

Exhodon

by

Ray Strahler

To V. I. B., without whose unflagging support this book would not exist. To JTC, whose unshakeable belief in my ability pushed me through many a grey winter's day.

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Cast of Characters

Pronunciation: emphasise the middle syllable, elongate the last, e.g. Chi-*van*-doe (doh-ey), -zue (zuh-ey), etc..

Also: ch- (as in chip), gh- (as in gap).

Chivandoe, a recently born exhodon
Setsishkay, Queen, Habitat Remodeller } Parents
Zanvooghea, Queen, Body Designer } of
Theydihkiet, Male, Alien Threat Analyst } Chivandoe
Vurvoozue, Queen of Gruesome Forest Game Habitat
Zanpofjar, Male, Vurvoozue's consort and chief hull mechanic
Hutvanpye, Male Artisan, friend of Setsishkay
Chidihshia, Warrior, current Warleader of War Control
Setherdoe, Warrior, War Control Operative
O-Null to O-7, Warriors, War Control Operatives
Tikpofshia, Queen, Tentacular Frontier explorer
Hutpofkay, Male, Dome Flower Concert Hall Director
Fothfawkiet, Queen, Vegetation and Foliage Designer
Theyfawzue, Male Artisan, chief mirror mechanic
Fothvanjar, Female Artisan, Remodelling Army overseer
Hutfairshia }
Tikfawdoe-they } Female Artisans
Tikfawdoe-set }

Some Female- and Male Artisans, working as members of Setsishkay's Habitat Remodelling Army.

Various Underworld denizens, nominally under the leadership of Vurvoozue.

Helm Creator Servitors.

Crowds of prospective parents at Helm Creator17.

Habitat Remodeller

Settsishkay splayed all six limbs of her Player body to squeeze through the low arch beneath a horizontal tree-trunk, stood up hastily on the other side, then scampered madly across the forest clearing.

For the pursuing monster, the tree-trunk didn't present much of an impediment: without even slowing down, the creature simply raised its gaping mouthful of glinting metallic teeth to clear the obstacle. The great round head dropped, and as the long garishly speckled body surged forward the ensuing upward bodily bend undulated tailward until the last of the multitudinous segments thumped down to the level.

Leaves, twigs and dust shot tailward and up into the sunbeams as the monster's many stumpy legs chewed their way across the forest floor.

Time for a change of tactics, thought Settsishkay, while frantically weaving left and right between the enormous tree boles in a desperate attempt to outrun the relentless pursuer.

Expediency dictated action as a webtree appeared around the next turn and Settsishkay scrambled straight up the open weave of the multiple thin twining trunks.

The monster halted, to curl around the base of the tree, seemingly confused by the sudden change of situation. All three of its thick eyestalks stretched out to wave around in a horizontal search pattern, attempting to relocate its intended victim.

Meanwhile, high up in the spreading webtree branches, Settsishkay used the respite to plan an escape route through the forest canopy.

As she started to grope her way along a thick branch, with the idea of transferring to the next tree, the monster spotted the movement and immediately reared up to begin its climb, wiggling up the tree strongly, ripping out chunks of webtree bark in the process.

Just as Settsishkay reached the end of a dangerously flexible group of twigs, the great bulk of the monster lunged out toward her and those twinkling teeth bit into her tail.

Settsishkay's scream of pain was followed by the groan of tearing fibres as the entire webtree, overstressed by the unilateral load of the monster, tipped over and slowly collapsed.

The impact of tree and monster generated a cloud of plant

debris, which fluttered off between the surrounding tree boles, winking in and out of the thin shafts of sunlight.

Above the destruction, the light green disk of a floater ceased its weaving movement between the huge trees, to hover in the space left by the fallen webtree. The 12 translucent wing-like paddles around the rim flashed in the sunshine as they whirred quietly to suck air from above the floater and push it underneath to hold the lightweight craft suspended in the air.

The male artisan Hutvanpye popped his head over the side of the floater and issued a 'MASTER STOP' command on the Machine Channel.

The flexible videye stalks protruding from the sides of the floater ceased their tracking and panning. The monster ceased chewing on the remains of Setsishkay's Player body and became immobile.

A circular sphincter opened in the front of the victim's torso and a pale green helm pushed itself out of the ruined body with some difficulty.

An exhodic helm contains a six-lobed brain encased in two opposing hemispherical shells with slightly flared rims. These rims may be pulled together tightly if danger threatens, so that the helm resembles a ball with a raised annulus. When a helm is naked, outside of a body, the two halves of the shell are normally held apart, allowing six tiny tentacles ending in even tinier six-fingered hands to unfold for the purposes of manipulation and locomotion.

Between alternate tentacle roots a flexible eyestalk ends in an eyeball covered in skin, which can wrinkle back to reveal an irised eye. The iris has the same colour as the helm, but is of a brighter hue. The three eyestalks may be moved independently or in concert, giving the helm panoramic vision.

By bending and twisting eyestalks, by forming shapes with the supple skin of the eyelids and similarly with the irises, a great range of meaning may be expressed, without speaking or sending a laser message. This system of gestures is used universally by both naked and embodied helms.

The naked helm has no olfactory sensors, and therefore no sense of smell.

Between those tentacle roots without eyes, three small greyish bumps serve as ears. A helm has no means of generating sounds by

the puffing of air, but the outer shell surface may be caused to vibrate, allowing spoken communication over a limited frequency range.

On each shell, just next to its rim, six equispaced small round glassy ports cover laser emitters and receivers capable of generating light beams in all colours from infrared to ultraviolet.

At low power these helmlasers are used for communication and body control, at high power for burning holes in most materials.

A closed helm obviously cannot see out of its three covered eyes, but surrounding objects may be scanned at low laser power to enable lower-resolution imaging.

Setsishkay heaved herself out of the mangled body, to reveal a sober helm colour scheme of pale green background veined with dark green. Two of her bright green eyes looked up at the floater, and one of her helmlasers emitted the following message on the infrared General Channel, IR203:

‘That wasn’t supposed to happen, Hutvanpye!’

‘What wasn’t supposed to happen?’ he replied, on the same channel.

‘Obviously,’ she continued, ‘we’ve put too much mass into the Ravenous Beast. I did not allow for dynamic forces and the allowable stress levels on the trees.’

Hutvanpye answered calmly:

‘The action looked impressive through the videeyes. Good enough, in fact, to include in the publicity material. And if you’re thinking what I think you’re thinking, Game Players are not going to be impressed by a small monster; which, in fact, is a contradiction in terms.’

‘Spare me the grammar lesson,’ Setsishkay replied curtly, ‘and throw down my workbody.’

Hutvanpye reached back into the floater, heaved a body similar to his own over the side between two whirring paddles, then watched as it accelerated slowly down to the ground in the low Habitat gravity.

Although Setsishkay was a queen, and Habitat Remodeller in complete control of a small army of female- and male artisans, she was currently using a workbody of a typical artisan type based around a slim erect tubular torso supported on three muscular tentacles serving as legs.

The round feet of such standard bodies consist of flexible pads with, in this case, a circle of three shiny retractable claws.

Equidistantly spaced around the top of the torso sprout three slim tentacles, each ending in a fan of six flexible jointless fingers.

Between and below these arms, three large raised oval bumps serve as sonic emitters.

Surmounting the torso on a thin neck, the head is shaped like a large ball squashed from above and below.

In Setsishkay's current workbody, three bright green-irised eyes on short stalks were spaced around the circumference of the head.

Between the eyes, three dull yellow circular patches serve as ears able to precisely locate any sound.

A perforated bulge on the top of the head serves as a sensitive nose, which can detect scents and smells, and also analyse the molecular composition of the flowing gases or vapours.

Setsishkay's entire workbody surface resembled a lustrous plastic material, currently coloured a rich auburn veined with whorls of darker brown, the bodily curves dully reflecting the incident light.

In the background, the webtree was bending some of its branches downward and shooting out long tendrils to neighbouring trees, in order to pull itself back to its original position.

While Setsishkay eased her helm into the access sphincter of her workbody, Hutvanpye used the interval to cogitate. As soon as laser communication was re-established he sent:

'I have a suggestion ...'

'Reprogram the monster to move carefully in tree branches?'

'No, my idea is much more subtle, even grand, stupendous, possibly mind-boggling ...'

'Wait a moment while I activate my anti-boggle system. Presumably you have integrated your splendid idea into the Gruesome Forest Game concept?'

'Well, in a way.'

'I thought not. I await the great enlightenment in humble anticipation.'

'Until this unfortunate setback, we had considered the trees and other static objects as part of the scenery ...'

Behind Setsishkay the webtree, now erect and securely anchored in its original position, commenced the task of oozing out resin and fibres to repair its broken and damaged trunks.

He continued:

‘Why don’t we integrate, at least, the trees into the Game system?’

