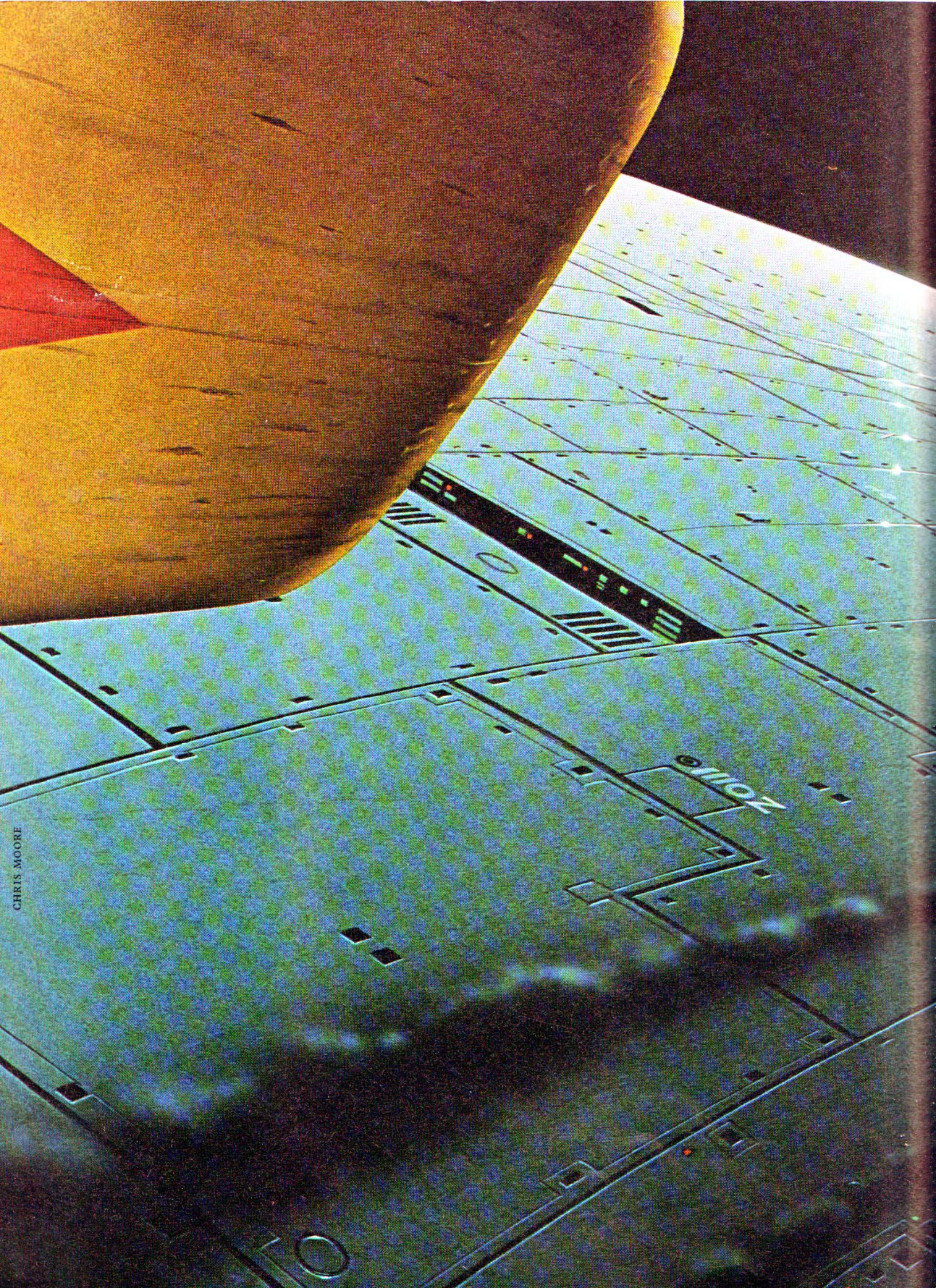
one or two notable cases have corresponded with the robots long after the flight was over.

The Phlorflathins have recently completed work on a massive new orbital spaceport which is considered one of the most advanced in the Federation and incorporates a number of unique features such as the highly original hyperwave signalling and beacon equipment, whose delicate tracery of powerful transmission filaments are being considered for adoption elsewhere in the Federation. Whatever effect the Phlorflathins themselves have on those who have direct contact with them, their contribution to the life of the Federation is already very considerable.