Setsishkay squinted up at her assistant sceptically as she commented:

‘You mean, perhaps, that trees should be given eyes in order to spot approaching danger, and then the capability of pulling up their roots and running away?’

‘You jest, boss. No; although ... no possibilities should be ignored. I mean that trees should have a certain mutability and, yes, some limited intelligence.

Imagine the scenario: You were scampering about in the forest, chased by the Ravenous Beast, dodging about between the trees and over their roots ...’

‘And?’

‘Imagine that there were good-tempered trees and bad-tempered trees. A goody tree would let you pass, but then raise a root to slow down the Ravenous Beast, while a baddy tree would trip you or raise a network of roots to entangle you. Are you not stunned by the ramifications of this splendid idea?’

Setsishkay appeared to be less than impressed:

‘I admit to a slight numbness in the tip of the outside finger of my number three arm, but mostly I see an endless series of modifications to the Vegetative Molecular Control Program, and the resultant delay in the completion of the GFG Habitat remodelling and thence the Grand Opening of the Game.’

‘Think positively, boss;’ countered Hutvanpye eagerly, ‘the more complexity and excitement, and yes, unpredictability, we build into the Game, the greater will be your fame throughout the Glowrealm. Visitors will have to book a halfyear in advance to participate.’

Setsishkay gazed up at her favourite male artisan silently for a while, before sending:

‘I need to run some simulations in the Control Centre before making any decision. Your idea has some merit, and deserves consideration ... a redesign of the Ravenous Beast would, however, be easier.

I’m going for a long inspection walk now, and in the meantime you should go to stream13 and find the program error in the leaping fish: they’ve been jumping out of the water and sinking

their teeth into overhanging branches. Some of them are still hanging there. Those particular branches hardly move, even when a breeze blows, so some other stimulus must be operating. Perhaps an unforeseen combination of visual and vibratory inputs?’

‘Your merest whim is my command, boss.’

Hutvanpye drifted away in the floater as Setsishkay turned off into the forest.

As the Habitat Location System was temporarily inoperative due to refurbishment work, she orientated herself by the angle of the sunlight and headed toward the northern Endcap.

While she trotted easily along between the broad tree-boles, her mind drifted back to her fortuitous first meeting with Hutvanpye.

Hutvanpye grabbed me by a leg!

Some Homeyears ago, in a far-off Habitat, she had been standing on a slow-moving city slideway, absently observing the sights, when a group of revellers bumped her over the edge.

Hutvanpye had been standing right behind her formal body, silently admiring its gorgeous sheen. His rapid action had saved her from a long and potentially damaging fall.

We commenced a casual conversation, I gave him some of my time, and now here he is with his preposterous ideas.

She reflected further on the strange twists of fate which bring exhodon together to work on such a project as Gruesome Forest Game Habitat, her latest creation.

The main body of the work, dissolving and remaking the original Habitat vegetation, is well under way, and now we’re beginning work on the details: this is always the part, however, that decides the final quality of the Game experience. Will it be a great success, or will the visiting players consider the Game to be nothing out of the ordinary? Am I being harsh on myself? Do I need a new perspective? What about this active tree idea of Hutvanpye? Think. Balance the consequences, estimate the extra work. New concepts this far into a project? Bad engineering! I think I’ll climb right up into the Endcap and survey my creation; just sit and meditate without any disturbances ... now what is she doing walking around in circles in that aimless manner?

A small clearing became visible as Setsishkay, lost in her thoughts, ambled out of the denser part of the forest.

A workbody, similar to her own but coloured in green and brown patches, with three long eyestalks waving above its small

rounded head, was walking carefully on its three legs along the forest edge, around and around, inspecting the trees from all possible angles. Setsishkay recognised the body at once: it was that of her chief Vegetation and Foliage Designer, the queen Fothfawkiet.

I'll liven up her mood with a bit of fun!

Setsishkay crouched low and slipped sideways into the shrubbery, to creep slowly up until, still hidden by the thicket of leaves, she stood directly behind the designer.

She waited until Fothfawkiet's three eyestalks all faced away, then stepped out quickly and pinched her body hard at the nearest leg-body joint.

The sudden, and above all unexpected, pain caused the designer to leap a good bodylength into the air, tip over, and land awkwardly on her side.

She righted herself, and, while blinking to clean the dust from her eyes, sent an angry reproach on the Emotion Channel, as well as her HelmID via the General Channel.

Feeling a little bit guilty about her playful pinch, Setsishkay automatically sent her own HelmID, before replying informally by puffing modulated air out of her spiracles:

'Excuse me, Fothfawkiet, but you seemed to be lost in a murky mood. I thought I'd cheer you up.'

Fothfawkiet drew air into her spiracles, making sure that they hissed to indicate her displeasure, before saying crossly:

'My murky mood, as you put it, was in fact my way of showing intense concentration on my work; which you have now disturbed.'

'I'm sorry, my dear,' Setsishkay replied ruefully, 'I was only acting on impulse, and in your interest.'

'A simple greeting from a distance would have allowed me to collect my thoughts and file away my leaf data in an orderly fashion,' answered Fothfawkiet grumpily. 'Now the design for this forest wall swims away from me into multidimensional conceptual space, probably never to return.'

'You exaggerate, my dear Fothfawkiet. I apologise once more for my precipitate behaviour, and hope that the entire forest will not thereby acquire a lopsided aspect. I was lost in thought, and in fact these ponderings could concern your creative endeavours. However, the theme has not yet ripened in my brains, so I'll bid you farewell for the present.'

‘Don’t even think about changing anything at this late stage, Setsishkay,’ growled Fothfawkiet, ‘the Foliage Design Concept remains immutable!’

‘Agreed. Delete this conversation from your memory. Until we meet again.’

Setsishkay dipped her body in farewell, turned around to face the northern Endcap and trotted smartly out of the clearing.

Should I have spent more time mollifying Fothfawkiet? Her work is truly splendid. Those maroon leaves with yellow veins which swing out of the way if you try to touch them; the round silver leaves of the sunleaf trees which align themselves to the Shiner-light and illuminate the forest floor far below, yes ... her contribution is invaluable. My good fortune that she considered this project worthy of her time.

Setsishkay continued her ground inspection, moving steadily through the forest using a gait between bounding and trotting, best suited to the low Habitat gravity. The three arms waved about delicately to maintain bodily balance, and she held her head high so that her eyes had a good all-round view.

The forest gradually thinned and the trees became smaller, until the view opened out on a landscape of small meadows bounded by thorny hedges, in a seemingly random, but mathematically complex system of narrow ways.

In this region the Habitat floor was mostly covered in tangle, the standard vegetation for open areas.

Tangle is a low ground-cover composed of thin flat strands whose roots are anchored in the self-healing polymer hull surface.

If left untrodden for a long period, tangle reverts to its natural state, called soft tangle; its individual strands unpick themselves from the mass, straighten up toward the light, and change colour to a cheerful greenish yellow.

In areas which have been moderately trampled, firm tangle forms; the top layers of strands are compressed into a loose mat, forming a buff-coloured springy surface suitable for pleasant walking, bouncing or trotting.

If numerous feet have followed one another along the same route to make a pathway, all strands are pressed flat to the ground to form hard tangle, which takes on a darkish tawny coloration.

Any exhodon can look at an area of tangle, read its usage pattern almost subconsciously, and automatically follow the darker

pathways toward its destination.

Setshiskay stood still for a few moments, her spiracles hissing quietly as her body cooled itself by sucking in cool air and then expelling it, slightly warmed.

No need to waste time inspecting the Maze; I'll whistle down a Flyer.

As her eyestalks pivoted to look up toward the opposite side of the Habitat her practised eye ignored the misty landscape arching overhead, to focus on the intervening airspace, searching for flying creatures. She soon spotted the slow beating of great wings high above, and aimed a yellow bodylaser beam at the distant body of the Flyer, sending the Machine Channel command:

‘DESCEND TO THIS POSITION’

She waited patiently as the Flyer folded the skin of its black wings around its long aerodynamically shaped light grey body, narrowed its V-tail, then dived straight down at her.

Just at the end of the meadow the Flyer opened its wings, flapped vigorously, blasting great vortices of air toward Setshiskay, and alighted gracefully on the three-clawed feet of its short legs, leaving its almost translucent wings spread impressively, nearly at their full span.

The creature swung its long ovoid head slowly from side to side, allowing each lateral eye in turn to size up the potential passenger. Setshiskay took three steps forward, turned around and squatted down. The Flyer raised its wings high above its head and lifted its tail clear of the tangle, while unfolding its strong arms to reach out and grab her around the body.

The creature locked the large knobbly fingers of its hands securely together, leapt off the ground, and with two mighty flaps was airborne.

Setshiskay commanded:

‘HEADING: NORTH’

The Flyer obediently wheeled to the left above the Maze, and headed with steady powerful wingbeats toward the northern Endcap.

Setshiskay folded her body as much as possible into a long egg-shape, then issued the command:

‘ASCEND’

The Flyer automatically checked for traffic using the single round eye on top of its head, reduced airspeed as it pointed its nose

upward, then began to climb on heaving wings.

On nearing the central region of Habitat airspace, where the spin-induced gravity is practically zero, the Flyer automatically accelerated to maximal speed, stretched out its wings to thin efficient blades, and beat the air with short rapid strokes.

‘Khee!’ screamed Setsishkay sonically, as the air roared past her ears.

Straight ahead in the Endcap centre the northern illuminator shone at its full blinding brightness.

As it was impossible to look in that direction, Setsishkay gave the Flyer her destination coordinates and then relaxed, hanging her head to enjoy the panorama passing below.

After a short flight (too short ... I really must take some time off, wear a flying body, and just soar around and around) the Flyer and its burden arrived at the northern Endcap.

Around the perimeter of the illuminator a thin wall stands out axially from the Endcap, shading the surface of the annular bulk of the Power Station.

The living quarters of the on-duty power mechanics form a ring attached to the outer wall of the Power Station, and so the next structure radially outward, the highest terrace, stands out from the Endcap at some distance from the axis.

The Flyer coasted in toward this destination, made slow spiral turns to shed velocity, and finally thrashed its wings to brake to a standstill and hover with ease next to the terrace.

Setsishkay issued the command:

‘RELEASE: FINISH’ and the Flyer let go, leaving the body of its passenger to float slowly down to the surface.

The Flyer pushed itself tailward using its wings in a slow swimming motion, bent its flexible body in an elegant backflip, flapped twice, and glided lazily away southward, while carefully tucking away its arms and legs to minimise air drag.

As she landed, Setsishkay tapped the surface lightly with one foot; enough to propel her to the edge of the terrace, where she wrapped one leg around the top of the decorative railing and gazed out upon the entire inner surface of the Habitat.

That landscape around me, with its myriad details, was created inside my mind, and now it takes on material form ... with the help of my Remodelling Army of workers. Such beauty, such

magnificence, such joy ... After so much work, it doesn't look much like my original proposal; but these grand projects always tend to evolve their own dynamic. Start with an idea, gather together your workers, and immediately everybody has something new and different to contribute. And that's only the beginning! This new idea of Hutvanpye, for instance: by itself, splendid, but if I allow it to live, it will mess up the work schedule. Yes ... the secret of a successful project is control, but only enough to keep it on track. We are, after all, trying to create something new here, so creativity must be encouraged, but also channelled. How to explain this to Hutvanpye without hurting his feelings and dampening his enthusiasm?

Setsishkay leaned out to peer down at the stepped terraces below, out and down, out and down, following the hemispherical curve of the Endcap with her eyes.

The width of the terraces gradually increases on the way down, until the widest one at bottom, over 2000 metres below and 2500 metres outward, merges into the Habitat floor.

All Habitat Endcaps are constructed in this fashion, to add stiffness to the main structure and to maximise Habitat living space.

From any vantage point out on the Habitat floor, the precise arrangement of those distant terraces, stacked one above the next to follow the enormous curve of an Endcap, is not immediately obvious.

There is, in fact, only one terrace per Endcap: it begins as a wide ramp merged with the hull floor, then spirals ever upward, becoming narrower with height, until it ends next to the Power Station ringwall.

Anybody wishing to take a truly long walk could start on the Habitat floor, use one of the short ramps to access the lowest terrace, and follow the roughly 400 kilometres of spiral walkways, gradually becoming lighter on each turn, all of the way up to where Setsishkay floated now.

Exhodon in more of a hurry would whistle down a Flyer to whisk them from the Habitat floor directly to one of the Flyaway Platforms; so named for their primary purpose; to facilitate rapid movement between the Endcaps and the Habitat.

Since the earliest days of the Glowrealm, Endcaps had presented a major artistic challenge to Landscape Designers, whose objective was always to so arrange the Habitat floor area that each landscape at least created an impression of uniqueness: but what to

do with that enormous curving wall rising up into the sky?

Setsishkay had opted for the well-used, but still effective, expedient of covering the entire Endcap with vegetation.

The outlines of the lower terraces, they being wide enough, were disguised by plantations of large and small trees, with decorative gardens dotted between.

The higher and hence narrower terraces were carpeted in tangle or low plants in diverse colour themes, their walls hidden behind a profusion of climbing or hanging vine-like plants bearing colourful flowers and fruits.

Setsishkay set her eyes to telescopic vision and scanned her eyestalks across the terraces far below:

Fothfawkiet has created a beautiful effect down there ... those cascades of flowers hanging over the terrace wall ... climbing vines with the variegated yellow and red leaves ... large oval fruits dangling next to that Flyaway Platform. As visitors enter GFG Habitat through the airlocks far below me, the Hanging Gardens are the first thing they'll see. Now ... will they walk straight out on to the Flyaway Platform and enter their Player bodies, impatient to enter the Game, or dawdle around the spiral admiring the flamboyant flowers and juxtaposed forms of vegetation? Don't be silly ... all sorts of characters and dispositions will enter here, singly or in groups. However ... first impressions are important ... I'll ask Fothfawkiet to add more foliage to the Flyaway balustrades; from here they still seem too obtrusive.

Setsishkay raised her head to gaze out into the far distance across the Habitat floor, and thence to the southern Endcap illuminator nearly 15 kilometres away.

While virtually floating in the air from her perch near the Endcap centre, she had the impression of hanging from the roof of a colossal barrel, whose walls were painted in random patches of colour: dark green, light green, soft yellows graduating into umber, occasional areas of shimmering copper, where myriad fluttering leaves reflected the bright sunlight.

Numerous rivulets meandered their way lazily around the completed parts of the landscape, looping around the many low hills and ridges strewn across the Habitat floor, then joining to form moderately-sized streams, all of which sooner or later flowed to the

central hills, where they disappeared underground.

The distant southern hull floor currently contained large areas of bare greyish-white hull surface, where vegetation had not yet been programmed to establish itself.

Fewer bare patches were visible in the northern half, as this was nearer to completion.

Dry stream beds wandered around low grey hills in the bare areas: polymer deserts awaiting the arrival of artificial vegetative life.

Setsishkay fixed her gaze on the band of hills running as an annulus exactly at the halfway point between the Endcaps.

This raised band of terrain is formally named the Rotational Axis Stabiliser, but throughout the Glowrealm is commonly called the Midhills.

Curse the Midhills! I really wanted to use the entire hull floor surface as a contiguous environment for the Game, but there's no getting away from the fact that the Exhodon will always view the north end and south end as two separate parts. You can't simply wander from one half to the other without noticing that you're climbing over a pass. How many Habitat Remodellers before me have cursed the laws of Rotational Dynamics?

Her gaze, straying from the Midhills, automatically focussed on a brightly shining ribbon of river in the northern half, just at the distance where it mirrored the light from the southern illuminator.

The river meandered its way around the Habitat floor, but ended in a small long lake next to the Midhills.

At this distance the surface of the lake showed mostly a dull greyish green, reflecting the surrounding vegetation and the yellowish rock of the hills. Only the wind-blown sparkles on the rippling water indicated the presence of a liquid, rather than a solid, surface.

For structural reasons there is no sharply-defined edge between hull floor and Midhills. The lower parts of the hills reach out into the plain with long tapering roots: the plain flows toward the hills between the roots, locking Midhills and hull floor together strongly but with some flexibility.

Due to this topology, the terminal lakes of all streams are situated between two stony Midhills roots which lead the water to the end of the lake at a steep dam. From behind the dam, the water is pumped into the Midhills and thence back through a network of

subfloor conduits to hilltops out on the hull floor.

The numerous rivulets emerge from cracks between stones, providing springs of fresh water in an endless cycle.

In all Habitats the Rotational Axis Stabiliser is buried beneath the tastefully sculpted Midhills: some of which are softly rounded and blending in to the adjacent floor, in other Habitats deliberately high and jagged, to offer a diverse range of recreational possibilities.

Setsishkay ceased her examination of the Habitat floor, filed away her notes for later cogitation, and broadened her view to take in the entire scene below.

Numerous Flyers flapped easily around in the air waiting for passengers; the farther ones appearing as slowly moving dots, the nearer ones showing their various colour schemes:

Simple but dramatic black and white.

Shimmering multicoloured scales.

Bold stripes of complementary colours.

All-over mirror finish, so as to be almost invisible.

Endless combinations, so that no two Flyers were exactly alike.

A tickling sensation beneath her eyes apprised Setsishkay of a long-distance communication. She switched her attention to internal mode and opened the message:

Encoding: Recipient Private.

Read Priority: Immediate.

Message Type: Machine to single helm.

Acknowledge Required: Yes.

Answer to: Sender.

Sender: Helm Creator17

BEGIN

Congratulations.

Due to the unfortunate demise of several of our valued comrades in an asteroidal mining accident, and after impartial machine evaluation of the current Glowrealm population distribution and general density factors, Helm Creator17 will be allowed to add 9 new helms to its production schedule.