The most unusual feature of any Antliae Roboline flight is the artificial crew designed to overcome the problem of the innate repulsiveness of the Phlorflathins themselves. These intelligent and endearing machines are the highlight of any of their flights.

Overleaf: The new orbital terminal in the Iota Antliae system is a masterpiece of modern astro-engineering and the novel communications system with its delicate transmission filaments is one of the most advanced in the Federation.





CHRIS MOORE



The Space Patrol

Data Check: TTA Security Service

Division of: The Federal Law Enforcement Authority

Head Office: Sol System/Terra

Operational Area: Federal Territories excluding local sovereign territories

Departments: Spaceway Security—Interstellar Rescue—Traffic Control and Customs Service—Federal Strategic Security Force

Objectives: Maintenance of spaceway security—enforcement of Federal space law—operation of Federal safety and rescue services

The ships of the TTA Security Service, commonly known as the Space Patrol, are a familiar sight in the Federation's spaceways and for those unfortunate or foolish enough to find themselves in difficulties, a welcome one. Many thousands of vessels are travelling across the vast, empty reaches of space at any one time, dependent on the tens of thousands of traffic beacons and navigational control points without which few ships could hope to find their destinations. The task of administering this huge armada belongs to the troopers of the TTA Security Service who ceaselessly patrol the spacelanes to ensure the safe passage of every freight or passenger ship that launches into space.

Most of their duty is purely routine: long and tedious trips to check beacons, weeks of traffic control duty aboard any of the hundreds of Traffic Stations and endless investigation of possible risks to navigation. Every now and then the routine is interrupted by a call for assistance from a ship in trouble, and the trooper has to hurtle off into the darkness with little idea of the dangers he may be required to face.

Each trooper has experienced the most intensive training possible and has to serve in the field for five years as a cadet before becoming a full trooper. Because of the myriad problems that can arise, he must have a working knowledge of many fields including navigation, computer systems of every basic type, astro-

engineering and physics as well as a detailed knowledge of local and Federal law.

In addition to these skills, he must understand alien physiology in order to deal with, and perhaps even medically treat, the many species that he may encounter. Although he is supported by a technology unequalled in known space, there are often occasions when there is insufficient time to consult the central data banks before taking action.

In order to effect adequate coverage of the enormous area within the Federation's Perimeter, the Space Patrol work from free-fall bases in addition to the planetary centres and Traffic Control stations. A number of crews operate from each station and there is always at least one craft on patrol at all times, thus ensuring that, as far as possible, there will always be a ship within reach of any vessel falling prey to the rigours of space or the consequences of human or mechanical error.

An Avery T-14 Quasar patrol ship on its way back to base streaks past a trio of Pulse-Driven ore freighters and their distinctive thrust trails. Asteroid clusters are heavily patrolled because of the volume of mining traffic and the difficulties of navigation.



Interstellar Rescue

Data Check: Interstellar Rescue Service

Sub-Division of: The Federal Law Enforcement Authority

Division of: TTA Security Services

Operational Area: Federal Territories including local sovereign territories, subject to local clearance

Departments: Emergency Rescue, First Aid Corps

Objectives: Rescue/emergency repair of all civil ships—preservation of life and elimination of danger



The troopers of Interstellar Rescue are regarded as something of an élite team, not only by the general public, but by other members of the Security Service as well. Its members are all selected from the ranks of the Space Patrol, mainly from those who have been operating as front-line crews. Although appointments are made on a voluntary basis, few refuse the opportunity when presented.

The job makes very great demands on the personnel and requires a high degree of dedication and ability as, by its very nature, the work is erratic and frequently extremely dangerous. The rescue service has the highest peacetime casualty rate of any arm of government service, and yet they spend the least amount of time actually in space out of all the operational groups. Crews do not usually fly patrols but are based at key stations throughout the Federation where they await a call-out from the Security Service communications network.

When an emergency signal is intercepted it is immediately transmitted to the nearest Rescue base. By the time the team is kitted up and ready, a unique computer system has programmed their ship's flight computer with the target co-ordinates and all systems are run-up and waiting. Once aboard, the military specification STUD system is capable of making an immediate 'distort jump', while a complex set of Temporal Baffles prevent the station from being sucked into the jump.