Your current status and talent set, together with other relevant factors, were evaluated and entered into the Parental Selector. It is my duty and pleasure to inform you of your selection as a coparent in the triparent group comprising :

Habitat Remodeller: 573-260-426-470-3-Q

Body Designer: 405-220-617-524-3-Q

Alien Threat Analyst: 367-140-474-453-3-M

You are requested to arrange for the simultaneous presence of all three coparents at Helm Creator17 at your earliest convenience, where assistance will be given in the design of your child:

May it be an enrichment of the Glowrealm.

Further details concerning possibilities and restrictions will be given at the Helm Creator.

END

Roaring infernos! What do I least need at this moment? ... What am I thinking?... I'm going to be a mother! ... What about my project?... How will my workers manage in my absence? ... How am I going to teach our child and work?... Slow down, slow down ... think. I'm not the only parent; the other two will share the teaching. Yes, but I need to be in charge of my (I mean, our) child's formation. This is all too much ... I need some space and time to think about this.

Setsishkay eased her body slowly over the railing, pushed gently downward, then let go. She drifted down and along the high wall to the Flyaway Platform below and grabbed the railing. With a quick arm movement born of long practice, she wasted no time in changing her trajectory to point toward the freight airlock set into the wall at the rear of this lower terrace.

For safety reasons carefully deduced long ago, all Habitat airlocks function in a completely autonomous manner. They cannot be operated or blocked remotely from any interior or exterior systems. Their control brains are not, in fact, even connected to the Habitat

Network or the Glowrealm Ubiquitous Network.

Hence any exhodon can always enter an empty airlock, cannot be trapped within, or left outside in space. The multiply redundant control brains forbid airlock access in the event of the most trivial system problem occurring.

The hundreds of airlocks in the gigantic complexity of a Habitat safeguard the life within.

Their vital importance means that, for example: the hull mechanics consider such mundane tasks as the meticulous cleaning

of airlock doorseals to be almost a spiritual experience, rather than unpleasant routine work.

Setsishkay, well aware of the annoying obtuseness of airlocks, grabbed a protrusion of the simulated rock wall, prepared herself to

wait, and sent the Machine Channel command:

‘OPEN’

The inner airlock door evaluated her command for a few milliseconds, decided that all safety interlocks were correctly configured, released the door locks, and activated the door’s central arm. The circular inner door popped toward her with a quiet hiss and rolled sideways.

She pushed off and floated through the opening, sending:

‘CLOSE INNER DOOR’

The inner door waited until her body was clear of the frame, rolled back into the closed position, cutting off the light from the Habitat interior, then popped shut. The interior door lock arms reached around the door frame and hooked themselves into their loops.

Next, she sent:

‘OPEN MIDDLE DOOR’

The middle door considered this command, checked interlocks and air pressures, and replied:

‘WAIT’

With a rapidly reducing rhythmic sucking sound, the vacuum pump evacuated the chamber air and released it back into the Habitat.

Setsishkay, well-used to the routine, opened the spiracles around her torso to release the air from her body cavities.

A longer wait was required as the vacuum turbopump did its best to remove every last molecule of nitrogen, dust, and water vapour from the inner chamber.

Venting even small amounts of gas to space results in unacceptable loss of material.

At the end of this process the inner airlock chamber contained nothing but her body, hard vacuum, and total silence.

She sent:

‘READY TO EXIT’ and the middle door replied:

‘OPENING’

The middle door popped open toward her body and rolled sideways.

She hopped through the opening into the outer chamber and sent:

‘CLOSE MIDDLE DOOR’, waited while the middle door went through its closing routine, then sent:

‘OPEN OUTER DOOR’

The outer door did its safety check, then popped inward and rolled open.

Setsishkay jumped through the opening to land outside in the black corded curved tunnel of the safety net.

‘CLOSE OUTER DOOR’

The outer door closed quickly in the absolute silence of space.

She disentangled her tentacles from the safety net and carefully pulled her body along the crawlnet of the outer terrace, to finally stick out her head through the crawlway railing to look ‘downward’,

meaning radially outward from GFG Habitat.

Straight out from this outer terrace floor a galaxy of multicoloured stars seemed to rotate slowly around her head, as if the Habitat were stationary and the universe rotating.

A veil of stars on the black background of remote space floated directly overhead, threaded with bright streamers of blue. Partially obscured behind one end of the veil a giant gas cloud glowed here and there with dim red patches and bright violet points.

In the opposite direction one third of the sky appeared dark and empty except for a wide, glowing bright straight line: the next galactic spiral arm inward, with the galactic centre showing as a diffusely radiant bulge off to her left.

Her gaze focussed on what currently lay directly outward; the nearer Habitats, all rotating steadily and in synchrony.

Only three rows of Habitats separate GFG from the Gap, all of them clearly visible to her telescopic vision.

The Gap was currently empty of heavenly bodies from this viewpoint, and so the angry turbulent face of Glower dominated the view, the red and orange clouds on its face roiling and twisting.

Glower was about two-thirds full, the brighter left side facing toward the sun, Shiner; so far away but nevertheless providing the Glowrealm with light and solar power.

The giant moon Home was hiding herself on the far side of Glower, whose face was cut across the centre by a thin black line.

This line, the Inner Ring, continues out into space on either

side of the gas giant, where the more than 120 faintly glittering millions of Habitats and facilities contribute to its silver-bright shine.

The Habitat rotation gradually removed this spectacle from her view, and as it slid off to her right, the true vastness of the Glowrealm filled the sky.

The Outer Ring contains a total of more than 600 million Habitats and facilities.

The nearer structures were clearly visible to her telescopic vision, all slowly rotating, all similar, and behind them ever more Habitats, shrinking in size with distance, but increasing exponentially in their number, forming another glittering line across the heavens.

But this line had no end; it went all around the sky, around the back of Glower, to emerge from the far end of the Inner Ring, becoming thicker and brighter, until individual Habitats again became distinguishable.

The nearer Habitats swept by inexorably in their endless rows and columns as if transported by an invisible current, and Setsishkay was again looking down across the Gap toward the Inner Ring and Glower; the gas giant, almost a star, which gives warmth and life to the Glowrealm.

Setsishkay lay sprawled on the crawlway with her tentacles dangling limply through the net into space; outside of her self, outside of time, watching the universe circle slowly around and around.

Note to the reader:
Zanvooghea has just arrived at Ring City11231 Habitat.
This is not Chapter 2.

Body Designer

As the slideway carried her over the edge of the Midhills to begin its descent of the northern slope, Zanvooghea pressed the iridescent red talons of her feet harder into the fibrous surface, squatted back on her folded tail, and turned her long graceful neck toward her right, trying to catch a glimpse of the city far below.

Her current body was Flyer-shaped, the neck ending in a small elongated oval head, the two spherical bright pink eyes facing forward on their short stalks to peer through the surrounding foliage.

In order to satisfy the laws of aerodynamics, in this bodyplan the helm must be housed in the chest, upon which her two spindly front tentacles were wrapped together.

The two white wings were delicately folded alongside the sleek skin of her deep pink body, hiding their translucent filigree structure.

The juxtaposition of large irregular yellowish boulders on a carpet of deep purple moss next to the slideway created the effect of a mountain meadow, but the view down into the valley was blocked by numerous trees.

Each tree began as a mat of dark green roots reaching out for support into the surrounding moss. These roots then amalgamated into a thick base, fused to twist upward and form an olive-green trunk; the grooves between the stripes of lighter bark forming dark spirals. The trunk narrowed steadily toward the top, and supported a dense skirt of thin drooping branches, reaching almost to the ground, draped with a tracery of fine long silvery-green leaves.

Zanvooghea abandoned the idea of panoramic vistas and focussed her gaze instead on the small clumps of alpine flowers huddling in the cracks between the wayside rocks.

Obviously designed by a minimalist, but in this high-altitude setting she was in her element. Every plant is small, even tiny; their flowers are small, but a close inspection reveals colourful intricacy. Large plants and flowers would be out of place here; they belong down below in city parks and the surrounding countryside.

After I've established myself in the city I can imagine visiting these peaceful meadows to soothe my soul; I know I shall throw myself into the hectic life of artistic creation waiting for me below, but I also know my occasional need for solitude. I'll concentrate on the enjoyment of this alpine wonderland now and charge my creative spirit with energy.

She could detect no ground creatures in this part of the woods, except for the usual columns of tiny Dusters marching steadily back and forth across the moss and up and down the tree-trunks; but they were so sparsely distributed here that their presence hardly registered.

Muted peepings in the tree-tops indicated that a few Pickers were waiting to do their part in the endless cycle of forest cleaning, but otherwise the near meadows were silent.

The gentle wallowing of the slideway as it undulated over the hillocks and dells of the Midhills lulled her mind into a reverie, until she developed the impression that she was standing still on a floating raft as the scenery was reeled by for her entertainment.

The alpine vegetation gradually disappeared from view as she descended toward the Habitat floor, to be replaced by squat-trunked trees with smooth silver-grey bark, their thick muscular boughs forking into branches reaching upward and outward to hold great fans of yellow-green palmate leaves.

The air was warmer here and perfectly still, and yet the branches moved silently and slowly back and forth, causing the beams of yellow sunlight to play across the undergrowth.

Brightly-coloured inflorescences, spread sparsely on the dark-leaved low shrubs, were alternately illuminated and plunged into shade, as if lit from within by a flickering lamp.

The slideway looped left around a rocky outcrop, then curved slowly to the right up a small rise, and suddenly Zanvooghea was given her vista, waking her from her doze like a dash of refreshing water.

The city lay spread out before her, framed by the giant trees on both sides of a large clearing.

Zanvooghea chirruped in amusement ...

It's an old trick, but effective in spite of that! An excellent piece of landscape design.

The slideway headed downslope diagonally toward the city, and seeing that it looped to the left just before the cliff edge and then plunged back into the woods, she made a sudden decision. She bent her legs, gripped the slideway surface strongly with her talons, pointed her neck straight out with her front tentacles tightly alongside, and at the apex of the curve leapt up and out into the air.

On clearing the edge her trajectory turned downward and her wings snapped open to their fullest extent, closely followed by the opening snick of her tail fan. She tucked her legs neatly beneath her tail and was transformed into an elegant flyer, soaring out from the cliff face on a slight updraft.

At her current altitude of over 300 metres the tall towers were still below, so that by turning her head from side to side she could gain a good impression of the city's extent and form. She banked gently to her right, then headed toward the nearest urban area, the minute bends of her wings and her restlessly twitching tail-fan maintaining her flight path.

The larger structures of the city formed groups, rising like steep-sided islands out of the surrounding landscape. Within these groups, however, much space was devoted to parks dotted with large trees, flower meadows, winding pathways, and ornamental ponds, in a pleasantly random yet coordinated disposition.

The majority of the buildings were constructed of elegantly curving trceries, so that the sunlight could penetrate into their interiors, generating an overall effect of complex illuminated geometry.

The tall towers seemed to grow out of the ground, the thick root-like pillars of their wide bases pushing inward and upward to support the mid-section. Although no two towers were identical, most followed a similar plan: the wide base narrowing to the mid-section, then the elongated waist swooping up into the air. The taller towers tended to narrow continuously to end in a thin spire, but the lower, squatter versions generally supported extravagant swellings, such as large spheres or ovoids. Within Zanvooghea's field of view was a tall tower surmounted by a slowly rotating horizontal cylinder whose ends swelled out to form thick discs, apparently scanning the

surrounding space.

The lower, more massive, buildings scattered seemingly at random between the towers were more varied in shape, but also grew organically out of their surroundings, giving an impression of giant smooth-surfaced succulent plants pushing their way upward out of the encircling vegetation.

Although every building had its own colour scheme, the overall arrangement of subdued pastels allowed each element of the cityscape to blend in with its neighbours. Towers were generally of a darker tint at their bases, becoming gradually paler with increasing height, whereas the lower, smooth structures used blues or greens as a background, but were splotted with evenly-spaced patches of lighter or darker complementary hues.

Between the architectural islands many sparsely scattered small buildings and pavilions were embedded in a landscape of woods, meadows, and streams leading to the many small lakes next to the Midhills.

Beyond the borderless city, toward the north, stretched a seemingly uninhabited region of forest, reaching halfway up the northern Endcap, and broken by the occasional irregular clearing.

Zanvooghea's eyes were drawn along by this repeating city motif of grouped tall structures, parks, and suburbs; out to the east, upward around the curve of the Habitat, until the spires on the opposite side pointed straight down at her, as if from a distant arched roof. Then, by twisting her neck, she followed the ring of urban islands back down the west side.

Her survey had been so engrossing, that in untwisting her neck she lost control of her tail and started a violent spin downward, only regaining a stable attitude and her composure after many strenuous wing-beats.

I hope nobody saw that inelegant flap; first impressions are important.

Her concern was prompted by the sight of crowds of flying exodon filling the sky with their diversely formed but impressively efficient flying bodies. The air traffic density increased rapidly as she approached the nearer towers, until she found herself surrounded by flapping and swooping flyers, and was obliged to concentrate totally on avoiding collisions with the madly whirling bodies, all of whom appeared to be determined to crash head-on into her.

The noise level rose to a cacophony of honking and whistling, until somebody had the idea of sending her a message on the General Channel:

‘This is the westbound level: descend to northbound immediately!’

But I want to fly eastward she thought, and in spite of a rising sense of disorientation made a panicky dive, banked to her left and found herself in clear air, but heading northward. The sparse traffic in this direction gave her time to observe and deduce:

So: the top level heads westward, I’m flying in the northbound level, now what’s below me? ...

Another mad flock of flying bodies raced by immediately below, heading eastward; and after some careful peering downward, she could see some southbound traffic at the next level down. Just above ground level numerous flyers were visible, but all seemed to be flapping about in a more relaxed fashion, and in random directions.

Good; I’ve successfully grasped the traffic rules before somebody smashed me to pieces; I suppose that’s a positive point.

Zanvooghea was determined not to appear a complete novice, so instead of simply banking to her right, she pointed her wingtips to the vertical and made a fast whistling turn, snapped back to horizontal, and was just about to join the eastbound stream, when a group of seven flyers in a perfect V-formation hissed by her nose at high velocity, turned westward as one, then looped upward into the westbound stream, flew inverted for a few moments, then performed a synchronised half-roll before exiting upward.

Far above the regulated traffic, they continued their manoeuvres, changing places to form diverse geometric shapes as they dived and swooped, their sleek bodies and narrow wings giving off metallic flashes of reflected light.

Exhibitionists! ... Perhaps I’ll be able to persuade an expert to give me some flying lessons in one of those high-performance bodies ... I chose this body to give an impression of elegance, but was probably a little too ground-based in my concept. What the hell! Beauty is universal; grace, elegance, smooth lines, colour coordination. I shall make a good impression on arrival. Now I must find the concert hall ...

After flying eastward for a while, she descended straight through the southbound level, and commenced circling over the city

in a search pattern, making the occasional quick turn to avoid colliding with one of its flying inhabitants. As everybody seemed to be obeying some generally agreed speed limit, she could fly about with ease and concentrate on finding her destination.

Although she had been in touch with the Habitat Location System since entering the southern Endcap of this Habitat, now was the time to ask for more specific directions. She broadcast a request for connection to the City Location System, accompanied by her HelmID: the city machines took note of her presence and granted access to their local portion of the DDS.

She emitted the command:

‘LOCATE: DOME FLOWER CONCERT HALL.’

The City Location System responded with the coordinates after an instant’s delay: she turned quickly and headed off in the precise direction.

A tall tower stood exactly across her track, and as its vast mid-section loomed up she made the impulsive decision to fly straight through it.

Those airy lattice structures seen from a distance turned out, as they approached, to consist of a network of substantial tubes; at this height on this tower coloured a glistening pale blue.

She headed for the centre of the triangular space between three tubes, passed through it, and found herself flying over a circular platform which filled the interior.

Numerous exhodon milled about in their flying bodies, chattering away both sonically and on the General Channel. Whatever their current activity, they were not in the least disturbed by her passage over their heads, and in fact nobody bothered to look up; she was obviously committing no social gaffe. After a few easy flaps she twitched her tail to point herself out of a gap on the far side, then emerged into the free air, twisting her neck around to scan for traffic.

Once assured of being in no danger of a mid-air collision, she looked down toward her destination.

And there it is ... good gobbets! It’s much bigger than I imagined.

Below her flight path stood the concert hall: with its ‘petals’ closed it would be a giant beige sphere supported on six massive tubular legs, but all six petals were fully open, their glossy yellow inner sides reflecting a warm light into the interior. Six wide curving

ribs arched up between the petals to support the canopy, high above the circular stage which filled the base.

The stage surface was currently flexed upward toward the centre, in the form of a spiral ramp. On this ramp stood numerous exodon in a heterogeneous collection of bodies, and they all seemed to be hooting and whistling and waving in her direction.

This is no time for modesty! I must make a grand entrance.

She spiralled down and around the outside of the hall, tightened her turn to fly inside the ribs, then made several hissing turns around the assembled company before braking to a hover and stepping gracefully to the surface of the outer stage.

At the instant her foot touched down the entire company started to sing.

The song began as a low humming from the larger-bodied bass singers, then developed a slowly rising and falling volume, giving her the strangely disconcerting impression that the hall was expanding and contracting in sympathy.

The group of oddly-shaped bodies on the central platform commenced, one by one, to emit diverse percussive sounds, gradually weaving together complex pulsing rhythms. This hypnotic thrumming continued until it seemed to expand outward and upward to permeate the air within the hall.