This system allows an instantaneous departure which is not possible with normal ships which have to move away from the departure point for some distance before making a jump. The distortion in the fabric of the space/time continuum that is created by both the STUD and the old Hyperdrive systems creates an enormous temporal vacuum similar in effect to a miniature 'black hole' and would have disastrous effects unless shielded. Unfortunately it is an incredibly expensive process to manufacture Temporal Baffles and is not practicable in the commercial context.

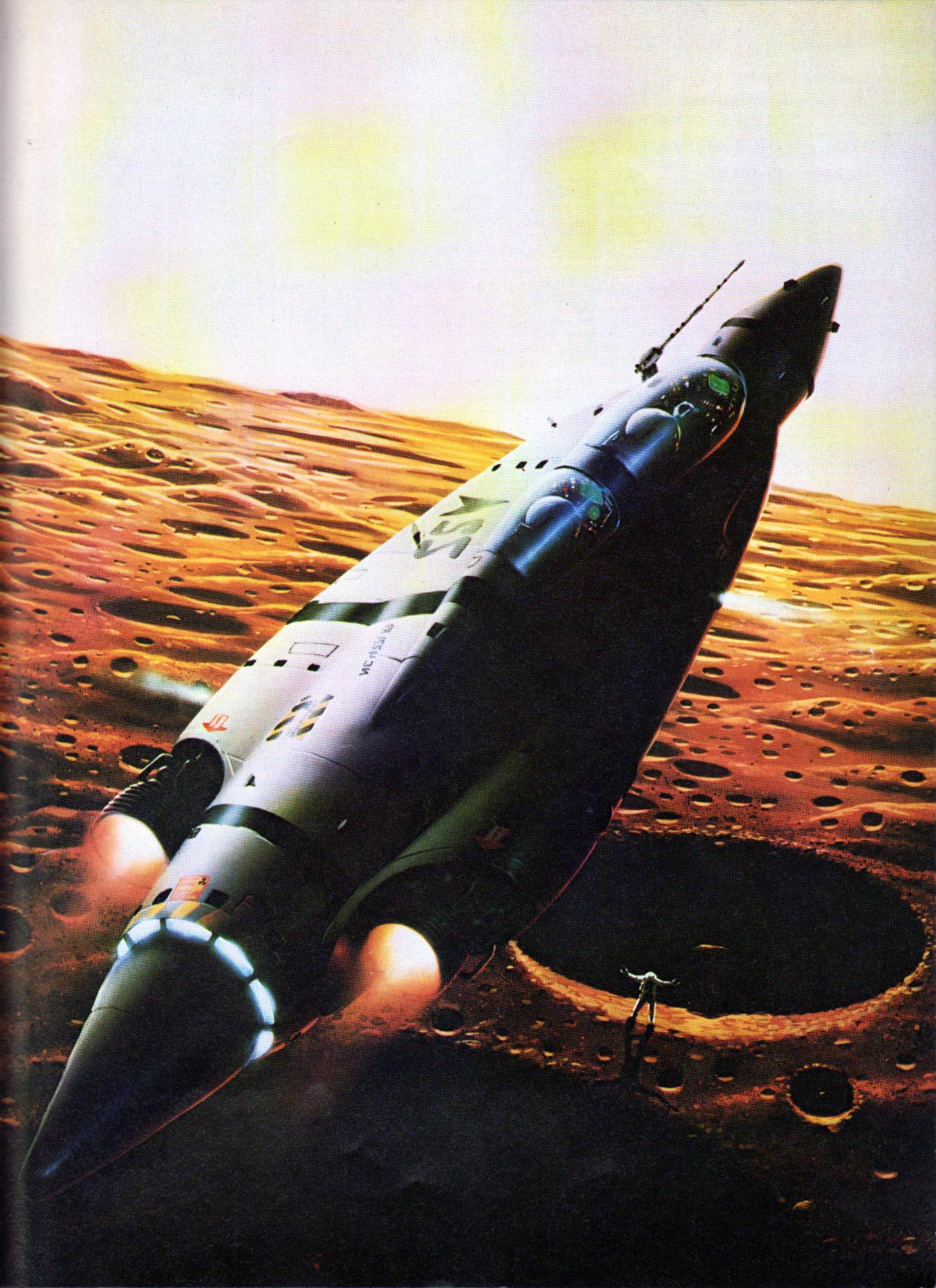
Once at the scene the crew have to be prepared for anything and will have to depend on their own experience, courage and ingenuity to deal with the problem. Their main task is to reduce the degree of any danger there may be, and to buy time until the back-up teams of the Space Patrol can reach them. At one time the greatest proportion of call-outs was due to system malfunctions in the endangered vessels, but with the many improvements in flight technology and the strict programme of maintenance enforced by the authorities, such incidents are increasingly rare. The two most frequent reasons now are either the sudden illness of a passenger that is beyond the scope of the compulsory treatment centres that all modern vessels are equipped with, or strangely enough, S.O.S. calls from crews of small craft who have left their ship and wandered beyond the