A quiet low-female voice began to interleave a few 'oohs' between the rhythmic patterns, gradually building into a melody. This ensemble of sound then eased down in pace and intensity, to remain for a few bars of soothing lullaby.

All of the choral sections then introduced their voices until the stage hummed and vibrated with a complex tapestry of glorious music.

Zanvooghea stood transfixed, amazed at such a performance, and elated that the company had chosen to greet her with such a priceless gift. As the singing continued she noticed that all performers were staring outward toward the hall ribs. Turning her head she saw identical white bulges, each one affixed to the rear of a niche at the centre of each rib, waving their brightly coloured tentacles about in a furious manner.

Suddenly the directing tentacles froze in mid-movement, and the entire choir ceased to sing. The silence that followed enveloped them like an invisible cloud.

For a long interval nobody moved so much as a membrane. Zanvooghea broke the tableau by jumping up and down, flapping her wings and shouting:

‘Well done! Magnificent! I’ve never heard anything so wonderful!’

Everybody looked up as a voice from the heavens cried:

‘Welcome, Zanvooghea! I’ll be with you in just a moment.’

Hutpofkay jumped off his perch at the apex of the canopy and began falling at a constant rate, descending rapidly at the end of an invisible wire, his rufous body twirling around, his six tentacles waving at the company below.

Having had some experience of Hutpofkay’s lack of acrobatic skill, everybody rushed away toward the periphery as he approached the ground, his body describing ever-larger arcs until he banged into the stage floor and rolled over twice in a tangle of tentacles.

The male unwrapped the shimmering wire from his body and let it go; it whistled up into the air, presumably reeled in by an automatic mechanism high above.

He rushed up to Zanvooghea and tried to wrap her in all of his tentacles at once, lifting her off the ground; then he held her up to the singers crowding in and shouted:

‘Behold! The final piece of our puzzle. I must give a speech!’

Various voices objected:

‘Oh no! Anything but that!’

‘Keep it short!’

‘Our watchword is informality!’

Totally ignoring this chorus of protests, Hutpofkay hopped over the edges of the spiral ramps to stand in the stage centre, and struck an impressive pose.

‘As is usual on such formal occasions, I will now state the obvious, and introduce you all to our new Body Designer, Zanvooghea. She is well-known, nay, famous, throughout the Glowrealm thanks to her participation in many highly successful artistic ventures, most of which were awarded the greatest prizes and honours, and are available for your enjoyment on the DDS ...’

He continued in this effusive vein for so long that Zanvooghea became embarrassed and stuck her head beneath her left wing.

The director approached the end of his speech:

‘... Individual desires for bodily frills and adaptations will not

be considered; we will all submit to the Unified Body Concept created by our highly talented Body Designer. I relinquish the floor now, to present to you: Zanvooghea ...’

Oh no! Zanvooghea pulled out her head in vexation:

‘Is that really necessary? I would rather just mingle with the crowd and make their acquaintance.’

With cries of ‘Speech!’ several singers pushed her up to centre stage.

She rapidly ordered her thoughts, and commenced to speak:

‘I thank you all for your warm welcome, and for the effort expended on that wonderful piece of music ...’

A chorus of approving noises issued from numerous and diverse orifices, then died down.

‘It’s true that I’ve had much experience in various stage productions, but Hutpofkay has greatly exaggerated my successes, and totally ignored my failures; and I can tell you that some of those are also available on the DDS ...’

Much chirruping and twittering of amusement.

‘You have obviously established an excellent working atmosphere within your, I mean our, group, and I consider myself privileged to be accepted as a member of such a greatly talented company.’

More whoops of approval.

‘Hutpofkay has portrayed me as an inflexible tyrant, but I wish you to think of me as a colleague and a friend. However, he has made an important point: each one of us will provide her, and his, expertise to build her part of something memorable. Stimulating ideas are welcome during the concept phase, but only a Unified Body Concept for our performance will produce a stunning effect on our audience.

Thank you.’

Zanvooghea flapped down to the outer stage, to be surrounded by the chattering babble of the entire company.

The following Homeday passed in a blur of introductions, working group meetings which flowed along, one into the next; design consultations with Hutpofkay, musical concept and structure lectures from several of the composers, then more meetings.

Eventually, Hutpofkay declared that a creative pause was overdue, the company broke up, and he guided Zanvooghea to her

private workroom high up in the side of the neighbouring yellow tower.

Eleven Homedays later, the helm of Zanvooghea perched on the pedestal of a small computing disk at the outside edge of her room; her flying body squatted nearby, seemingly staring out at the view. Her helm, coloured pale pink veined with maroon, was not, however, connected to the machine, as she had decided to take a break from her immersion in the design process: the six ploptubes were lying loosely on the top disk surface.

Her room faced south, and hence she was enjoying the panorama presented by the Midhills some few hundred metres distant, as she allowed her thoughts to wander.

What a mad company! And yet every one of them has her specific talents. Hutpofkay likes to appear as a hopeless bumbler, but that shambling facade helps to promote a happy working atmosphere. He is in fact quite a shrewd, well, not exactly manipulator, but somehow the whole enterprise seems to surge along in his wake.

I seem to have landed at just the right place and the right time to make me happy. Speaking of happiness; some of the singers are really pleasant characters. Perhaps a friendship will develop into a love affair. Later. Now I must concentrate on finishing this great heap of designs before Dimness; ah well, always work before pleasure.

She issued the ‘CONNECT’ command, and the ploptubes writhed up and plopped into position over her lower laser ports. She blanked off her upper ports’ visual mode, leaving them scanning for approaching objects, and dived back into her design work.

After almost another Homeday of total concentration, that unmistakable tickling sensation beneath her eyes informed her of the receipt of a long-distance communication.

Damn it! I can't deal with extraneous clutter at this moment; I'll read it later.

I'd better check the body production schedule. Dimness is approaching and the sooner I send my designs down, the less disruption my requirements will cause.

Hutpofkay had quartered her in the yellow tower so that she was near both to the concert hall, and to the Bodymakers down below on the tower ground floor.

Now was the time to establish a working relationship with them. She sent a call over the building network, and found herself looking out of a televidor facing into a large room crowded with tall transparent cylindrical tanks, standing in rows and columns fading off into the dim distance. The tanks contained murky khaki-coloured nutrient fluid and a diverse array of mostly winged bodies in various stages of completion.

A male artisan in a simple three-legged workbody came trotting down the aisle from her left viewpoint, evidently heading directly toward the televidor unit in response to her call.

The body itself was a plain cylinder, the legs spaced equidistantly around the lower perimeter, three long tentacles spaced similarly around the top; but the head, on top of a long flexible neck, was a circular bowl holding a naked helm.

The helm glistened as khaki glop dripped off its smooth surface and dribbled down the body's neck and thence on to the torso, which showed a dim yellowish sheen in the shadowless greenish light from the overhead glowplates.

The artisan came bouncing up to the televidor, his tiny tentacles waving in agitation out of his open helm.

'I was halfway into a new body when you called; I hope this interruption is justifiable.'

The bodymaking process is completely automatic; the Molecular Extruders, or Makers, taking their orders directly from downloaded design information: but Bodymakers must test every new body before it can be allowed out into the world. Their working bodies had been developed to facilitate this, their main activity.

'Do you have a body?' he continued, 'I dislike talking to whirling greyness.'

'Oh, excuse my oversight, I'm currently bodiless.'

She sent a virtual body image, a simplified copy of her flying body, in order to gesticulate at the Bodymaker.

I have the impression that falling into a state of permanent grumpiness is an occupational hazard for Bodymakers. Quite understandable, really; I'd be scratching my way up the walls if I had to spend so much time in a room which looks like a surreal subaquatic hell.

Having had much experience of dealing with difficult artisans, she did not allow his demeanour to influence her own attitude, simply replying with a polite Ring-City greeting:

‘Joyous flying, Master Bodymaker: as you may see from my HelmID, you and I will be working intensively together before the next Dimness.’

The Bodymaker had already scanned and noted the caller ID, but suppressed his nervousness at being interrupted by the famous designer, and replied brusquely:

‘Joyous flying to you, Body Designer. However, with the festivities approaching, my co-workers and I will have little chance of seeing sunlight before Edge-on; we are all up to our necks in work. It seems that every exhodon in Ring City wants to show off a new body in the concert season.’

‘That’s bad news, Master Bodymaker. I don’t wish to start off by twisting your tentacles, but in fact your production schedule was exactly the reason for my call. The Dome Flower Concert Hall Company will need numerous bodies for their next Edge-on production.’

According to the current estimate, my body design concept will require the production of at least 64 temporary performance bodies, of various sizes and complexities, and all will be highly coloured.’

Zanvooghea mentioned this last detail in the knowledge that bodies with diversely coloured parts required a longer extrusion period.