range of the position beacons.

The gradual improvement in commercial safety records has resulted in the redeployment of many of the highly trained crews, whose abilities are in great demand elsewhere, particularly in the field of law enforcement. A growing problem for most worlds is that of customs evasion and the still more serious crime of piracy. Volunteers from Interstellar Rescue are often seconded by their sister division, the Federal Strategic Security Force, a special task force set up to combat such specific criminal activities as cannot be effectively dealt with by the usual means. The same qualities that are needed to protect the public against the infrequent but usually grave dangers of interstellar travel are essential for dealing with crime in space, where every microsecond counts.

Modern technology has made interstellar travel one of the safest forms of travel in the Federation, but it will be some time before the troopers of Interstellar Rescue are no longer needed.

An Immediate Response team of Interstellar Rescue arrive in answer to the distress signal from a marooned mineral prospector who has wandered beyond the range of his ship's position beacon. With the increase in civilian traffic, this kind of situation is responsible for more call-outs than any other.



TTA Flight Services

Data Check: TTA Flight Services

Division of: Traffic Control and Customs

Head Office: Sol System/Terra

Operational Area: All traffic routes within Federal Perimeter

Departments: Flight Control Systems. Astrotechnics Manufacturing—Data Systems Research Council

Objectives: The development of traffic safety techniques—analysis and improvement of traffic control systems and passenger safety

As the Federation's boundaries have extended further and further out into the galaxy, with new worlds settled and new races introduced to the benefits of membership, the web of interstellar trade has grown in volume and complexity. The great spacelanes stretch from star to star across the dark reaches and carry a bewildering diversity of craft to their various destinations. Freighters, passenger liners and private ships ply back and forth between the occupied stellar systems and the task of controlling this ceaseless flow belongs to the Traffic Control and Customs Division of the Terran Trade Authority.

The main routes are monitored by the regional traffic stations whose wheel-like forms are familiar to anyone who has boarded a liner to cross the silent vacuum. Unmanned beacons cover the less frequently used routes and provide navigational reference points. Every vessel in flight is logged and monitored to ensure that no accidents occur, for although the distances between craft, even on the busiest routes, are enormous, so too are the speeds at which they operate. The most sophisticated computer systems in existence plot every craft and specify any course correction that might be necessary to avoid calamity. The traffic stations also act as data clearing-houses for ship's commanders and can provide answers to most queries, from navigational information to recommend treatment for any

passenger who is taken ill on board.

The sophisticated hard and software vital to such a complex operation is derived from a number of sources, but comes primarily from one of the Traffic Control division's own departments: TTA Flight Systems. This group is responsible for creating the equipment necessary to maintain the high standards essential to the smooth-running of interstellar trade. It has access to almost any data source in the Federation, whether governmental or commercial, and is equipped with its own production facilities. Their products range from computer control systems and the Traffic Stations themselves to emergency medical facilities and escape equipment.

Most of the safety provisions in current use owe something to the efforts of TTA Flight Services whose job it is to underwrite the safety of all who travel to the stars.

Among the thousands of passenger safety products devised by TTA Flight Services is this Freezsafe Emergency Module which can sustain a disaster casualty until its powerful transmission beacon finds a rescuer. Perhaps more widely recognized is the Traffic Control Station in the background which monitors and directs all movement in the busiest of spacelanes.

PRIETO

PRIETO
MURIANA