‘Impossible!’ exploded the Bodymaker. ‘My Makers are running flat out now, and I have zero spare capacity.’

‘I’m sure Hutpofkay has made allowance for your workload in his overall planning, and that an expert such as yourself will have no difficulty in fitting a few bodies into your production schedule.’

‘A few!’ he spit back, ‘I would need to halt all other production to meet your excessive requirements.’

‘Well, why not?’ she replied calmly, ‘you are well aware of the current situation; concert products have priority.’

‘And how shall I deal with the hordes of angry customers who would descend on me if I were cracked enough to cancel their orders?’

‘Calm down, Master, there is a solution to every problem. I expected you to be fairly busy, but if you would give me a little of your valuable time for a quick tour of the facility, I’m sure we can rearrange your schedule together.’

‘Pointless! We would both waste our time.’ The Bodymaker

remained immovable.

Zanvooghea caused her televidor image to morph into a fighting body, studded with glinting spikes and coloured an angry blotched dark green.

She waved her pincers in a menacing manner and said:

‘Perhaps you would prefer that I came down and solved the problem physically?’

The Bodymaker flinched away from the televidor, as if the image itself would jump out and bite him. The thought of an angry queen in a fighting body hacking and slashing away in his precious workshop calmed his anger like a splash of cold water. His reply was simple:

‘Watch.’

He unhooked the televidor from the wall, held it pointing away from himself, and began marching up and down between the rows of Molecular Extruders. It soon became plain that he had more or less told the truth, until he reached the far right wall. There were two rows of empty tanks, gleaming and clean, obviously not in use.

‘What’s this, Master? You have been deceitful.’

‘Untrue. Yes, these tanks are empty, but in spite of this insignificant fact, we are running at capacity.’

Zanvooghea waved her pincers in anger. ‘Explain this conundrum, if it pleases you.’

‘The simple fact is, Body Designer, that the city is low on recyclable material. The exhodon in this Habitat have developed an unfortunate taste for rapidly changing bodily fashions. This, coupled with the already somewhat wasteful style of city life, means that we are always short of material. This is an inescapable fact. There is no solution to your problem.’

‘Thank you for the inspection, Master. I’ll be back.’ After a last wave of her tentacles she cut the connection.

Sulphurous fumaroles! This is a serious setback. So we need materials. So bodies must be recycled. So these exhodon must have multiple bodies lying about gathering dust. This is my point of attack.

She composed a note to Hutpofkay explaining the situation, and suggested a logical solution: broadcast the following simple message to all exhodon in the city:

“Give us your surplus bodies, or forget the Edge-on concert.”

That should produce some hopping and shouting. Now, I’ll disconnect and read that urgent communication.

She issued the 'DISCONNECT' command. The ploptubes fell away and flopped down to the computing disk surface.

She called her body.

After it had walked over to the edge of the computing disk, she inserted her helm, and after establishing full bodily control she stepped across the smooth floor toward the outside of her workroom, then switched her attention to the incessant tickling, which would not cease until she had read the communication:

Now who could have sent me an urgent long-distance message? Such things generally mean trouble, or at the least a lot of bother.

She opened the message:

Encoding: Recipient Private.

Read Priority: Immediate.

Message Type: Machine to single helm.

Acknowledge Required: Yes.

Answer to: Sender.

Sender: Helm Creator17

BEGIN

Congratulations.

Due to the unfortunate demise ...

... a co-parent in the tri-parent group comprising :

Habitat Remodeller: 573-260-426-470-3-Q

Body Designer: 405-220-617-524-3-Q

Alien Threat Analyst: 367-140-474-453-3-M

You are requested ...

... at your earliest convenience,

... design of your child ...

... at the Helm Creator.

END

What? There must have been a mistake! As if I had time for an extended period of parenthood, especially now.

She estimated the remaining work before the concert series at the next Dimness, counted the remaining Homedays in which it must be done, began to fall into a panic, pulled herself together, then decided to reply immediately to the Helm Creator:

Recipient: Helm Creator17
Encoding: Recipient Private.
Read Priority: Immediate.
Message Type: Helm to Machine.
Acknowledge Required: No.
Sender: Zanvooghea
BEGIN

ACK Your parental notice.
I ACCEPT Parenthood, DELAY.
RELAY embedded message:
Recipients: Setsishkay, Theydihkiet.
BEGIN

I'm currently in the most hectic phase of a design project, which must be finished before the next Edge-on. I look forward to meeting you both and discussing our joint parenthood after the end of Dimness. Meanwhile, please leave me in peace; I have much work awaiting me.

END

END

Now I really need to fly to the Midhills and do some serious thinking. This news is going to redirect my life ... my career ... emotional relationships ... everything!

She stepped to the edge of the floor, looked all around for traffic, and leapt off.

Some time later she was perched on the thick silvery-grey branch of a large gently-swaying tree, looking back over the city and to the forest beyond. She tucked her head beneath her left wing and prepared her thoughts and memories for a long archiving session.

Note to the reader:

The action in this book “Exhodon” takes place 100’s of lightyears away from Planet Earth. The following chapter (and a few others) is therefore necessary to set the scene; so that you, the reader, will have some grasp of the Glowrealm and its immense complexity.

Just grit your teeth and plough through it.

The Shiner System

There is a broad dark gulf between two bright spiral arms of the galaxy; and near the inner edge of the outer arm, a large volume of space is occupied by a giant nebula filled with dense clouds of dust and nascent stars.

Galactically antispinward of that cloud, perched almost at the edge of the dark gulf, lies an unremarkable type K0 star and its typical companions, namely; planets and their moons, asteroids, comets and dust.

Untypically of most star systems, this one is inhabited by two intelligent races of beings.

The biological race has confined itself by choice to its place of origin; the Glower moon called Home.

The more adventurous biological ancestors of the other, non-biological, race left Home in ancient times to colonise and reshape their solar system, as well as other worlds many lightyears away.

The name used by the non-biologicals for their race could be translated as “The Exhodon”, meaning; “Beings of the Outer Way”.

The various tribes of biologicals down on Home all have their own names, but the Exhodon call them collectively, and somewhat disparagingly; “The Hexapods” in reference to their fixed physiology.

The Exhodon have named their solar system bodies, from the sun outward, as follows:

Shiner.

The sun. A small, bright star, but due to the distance between

their sun and their home world, the sun provides enough light but insufficient heat by itself to support life.

Red Fire.

A giant planet orbiting so close to the sun that its surface is completely molten: what atmosphere it originally possessed was long ago blasted away by the intense solar radiation.

White Fire.

A large rocky planet with an immensely dense atmosphere, upon whose surface some metals would melt.

The Shining Ring.

A narrow asteroid belt. Many of these asteroids are composed almost entirely of iron and nickel, with traces of precious metals. Others, stony asteroids, contain various compounds of aluminium or silicon and carbonaceous nodules. Metal ions are emitted from Red Fire at high energy and clouds of them land continually in the Shining Ring, coating the asteroids in a shiny metallic surface.

Glower.

A gas giant, almost massive enough to become a brown dwarf star. This rapidly rotating body, too large to be a planet, too small to become a real star, has sufficient mass that nuclear fusion occurs sporadically and explosively deep within the dense atmosphere near the core surface.

Glower presents a turbulent, sometimes violent, face to its orbiting moon and rings. Gigantic storm systems twirl across its surface, occasionally lit from below by orange-coloured glows of great extent.

Vast storms of lightning flicker continually, floating along within the skeins of cloud.

Glower emits most of its energy in the infrared region of the spectrum, providing warmth to its rings. The ring material is swept along by the strong rotating magnetic field, which holds the vast quantity of material in stable orbits.

Blue Fire.

A giant planet, more than twice as far from Shiner as Glower, whose deep gaseous envelope reflects the blue end of Shiner's spectrum.

Bands of wispy white clouds circulate high in the stratosphere. Thus, from a distance, the planet appears as a light blue disc.

Orbiting Blue Fire is a sparse ring: most of the primeval solar

material was long ago gobbled up by Glower.

The Ice Halo.

A cloud of low-density asteroids and planetesimals extending out to the limits of the Shiner system.

The Glower System.

Before the Exhodon ventured out into space and began to modify their local spatial environment, Glower was orbited by one large moon, named Home, six much smaller moons, and uncountable trillions of specks, stones, boulders, and agglomerations of all of these.

Over the millennia, the Exhodon used all of this material (except for their homeworld Home) to build millions of gigantic orbiting structures.

Hence Glower's current ring system comprises:

The Inner Ring.

A relatively narrow ring inside Home's orbit.

The Gap.

This empty ring is continually swept clean of anything larger than a grain of sand by the moon named Home.

The Outer Ring.

A wide ring outside of Home's orbit.

The Glower rings are composed entirely of millions of Exhodon Habitats, machines and facilities.

The Inner Ring contains approximately 120 million Habitats, the Outer Ring around 600 million.

There is no loose material remaining from the primeval moons and rings. This entire system of objects whirling around Glower, each following its own orbit, constitutes:

The Glowrealm.

The Glower system (the Glowrealm) orbits Shiner in one Homeyear.

The rotational plane of Glower and the Glowrealm rings is inclined at an angle of 32 degrees to the orbital plane of Glower around Shiner. Thus, for two short periods per Homeyear, Glower's rings stand edge-on to the sun.

For one halfyear the rings are illuminated by Shiner on their northern side (this is called Northyear), for the other halfyear on their

southern side (this is called Southyear).

The self-explanatorily named festival of Edge-on is held during those few particular Homedays. The two longer periods around Edge-on, as Shiner's light fades to darkness inside most of the Habitats, then reappears like a slow dawn, are called collectively Dimness.

The core region of Glower consists of degenerate matter, restricting its overall diameter to a mere 170,000 kilometres; but its gravitational field is so great that the moon Home, orbiting at a distance of 594,000 kilometres, completes one orbit in 7.4 hours.

Home is tidally locked to Glower, and so rotates about its own axis in the same period; therefore Shiner rises in the eastern sky of Home every 7.4 hours. This is one Homeday.

The Home hemisphere facing Glower is warm enough to support the ecosystem which gave rise to the Hexapods and their non-biological descendants the Exhodon; the Farside is a permanently frozen wasteland.

The innermost Habitats of the Inner Ring, being nearer to Glower, orbit in 4 hours, the outermost Habitats of the Outer Ring orbit in a little more than 15 hours.

This differential rotation means that a Habitat's only permanent neighbours are those occupying the same orbit; each orbital ring forming an immensely long thin chain of structures all around Glower.

The first wave of Exhodon spacefarers descended upon the moons, asteroids and larger boulders around Glower with their mining and construction machines and used that seemingly limitless substance with abandon.

They built spaceliners, large rotating wheels, hollow drums and spheres, gigantic electromagnetic cannon, and many other strange, beautiful, or ugly machines and devices only limited by the Exhodon imagination.

After some thousands of Homeyears of this activity, it became apparent that all of the original ring material would inevitably, and within the foreseeable future, be completely used up.

In a civilisation-wide shift known as the Great Rationalisation, the entire Glowrealm, including its space habitats, machines, the organisation of its social systems, and even the common language, was completely redesigned and reconstructed.

In that wild time of unbridled enthusiasm for change, a

completely new language, musical notation system, and the change from a hexal to an octal number system were all accomplished in a relatively short time period.

In the redesigned, fully-integrated system, the names of the eight base numbers (0-7) also represent the notes of the musical scale,

which, in turn, forms the base of the spoken language.

The interlocking rules governing pitch, pronunciation, syntax and grammar produce a language in which every utterance becomes a perfectly-composed song.

Exhodon speak to each other in melodic poems, whose musical complexity varies with content.

Habitats.

Before the Great Rationalisation, there had existed a plethora of space habitat designs of all possible shapes and sizes.

Many of these were far from optimal; some were even dangerously overstressed and burst with great loss of life and collateral damage; others were simply too small, too wasteful of materials, or wrongly shaped.

Through an evolutionary process, those Habitat designs which were not optimal were gradually eliminated.

The ultimate Habitat shell design was fixed by Exhodic Law and stored in the Distributed Data System, and thenceforth all of the millions of Habitat shells became almost identical.

This standard Habitat shell is cylindrical with hemispherical ends, rotating about the cylindrical axis; this axis pointing North-South (relative to the Glower ring-plane).

All Habitats rotate in the same sense, 'west' to 'east', about their axes and around Glower.

The spin-induced gravity on the inner cylindrical surface, about 3 metres per second squared, was carefully chosen to satisfy a multitude of requirements:

Diverse types of Exhodon bodies can walk, run and hop with ease.

Flying in the nitrogen atmosphere (normally called the air) by flapping wings requires little power.

Internal buildings or structures may be constructed in a light and airy fashion.

Interesting landscapes with various and pleasant features such

as low hills and flowing water may be created using relatively small amounts of material.

The standard Habitat diameter of 5 kilometres is achieved with low stress on the hull, which is composed of a multilayered matrix of mineral fibres, sealants, magnetic materials, etc..

The required hull skin thickness is mainly determined by the stress produced by the internal air pressure, which is held at an optimal value, and by the requirements of structural rigidity.

The air itself, in a prime example of exhodic thriftiness, is used as the main stabilising element: air pressure holds the hull in shape; forming, in effect, a gigantic cylindrical balloon.

The length of the cylindrical section, in a compromise between the necessities of living space, rotational stability, and structural integrity, is fixed at twice the diameter (i.e. 10 kilometres).

The internal surface area of the cylinder (the part at nominal gravity) is therefore more than 157 square kilometres, that of the two Endcaps about 75 square kilometres total (excluding the windows and illuminators).

The aggregate usable internal surface area of the millions of Habitats, therefore, forms a multitude of living environments many 100's of times greater in extent than the original useful land area of Home.

Mounted in the centre of each Endcap is a large circular liquid-cooled window.

Inside each window the illuminator, a large bowl-shaped structure resembling a complex flower made of thousands of individually controlled mirrors, directs sunlight over almost the entire inner Habitat surface.

An axial lattice tower forms a large-diameter tube around the outside of each Endcap window.

Mounted on this tower and suspended via a magnetic bearing running around its top are kilometres-long lattice beams holding an octagonal faceted mirror off to one side, nearly 12 kilometres across, non-rotating to permanently face Shiner.

As a counterweight, the far ends of the beams hold the spacecraft docking station and the Glowrealm Ubiquitous Network communications pods.

A large secondary mirror perched over the top of the Endcap

tower directs most of the captured sunlight through the window into the internal illuminator.

A tertiary mirror behind the secondary mirror directs the infrared component of the sunlight down on to an annular heat exchanger for thermal power generation.

Clearance between Habitats is fixed by Exhodic Law and maintained automatically by magnetic fields embedded in the hull structure. These magnetic fields also lock the rings of Habitats into the matrix of Glower's own naturally strong rotating field.

Habitat interiors may be designed and constructed in accordance with the tastes of their inhabitants (usually under the guidance of a specialist), subject to the Building Codes.

Even though more material is continually being gathered from the Shining Ring and the Ice Halo; the imported quantities are insignificant compared with the uncountable teratons which constitute the Habitats.

The total amount of material in the Glowrealm is in practice fixed, as the entire habitable space, from the Exhodon perspective, is full.

As all of the exhodic artifacts, and even their own bodies, are made from the primeval Glower ring material, population and machine expansion is not feasible within the Glowrealm.

Therefore, the Glowrealm can only continue its existence by systematic and total recycling of all material.

Old, worn-out, or unfashionable Habitats are routinely broken down to their molecular components and rebuilt in the latest style.

Exhodon technology and lifestyle reflect their obsession with the avoidance of the wasteful use of materials. Indeed, a bad idea will often be scorned with the cutting remark: 'A complete waste of material!'

Within the Habitats there are usually no ground vehicles.

On the low-gravity hull floor no two points are farther than around 15 kilometres apart; an easy walk, run or hop (dependent on the current body) for an exhodon. An exhodon in a hurry can always whistle down a Flyer.

The Glowrealm population is fixed at the limit of those billions who can comfortably live in the Habitats with the guarantee of enough solitude, companionship, or crowds to please all tastes.

A new life, the birth of a new exhodon, is conditional upon the death of another:

“One must die, that another may live”

Although an exhodon, being a non-biological entity, is virtually immortal, and in spite of the highly-developed state of exhodic technology and low likelihood of accidental death; the vagaries of fate multiplied by probability and a population of billions results in the death of some 1000's of exhodon per Homeyear.

How many new exhodon may be born at the Helm Creators depends on the current aggregate exhodic view of their total population.

There are periods of zero births, and hence falling population, when the mood has swung toward the conservative, the promotion of solitude and contemplation, and the consequent remodelling of Habitats to contain natural spacious landscapes.

These quiet times are often followed by short periods of hectic gregariousness; the population expands as numerous new exhodon are created, and some Habitats are turned into crowded cities full of chattering noise and music.

The various phases tend to propagate around the Inner- and Outer Rings in waves, so that any exhodon may wander from Habitat to Habitat until it finds that place, in all of the millions of possible life-styles, in which it feels truly at home and content with itself.

Some exhodon, distributed around the Glowrealm, occasionally work as Population Analysts: their work is boring and tedious and yet essential to the long-term stability of society. Their recommendations, after being evaluated and modified by Population Control, are fed into the Helm Creators, whose machines impartially evaluate all factors and then modify their helm production schedules accordingly.

There is a total of 24 Helm Creators in orbit around Home, protected by co-orbiting battle stations carrying a diverse array of highly destructive weapons capable of repelling every type of attack.

In normal times most Helm Creators remain in a state of dormant readiness, with only one being active and attended by resident Helm Creator Servitors.